CLINICAL GUIDE TO

Skin & Wound Care

Seventh Edition

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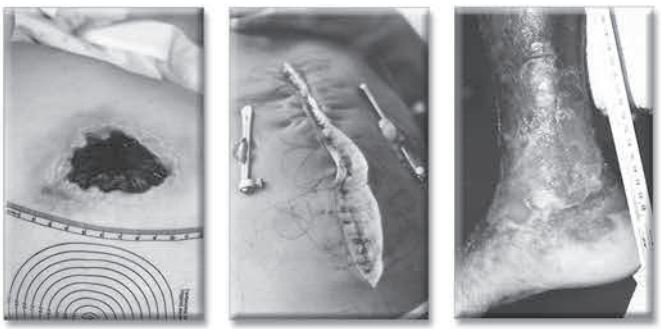

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Preface

Welcome to the new edition of *Clinical Guide to Skin & Wound Care!* Your special contribution to wound care is always at the forefront of my efforts each time I revise this worldwide clinical reference and showcase the latest skin and wound care products. I continually strive to bring you the most up-to-date clinical product information and reference materials, and this seventh edition continues with that same tradition—to provide you with relevant information necessary to support the "delicate balance of art and science" in skin and wound care.

We all know that chronic wounds take an emotional toll on patients and their caregivers. As clinicians and physicians, we often feel frustrated and confused when faced with certain wound care options…whether attempting to choose an appropriate dressing to use on a specific wound type, deciding to change to another dressing to provide the best direction for the wound healing process, determining how to illustrate the wound's progress through appropriate documentation, or providing the best way to benchmark outcomes based on care practices. As dedicated professionals, we find ourselves looking for the best guidance, most reliable tools, and ready answers.

The answers, as it turns out, are commonly found through the delicate balance of art and science: *Art* as it refers to the skill and application techniques utilized when applying the preferred management modality, and *Science* as it refers to the health care team member's knowledge and understanding of the disease process and the preferred modality used in managing the patient. *Art and science*, the fundamental tools of skin and wound healing, directly impact the patient's clinical and financial outcomes.

In the first six chapters of this book, you'll find a review of the fundamental knowledge necessary to understand skin and wound care issues—a knowledge base focused on the importance of caring for the largest organ of the body, the skin, as well as the wound. Essential information on assessing and documenting wounds, differentiating and caring for chronic wounds, and implementing effective wound prevention strategies is included to support your knowledge and understanding of the principles of skin and wound care.

This edition also features several new resources for your wound reference, including new sections on lymphedema, clinical checklists, and the electronic medical record (EMR), as well as a new product category (Negative Pressure Wound Therapy), new and updated skin and wound care products, and evidence-based treatment pathways added to the appendix.

Lymphedema. A true chronic condition, lymphedema may produce significant physical and psychological morbidity. Increased limb size can interfere with mobility and affect body image, and pain and discomfort are common. Increased susceptibility to acute cellulitis and erysipelas can result in frequent hospitalizations and long-term dependence on antibiotics. In Chapter 4, "Best practices for managing the effects of lymphedema," you'll find a full discussion of the risk factors, assessment techniques, and treatments required when caring for a patient with this chronic condition.

Clinical checklists. To complement the art and science of skin and wound care, I have integrated clinical checklists throughout this edition. Literature states that the development of well-designed checklists can improve outcomes. At the end of the day, it's all about the clinical, financial, and patient satisfaction outcomes. As you read each chapter and refer to the appendices, you'll find numerous indispensable checklists—key steps for compliance—to help guide your practice.

EMR checklists, compliance, and medical necessity. Today's health care facilities are rapidly moving to adopt EMRs. As detailed in the HITECH Act, the government's research concluded that using an electronic health record (EHR) would serve to improve patient care, increase patient safety, and simplify compliance in the U.S. health care system, as well as reduce costs in the long term, minimize errors, and increase productivity and administrative efficiency. This electronic evolution has revolutionized the way data is collected, collated, and delivered. Linking clinical, functional, and financial information for the patient's visit provides for quick data retrieval for work performed.

Chapter 6, "Harnessing technology: EMR checklists and operational compliance," focuses on the importance of using checklists for compliance and clinical success. This chapter includes need-to-know information on "meaningful use" and "meaningful data," clinical and patient documentation checklists for complete wound care documentation standards, compliance and auditing, and medical necessity.

Evidence-based treatment pathways. Published wound-healing models capture relationships between healing and treatment across a large population and history of wound treatment. To achieve the best possible wound care outcomes, while controlling costs, a comprehensive wound management system—one based on published evidence, validated protocols, and competency programs for staff members—should be established. In the appendices, you'll find new diabetic, venous, and pressure ulcer pathways for your review.

As in previous editions, Parts II and III of *Clinical Guide to Skin & Wound Care* focus on the importance of a complete skin and wound care formulary. The section on "Skin care products" covers skin cleansers, moisture barriers, antifungal/antimicrobial treatments, therapeutic moisturizers, liquid skin protectants, and other skin care products of interest. Separate sections on "Dressings and devices" and "Drugs" provide cutting-edge choices for formulary development. Numerous new products have been introduced within the wound care categories highlighted in these sections. Also debuting in this edition is "Negative Pressure Wound Therapy" as a separate category.

Part II includes hundreds of individual wound care product profiles and photos. Each profile describes the product in detail, including the product's form, available sizes, actions, indications and contraindications, and application and removal instructions. Photos are displayed on each page, whenever possible. HCPCS codes and sizes are also displayed, when available. Every attempt has been made to accurately detail the product's information. It remains the clinician's responsibility to review each product's insert prior to using the product to ensure accurate and timely information.

Part III presents additional dressings and products for effective skin and wound management. This section details compression bandage systems, as well as various gauze dressings, tapes, wound cleansers, and pouches. HCPCS codes and sizes are displayed, when available.

The book concludes with appendices, which serves you, the health care professional, in a number of ways. A comprehensive list of the manufacturer's websites is included, along with a detailed reference section.

Clinical Guide to Skin & Wound Care, Seventh Edition, continues to prove to be an essential skin and wound care reference for all team members. Use this book as either a "bedside" or "desk" reference when caring for your patients.

Acknowledgments

Life is simple; it's the choices we make that are sometimes difficult. My choice was to complete another edition of my book.

The following people graciously helped me achieve this goal while juggling life:

To my husband, Michael: Thank you for your constant love, support, sacrifices, and understanding. You are truly the only person who knows the commitment it takes to complete this "labor of love." Cheers!

To my children, Alex and Max: With manuscript in hand, I was able to work and still cheer you on during your baseball and basketball games. Keep your tenacity for learning. Nurture your spirituality. And, always, reach for the stars. You both rock! I love you.

To my parents, extended family, and friends: Thank you for your moral support. It is comforting to know you are there for me when I have the chance to come up for air! I am eternally grateful to have all of you in my life.

To my LWW family: Thank you for your guidance, moral support, and leadership. And, especially, your patience. These editions would not have been as successful without all of you.

To the contributors: Thank you to John MacDonald and Mary Jo Geyer for assisting in the review of the new chapter, *Best practices for managing the effects of lymphedema*. To Karen Lou Kennedy-Evans for assisting in completing the section on the Kennedy Terminal Ulcer. To Matthew Livingston for assisting me in gathering "data." And, thank you to all of the past contributors whose writing still lives on through this edition.

To all of the Manufacturers: A special thank you to all for your contributions; for continuing to work with me to provide your available dressings, drugs, devices, and products so caregivers can quickly and accurately make determinations for the best course of action for the patients they serve. Thank you. You make this edition the valuable resource that it is.

And, again, to my readers: Thank you for all of your gracious accolades (I do receive and read all of them!). You inspire me to continue to write.

PART I

Mastering skin and wound care

1 Skin care and wound prevention strategies

During the past several decades, major advances have been made in the practice of skin and wound care. Clinicians now closely monitor coordinated cellular and biochemical events that occur in skin and wound healing. Manufacturers of skin and wound care products are partnering with clinicians to identify materials that help manage simple and complex skin conditions and wounds. At the same time, standards for describing skin and wounds are being developed to help the clinician document skin and wound assessment. Now, more than ever before, a solid foundation of information exists to accelerate skin and wound healing. But despite these advances, the incidence and prevalence of chronic wounds—such as pressure ulcers, venous ulcers, and diabetic ulcers—in the United States has risen to epidemic proportions. (See *Fast facts about chronic wounds*, page 3.)

Chronic wounds can exact an emotional, physical, and financial toll on the patient and his caregivers. Frustration and confusion continue to arise among clinicians when trying to determine a wound management pathway for a wound or skin condition, when to change to a different type of dressing or drug, how to document the progress of the wound or skin appropriately, and how to track outcomes based on care practices. (See Appendix E for more on best practices.)

Some solutions to these dilemmas can be found by understanding the delicate balance of art and science. Art refers to the team member's skill and application technique in using the preferred management modality for skin and wound care. Science refers to the team member's knowledge and understanding of the disease and of the preferred modality used in managing the patient's care. Art and science—the fundamental tools of skin and wound healing—directly affect clinical and financial outcomes for the patient.

Still, after decades of published clinical practice guidelines, research results, and documented best practices for skin and wound care, not to mention the advances in knowledge and available technology, one has to ask: Why are there so many chronic, nonhealing wounds?

Reviewing the fundamentals of skin and wound care will help you answer this question. A complete understanding of the anatomy and physiology of the skin, the phases of healing, the types of wounds, and the options for wound repair is essential for recognizing factors that may complicate or delay wound healing. Each consideration plays a key role in assessing and managing wounds of all types.

SKIN STRUCTURE

The skin is the body's largest organ, making up about 10% of our total body weight. The skin surface of an average adult covers about 2 square yards. Every day our skin is exposed to physical and mechanical assaults, which may or may not have permanent consequences.

Fast facts about chronic wounds

Wound type	Fast facts
Venous leg ulcers	■ Affect about 1% of general population and 3.5% of those older than age 65 ■ Recurrence rate nearly 70% ■ Treatment cost estimated at more than $40,000 per episode ■ Up to 2 million work days lost yearly
Diabetic ulcers	■ Affect about 15% of those with diabetes ■ High recurrence rate ■ Responsible for more than half of diabetes-related lower-limb amputations
Pressure ulcers	■ Reported occurrence rates vary widely ■ Revised staging system used *(See chapter 3)*

The skin is made up of two major layers—the epidermis and the dermis. Each layer is composed of different types of tissue and has different functions. (See *Layers of the skin*, page 4.) The dermis provides strength, support, blood, and oxygen to the epidermis.

Epidermis

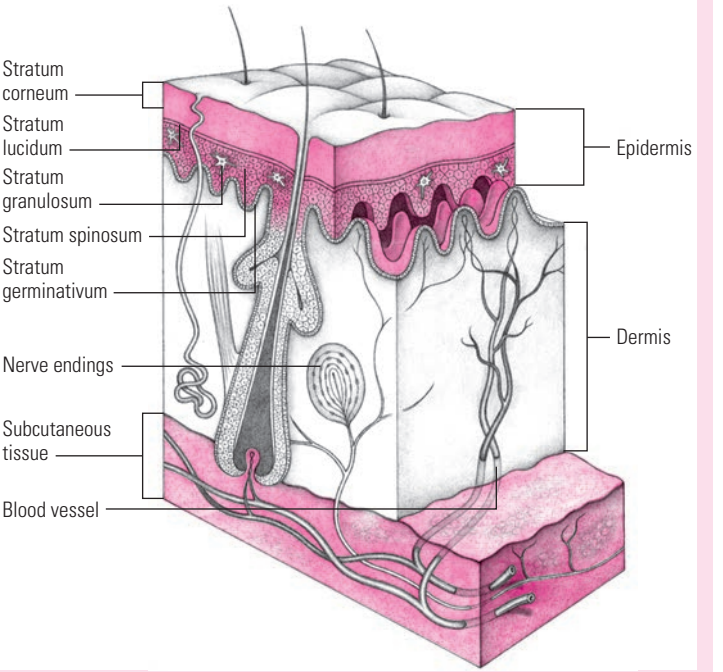
The epidermis, the outermost layer of the skin and covered with epidermal cells, is thin and avascular, normally regenerating every 4 to 6 weeks. Its functions are to maintain skin integrity, to provide a physical barrier against assault by microorganisms and the environment, and to maintain hydration by holding in moisture.

The epidermis may be divided into the following strata, or sublayers:

- *Stratum corneum (horny layer)*. This outermost layer of the skin is composed of closely packed, flattened, polyhedral cells. This critical layer serves as the waterproof barrier of the epidermis and protects again infectious microorganisms, harsh chemicals, dirt, and environmental pollutants.
- *Stratum lucidum*. This layer is a translucent line of cells found only on the palms and soles.
- *Stratum granulosum (granular layer)*. This layer, two to three cells thick, contains select keratinocytes.
- *Stratum spinosum*. This layer is composed of keratinocytes that become larger, flatter, and contain less water as they travel to the surface of the skin.
- *Stratum germinativum–stratum basale (basal layer)*. This innermost layer of the skin contains basal keratinocytes that grow and continually divide, differentiating into the other layers of the epidermis over time. These cells ultimately flatten and lose their nuclei, thereby forming the stratum corneum and eventually replacing select cells that migrate to the skin surface and are lost. Keratinocytes of the basal layer are anchored to the basement membrane zone, which in turn is anchored to the second, thicker layer of the skin, the dermis.

Layers of the skin

The skin is composed of two fused layers—the epidermis and dermis. As this illustration shows, the epidermis has five strata—stratum corneum, stratum lucidum, stratum granulosum, stratum spinosum, and stratum germinativum. Subcutaneous tissue, found beneath the dermis, is a loose connective tissue that attaches the skin to underlying structures.



The epidermis also contains melanocytes, which produce pigment, and Langerhans cells, which help the body respond to and process foreign antigens that penetrate the skin surface.

The outer layer of the epidermis, the stratum corneum, plays a key role in hydration. This layer is similar to a brick-and-mortar structure. The keratinocytes (the "bricks") are held together by lipids and proteins (the "mortar"). The epidermis produces the lipids—oily substances that limit the passage of water into or out of the skin—which include cholesterol, ceramide, and fatty acids. If the barrier is deficient in these lipids, moisture can escape. With the loss of water, scales and cracks can develop on the stratum corneum, resulting in dry, flaky, itchy skin.

If the barrier integrity of the skin is altered, epidermal lipid synthesis increases. Cholesterol and fatty acid synthesis is increased first, followed by ceramide

synthesis. This process may be regulated in part by transepidermal water loss (TEWL), which is commonly used to measure the rate of passive diffusion of water from inside the body, through the stratum corneum, and into the external environment.

Healthy skin structure is evident when the epidermis is intact. The substance that helps to maintain an intact epidermis is called natural moisturizing factor (NMF). NMF can absorb water, so it helps to hydrate skin cells. It's found in the cells in the stratum corneum and is made of the breakdown products of proteins. NMF helps prevent individual skin cells from losing water and creates the smooth, nonflaky appearance of healthy, intact skin.

Dermis

The dermis contains blood vessels, hair follicles, lymphatic vessels, sebaceous glands, and eccrine (sweat) and apocrine (scent) glands. It's composed of fibroblasts, which form collagen, ground substance, elastin, and other extracellular matrix proteins. Ground substance, an amorphous substance composed of water, electrolytes, plasma proteins, and mucopolysaccharides, fills the space between cells and the fibrous components, making the dermis turgid. Collagen fibers, the major structural proteins of the body, give skin its strength. Elastin is responsible for skin recoil or resiliency. Thick bundles of collagen anchor the dermis to the subcutaneous tissue and underlying supporting structures, such as fascia, muscle, and bone.

Subcutaneous tissue

The subcutaneous tissue is composed of adipose and connective tissue, as well as major blood vessels, nerves, and lymphatic vessels. The thickness of the epidermis, dermis, and subcutaneous tissue varies from person to person and from one part of the body to another.

SKIN FUNCTION

The skin has six functions:

- *Protection*. Skin acts as a physical barrier to microorganisms and other foreign matter, protecting the body against infection and excessive loss of fluids. The outer layer (stratum corneum) is slightly acidic, creating resistance to pathogenic organisms.
- *Sensation*. Nerve endings of the skin allow us to feel pain, pressure, heat, and cold.
- *Thermoregulation*. Skin regulates body temperature through vasoconstriction, vasodilation, sweating, and excretion of certain waste products, such as electrolytes and water.
- *Metabolism*. Synthesis of vitamin D in skin exposed to sunlight activates the metabolism of calcium and phosphate, minerals that play an important role in bone formation.
- *Body image*. The skin performs important body image roles with regard to appearance (cosmetic), individual attributes (identification), and ability to convey meaning through expression (communication).
- *Immune processing*. The skin is a portal to the immune system with resident immune cells in both the epidermis (Langerhans cells) and the dermis (dermal dendritic cells).

Skin pH: Essential to function

The skin's pH is acidic, ranging from about 4.2 to 5.6, depending on the area of the body and whether or not the skin is occluded. Skin should be kept in the acidic pH range for several reasons. After an injury to the skin, its barrier function recovers faster when the skin pH is more acidic, rather than more alkaline (less acidic). An acidic environment prevents premature desquamation, or shedding, of dead skin cells. Also, people with an acidic skin pH have less of a tendency toward sensitive skin, which is typically more alkaline.

The pH of the skin helps regulate some of the functions of the stratum corneum, including its permeability, defense against bacteria and fungi, and the integrity and cohesion of skin cells. Skin flora, or the microorganisms that live on or infect the skin, grow differently based on the skin pH. Normal flora grow better at an acidic pH, whereas pathogenic organisms, such as staphylococci, streptococci, and yeast, grow better at a neutral pH. Skin products with a higher pH are thought to promote bacterial growth.

SKIN CONDITIONS

Age-related changes

As we age, the overall function of the skin declines or slows. Obvious changes in skin structure and function occur, including the following:

- The epidermal–dermal junction flattens, contributing to a decrease in the overall strength of the skin, leaving us at greater risk for skin tearing or blistering.
- Langerhans cells and melanocyte cells shrink, putting us at greater risk for allergic reactions and increased sensitivity to sunlight, respectively.
- The vascular response is reduced, leading to decreased skin temperature and pallor, or paleness.
- Decreased production of excess sebum and the sweat that moisturizes the skin contribute to skin dryness and flaking.
- Reduced subcutaneous tissue, especially fat, lessens the body's natural insulation or padding and increases the risk of skin breakdown.
- A decline in generalized physical condition, including an altered immune system, puts us at greater risk for a skin or wound infection.
- The reproduction of the stratum corneum slows, which may lead to the skin's inability to absorb topical medications.

Xerosis and pruritus

A comprehensive assessment of the skin may reveal evidence of skin conditions such as xerosis (dry skin) and pruritus (itching), which are among the most common complaints encountered in nursing homes.

Xerosis affects 59% to 85% of persons older than age 65. More than 70% of hospitalized patients and 90% of nursing home residents over age 65 have dry skin. Many factors contribute to dry skin, including the environment (low humidity, sheets, gowns, elastic stockings or hose), habits (smoking, alcohol, poor diet), diseases (allergies, heart disease, diabetes), medications (diuretics, antibiotics), and skin cleansers (soaps that leave the skin dry, ineffective lotions). (See *Skin moisturizing products,* page 7).

Skin moisturizing products

Category	Function
Antimicrobial	■ Lowers bacterial count
Emollient	■ Soothes and softens skin ■ Holds and retains moisture
Humectant	■ Attracts, holds, and retains moisture
Preservative	■ Protects products from spoilage by microorganisms
Skin protectant	■ Protects injured or exposed skin from harmful stimuli
Surfactant	■ Cleans

Xerotic skin may appear rough, cracked, fissured, and scaly, and it usually occurs on the lower legs, hands, and forearms. Skin flaking can be seen when a patient removes compression hose; fissuring or cracks can be seen in a patient's heels. Although medications or chronic illnesses can trigger xerosis, it isn't usually associated with a dermatologic condition or systemic disease.

Xerosis is associated with a wide spectrum of clinical findings, from normal-looking skin showing no abnormal dryness to extreme conditions such as ichthyosis, in which the skin becomes dry, thick, and scaly. Xerosis can be classified as acquired, congenital, or inherited.

Pruritus, caused by xerosis in up to 85% of cases, is itchy skin, and it can cause the patient to rub or scratch the affected area. Scratching can cause excoriations, which may progress to secondary eczema or become infected. Pruritus can be caused by many dermatologic and systemic illnesses. It can occur with or without skin lesions.

Low humidity, cold temperatures, frequent bathing, and application of irritants to the skin can worsen pruritus. The condition is most commonly seen in the moisture-depleted skin of elderly people because their sebaceous and sweat gland activity is decreased.

Urinary and fecal incontinence

Incontinence is the inability to retain or control urine or feces, or both, until an appropriate time and place for elimination. Urine and stool may contain substances that irritate the epidermis and may make the skin more susceptible to breakdown. Loss of skin integrity leaves the patient at greater risk for skin breakdown. Some of the factors that may cause incontinence are:

- delirium
- diabetes
- diuretics
- environmental barriers
- fecal impaction
- high-impact physical activities
- immobility, in chronic degenerative disease
- impaired cognition

- low fluid intake
- morbid obesity
- medications
- neurologic conditions
- pelvic muscle weakness
- psychological conditions such as dementia
- smoking
- stroke
- toileting behaviors, such as reduced motor skills, difficulty using equipment, and so on.

Incontinence affects patients in all settings. A recent estimate of the direct costs of caring for persons of all ages with incontinence is $11.2 billion annually in the community and $5.2 billion in nursing homes. Given the magnitude of the problem, it is imperative to understand the types of incontinence and the products used to effectively manage this problem.

Fecal incontinence

Fecal incontinence is the loss of normal control of the bowels, leading to stool leaking from the rectum (the last part of the large intestine) at unexpected times. Fecal incontinence is a greater risk factor for pressure ulcer development than urinary incontinence. It affects as many as 1 million Americans and is more common in women and in the elderly of both sexes. The types of fecal incontinence include:

- stool (also called feces)—waste that passes from the rectum in solid, soft, or liquid form
- gas—air that comes from the breakdown of food.

Urinary incontinence

The patient with urinary incontinence can't control the passage of urine. This condition may range from occasional leakage to a complete inability to hold any urine. Urinary incontinence affects about 13 million Americans. More than 50% of nursing home residents experience some degree of urinary incontinence. The different types of urinary incontinence include:

- *stress incontinence:* associated with an impaired urethral closure that allows small amounts of urine leakage when intra-abdominal pressure on the bladder is increased by sneezing, coughing, laughing, lifting, standing from a sitting position, climbing stairs, and so on
- *urge incontinence:* associated with detrusor muscle overactivity
- *overflow incontinence:* associated with leakage of small amounts of urine when the bladder has reached its maximum capacity and has become distended
- *functional incontinence:* occurs in those who can't remain continent because of external factors even though their urinary tract function is intact
- *transient incontinence:* temporary episodes of urinary incontinence that are reversible once their cause is identified and treated
- *mixed incontinence:* combination of stress and urge incontinence.

Combined urinary and fecal incontinence

In the presence of both urinary and fecal incontinence, fecal enzymes convert urea to ammonia, raising the alkalinity of the skin pH. Irritation or maceration resulting from prolonged exposure to urine and stool may hasten skin breakdown.

Common skin protectants

Skin protectant	Description
Dimethicone	■ A type of silicone ■ Transparent; doesn't leave residue ■ Allows visual skin inspection ■ Won't wash away ■ Less likely to clog briefs ■ Helps treat and prevent diaper rash
Petrolatum	■ Helps prevent and temporarily protect chafed, chapped, cracked, or wind-burned skin or lips ■ Monograph level 1%–30% ■ Semitransparent ointment ■ Protects and conditions the skin ■ Treats and prevents rash associated with diaper use or continued exposure to urine and feces ■ Monograph level 30%–100%
Zinc oxide	■ White, nontransparent paste or cream ■ High-level protection ■ Soothing and conditioning properties ■ Treats and prevents rash associated with diaper use or continued exposure to urine and feces ■ Monograph level 1%–40% ■ Cream: may contain lower concentrations of zinc (1%–25%) ■ Paste: may contain higher concentrations of zinc (25%–40%)

ESTABLISHING A SKIN CARE FORMULARY

Preserving the barrier function of the skin is imperative. An essential step in preserving—or restoring—the skin's barrier function is choosing the appropriate product, which involves establishing a skin care formulary. Be sure to include products in the formulary under such categories as:

- cleansers, which effectively remove urine and/or feces without patient discomfort, provide moisture, and are pH balanced.
- protectants or barrier products, which protect the skin from urine and fecal matter during episodes of incontinence. Moisture barriers, sometimes called skin protectants, are ointments, creams, or pastes that shield the skin from exposure to irritants or moisture. Three common protectants are dimethicone, petrolatum, and zinc oxide (see *Common skin protectants* above).
- moisturizing or hydrating products, such as lotions and creams, which replace lost lipids.

WOUND HEALING

After skin integrity is altered and a wound results, the healing process begins. This process is generally well orchestrated, leading to repair of the injury. (See *Cascade of wound-healing events,* page 11.) However, chronic wounds don't follow this complex healing model. Because of an impediment to the healing process, these wounds are often thought to be "stuck" in the inflammatory phase. Over time, key cells become senescent. Understanding and correcting the barriers to healing will spark the formation of granulation tissue, leading to the next phase of healing.

Phases and factors of wound healing

The four phases of wound healing—hemostasis, inflammation, proliferation, and maturation—are described below.

Hemostasis

Hemostasis occurs immediately after the initial injury. The platelet is the key cell responsible for this function, in which the body forms a clot to prevent further bleeding. Platelets also release cytokines, such as platelet-derived growth factor, which gather cells to participate in later phases of healing. After hemostasis, the inflammatory phase begins.

Inflammation

The inflammatory phase, also called the defensive or reaction phase, begins right after injury and typically lasts 4 to 6 days. This phase is characterized by a host of cells infiltrating the wound site. Many of these are inflammatory cells, such as leukocytes and macrophages. Bleeding is controlled by hemostasis, and any bacteria present are destroyed by leukocytes, particularly the polymorphonuclear neutrophils. About 4 days after the injury, macrophages (tissue cells derived from circulating monocytes that migrate to the area) also work to destroy bacteria, cleansing the wound of cellular debris. Macrophages replace the leukocytes (which phagocytize bacteria in the wound, stimulate the inflammatory response, and trigger other biochemical actions) and produce a host of cytokines and growth factors that act as chemoattractants to other cells needed for tissue repair. Macrophages also convert macromolecules into the amino acids and sugars necessary for wound healing.

The cardinal physical characteristics of acute inflammation, first described by Celsus (30 BC to 38 AD), are still used today. These characteristics are pain, heat, redness, and swelling.

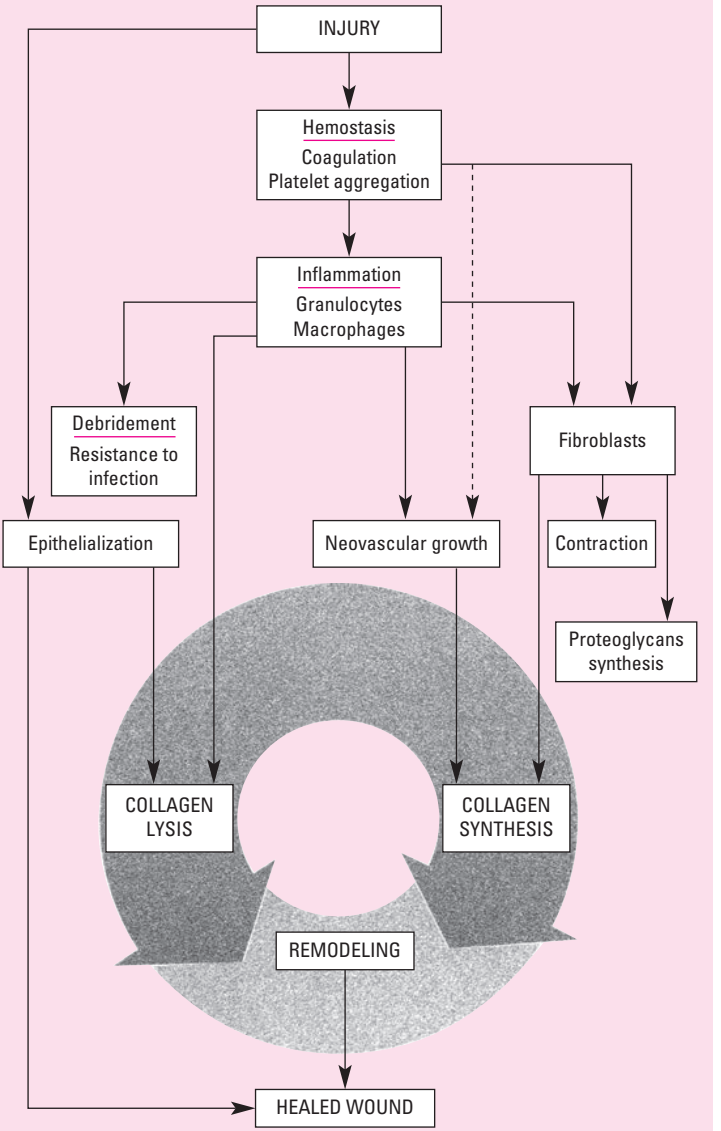
Proliferation

The proliferative phase, also known as the fibroblastic, regenerative, or connective tissue phase, typically lasts several weeks. In an open wound, granulation tissue forms as red, beefy buds (or granules) of tissue. This tissue consists of macrophages, fibroblasts, immature collagen, blood vessels, and ground substance. With proliferation of granulation tissue, fibroblasts stimulate the production of collagen, which gives the tissue its tensile strength and, ultimately, its structure.

As the wound site fills with granulation tissue, its margins pull together, decreasing the wound's surface. During epithelialization, the final step of this phase, keratinocytes migrate from the wound margins. Subsequently, they divide and, ultimately, become contiguous, closing off the wound. Matrix metalloproteinases (MMPs), such as collagenase 1, are critical in epidermal migration, whereas other

Cascade of wound-healing events

This diagram shows the cascade of events that occurs during the wound-healing process.



MMPs, such as MMP 8 and 9, are important in the normal healing process. The proteins are regulated by a set of inhibitors. Epithelialization can occur only in the presence of viable, vascular tissue. When epithelialization is complete, a scar results.

Maturation

During the maturation or remodeling phase, which can last from 21 days to months or years, collagen fibers reorganize, remodel, and mature, gaining tensile strength. Fibroblasts, MMPs, and their inhibitors play a crucial role in this process, as do certain growth factors, such as transforming growth factor beta. This process continues until the scar tissue has regained about 80% of the skin's original strength. However, because the tensile strength of this tissue is less than that of uninjured skin, it will always be at risk for breakdown.

Factors affecting wound healing

Various factors may delay or impede healing. Local factors occur directly within the wound, whereas systemic factors occur throughout the body.

Local factors

Wound healing can be delayed by factors local to the wound itself. Such factors include desiccation, infection or abnormal bacterial presence, maceration, necrosis, pressure, and trauma and edema.

- *Desiccation*. A moist environment allows wounds to heal faster and less painfully than a dry environment, in which cells typically dehydrate and die. This causes a scab or crust to form over the wound site, which impedes healing. If the wound is kept hydrated with a moisture-retentive dressing, epidermal cell migration is enhanced, encouraging epithelialization.
- *Infection or abnormal bacterial presence*. A systemic or local infection may delay or impede healing. If an infection is present, as evidenced by purulent drainage or exudate, induration, erythema, or fever, a wound culture should be obtained to identify the offending bacteria and guide antibiotic therapy. When a pressure ulcer or full-thickness wound extending to the bone fails to heal, the patient should be assessed for signs of osteomyelitis. Any abnormal culture or other test results should be reported to the physician so that appropriate antibiotics are prescribed to treat the infection. In addition, an excessive or abnormal bacterial presence may impede healing.
- *Maceration*. Urinary and fecal incontinence can alter the skin's integrity. Educating caregivers about proper skin care is essential for successful skin and wound management.
- *Necrosis*. Dead, devitalized (necrotic) tissue can delay healing. Slough and eschar are the two types of necrotic tissue that may appear in a wound. Slough is moist, loose, stringy necrotic tissue that's typically yellow. Eschar, which appears as dry, thick, leathery tissue, may be black. In most cases, necrotic tissue must be removed before repair and healing can occur.
- *Pressure*. When pressure at the wound site is excessive or sustained, the blood supply to the capillary network may be disrupted. This impedes blood flow to the surrounding tissue and delays healing.
- *Trauma and edema*. Wounds heal slowly—and may not heal at all—in an environment in which they are repeatedly traumatized or deprived of local blood supply by edema. Edema interferes with the transportation of oxygen and cellular nutrition to the wound.

Systemic factors

Wound healing can also be delayed by systemic factors that bear little or no direct relation to the location of the wound itself. These include age, body type, chronic disease, immunosuppression, nutritional status, radiation therapy, and vascular insufficiencies.

- *Age*. Wounds in older patients may heal more slowly than those in younger patients, mainly due to comorbidities that occur as a person ages. Older patients may have inadequate nutritional intake, altered hormonal responses, poor hydration, and compromised immune, circulatory, and respiratory systems, any of which can increase the risk of skin breakdown and delay wound healing.
- *Body type*. Body type may also affect wound healing. An obese patient, for example, may experience a compromise in wound healing due to poor blood supply to adipose tissue. In addition, some obese patients suffer from protein malnutrition, which further impedes healing. Conversely, when a patient is emaciated, the lack of oxygen and nutritional stores may interfere with wound healing.
- *Chronic diseases*. Coronary artery disease, peripheral vascular disease, cancer, and diabetes mellitus are a few of the chronic diseases that can compromise wound healing. Patients with chronic diseases should be followed closely through their course of care to provide the best plan.
- *Immunosuppression and radiation therapy*. Suppression of the immune system by disease, medication, or age can delay wound healing. Radiation therapy can cause ulceration or changes in the skin, either immediately after a treatment or after all treatment has ended.
- *Nutritional status*. Ongoing nutritional assessment is necessary because the visual appearance of the patient or the wound isn't a reliable indicator of whether the patient is receiving the proper amount of nutrients. Albumin and prealbumin levels, total lymphocyte count, and transferrin levels are markers for malnutrition and must be assessed and monitored regularly, as protein is needed for cell growth.
- *Laboratory values*. Nutritional markers aren't the only laboratory values that must be considered when evaluating healing. Measuring the hemoglobin level helps assess the oxygen-carrying capacity of the blood. It may also be necessary to assess hepatic, renal, and thyroid functions to determine the patient's healing capacity. (See chapter 5.)
- *Vascular insufficiency*. Various wounds or ulcers—such as arterial, diabetic, pressure, and venous ulcers—can affect the lower extremities. Decreased blood supply is a common cause of these ulcers. The clinician must identify the type of ulcer to ensure appropriate topical and supportive therapies.

Wound repair mechanisms

Wound repair occurs by primary intention, secondary intention, or tertiary intention. Many acute wounds, such as surgical wounds, are closed by primary intention—that is, the skin edges are brought together manually to facilitate healing. Such wounds have a lower risk of infection, involve little tissue loss, and heal with minimal scarring after 4 to 14 days.

Chronic wounds, such as pressure ulcers, heal by secondary intention. With this type of repair, the skin edges aren't approximated. Because of the delay in healing, chronic wounds are at greater risk for becoming infected.

In healing by tertiary intention, a surgical wound is left open for 3 to 5 days to allow edema or infection to resolve or exudate to drain, after which the wound is closed with sutures, staples, or adhesive skin closures. This type of healing is also called delayed primary closure.

Wound-healing complications

Unfortunately, not all wounds heal. The most common complications of healing include:

- dehiscence—separation of skin and tissue layers that commonly occurs 3 to 11 days after injury
- evisceration—protrusion of visceral organs through a wound opening
- fistula—abnormal passage between two organs or between an organ and the surface of the body
- hemorrhage—internal (hematoma) or external bleeding
- infection—drainage of purulent material and inflamed wound edges that, if uncontrolled, can lead to osteomyelitis, bacteremia, and sepsis.

Accurate assessment skills and diagnosis coupled with the appropriate interventions are the keys to achieving optimal wound-healing results.

Assessing and documenting chronic wounds

2

Stated simply, a chronic wound is an insult or injury to the skin that has failed to heal. A patient with a chronic wound usually has a host of factors that impede the healing process and ultimately lead to generalized discomfort. Chronic diseases—such as diabetes, vascular insufficiency, and various autoimmune diseases—can inhibit proper wound healing and affect the overall condition of the patient's skin, including its moisture level and texture.

To achieve successful skin and wound healing, the clinician must meticulously follow every step of skin and wound management, including assessment, planning, implementation, evaluation, and documentation. Clinicians are responsible for assessing the patient's skin, wounds, and management modality (dressing, drug, or device); implementing wound care orders; selecting and changing the management modality; and preventing infection during procedures. Identifying and addressing systemic factors in wound healing also are important for successful outcomes.

ASSESSMENT

Performing a comprehensive patient assessment is the essential first step toward healing the chronic skin condition or wound. Once the clinician has assessed the patient, identified any underlying conditions affecting healing, performed a complete assessment of the patient's nutritional status, performed the proper tests to provide an accurate diagnosis of the underlying problem, assessed the patient's knowledge of the disease, and documented all factors that affect the learning needs of the patient, a complete skin and wound assessment can be completed.

The assessment is set in motion with a one-on-one discussion between the patient or caregiver and clinicians who have cared for the patient's skin and wound. Understanding the patient's past and current family, social, and medical history may provide important insight into why the wound isn't healing.

Clinical interventions will vary according to the assessment.

CHECKLIST

Obtaining a history

A thorough review of the patient's medical history, laboratory tests, medications, and diet can help the clinician determine the cause of the skin condition or wound. Chronic wounds, for example, can be caused by a multitude of different diseases. Primary causes include pressure, chronic venous insufficiency,

lower-extremity arterial disease, and diabetic neuropathy. To obtain a patient's history, follow these steps:

- ✔ Review the patient's medical history, which details allergies, laboratory studies, radiologic studies, vascular studies, medications, past illnesses, surgical procedures, and other pertinent facts related to the patient's illnesses and problems. Ask about allergies to foods or medications, including topical skin and wound care products. Also, ask the patient if his skin's appearance changes with the seasons.
- ✔ Review the patient's family history, paying particular attention to the history of parents, siblings, grandparents, and natural children, and detailing the age and general health of living relatives, the death and cause of death of all deceased family members, and any chronic diseases that occur in the immediate family. This information will alert you to the presence of inherited or congenital conditions or diseases.
- ✔ Review the patient's social history, including age-appropriate information regarding past and current activities, such as marital status, living arrangements, current employment and occupational history, sexual history, level of education, and use of drugs, alcohol, or tobacco. Ask about other social factors that may influence the patient's activities of daily living.
- ✔ Ask about the patient's bathing routines and about the different soaps, shampoos, conditioners, lotions, oils, and other topical products he uses routinely. Any such products may lead to changes in skin, appearing as xerosis, pruritus, wounds, rashes, or a change in skin color.
- ✔ Obtain a list of past and current medications and dressings, including all medications and dressings that have been used, have been effective, or have failed.
- ✔ Review previous treatments, dressings, drugs, and adjunctive modalities (such as physical therapy, skin replacements, and growth factors) and determine their effectiveness.
- ✔ Review all laboratory, radiology, and vascular studies that have been performed.
- ✔ Review the patient's nutritional status and supportive therapies.

For the patient who has a wound, obtain the following information:

- ✔ Review all clinician consultations related to specialty management programs for skin and wound care.
- ✔ Review (if indicated) all support surfaces and positioning devices used to manage the patient's tissue load.
- ✔ Review (if indicated) any use of devices, such as compression stockings, custom shoes or braces, and assistive devices.
- ✔ Assess the patient's knowledge of the disease, and document all factors that affect learning needs.

This comprehensive patient assessment will provide the clinician with the four W's she needs to know for skin and wound care:

- When did the skin condition or wound occur?
- Who has taken care of the skin condition or wound?

- What strategies have been used to facilitate healing of the skin condition or wound?
- What documented findings (e.g., written information, laboratory test results, and vascular or radiology test results) can be reviewed to support the care of the skin condition or wound?

Answers to these questions will provide the clinician with a strong foundation upon which to manage the patient's skin and wound. An incomplete assessment may delay the skin- or wound-healing process.

Performing a physical assessment

Differential assessment of the skin condition or wound is essential to understanding its cause and development. First, assess the patient's skin temperature, dryness, itching, bruising, and changes in texture of skin and nail composition. Also, assess the skin for color and uniform appearance, thickness, symmetry, and primary or secondary lesions. (See *Identifying primary and secondary lesions,* page 18.)

Examine the patient's nails for changes in thickness, splitting, discoloration, breaking, and separation from the nail bed. Question the patient about changes in his nails, which may be a sign of a systemic condition.

Document all the findings of the skin assessment. Note, too, any presence of a skin condition: erythema, itching, scratching, skin weeping, skin blistering, bruising, primary lesions, secondary lesions, and open wounds.

CHECKLIST

Performing a wound assessment

After completing the patient assessment and physical assessment, a comprehensive wound assessment is the next important step. The wound assessment helps define the status of the wound and helps identify impediments to the healing process. A clear understanding of skin anatomy is essential for assessing and classifying the wound and defining the level of tissue destruction. (*See* chapter 1.) A detailed assessment of the patient's wound status includes, but isn't limited to, the following parameters:

- ✔ *Location*. Anatomic location describes the lesion and the nearest bony prominence or another anatomic landmark. Detailing the wound's location is imperative for accurate documentation and consistent care by each provider working with the patient.
- ✔ *Size (length, width, depth, undermining)*. Accurate wound measurements can assist the clinician in designing an appropriate care plan. Size includes length, width, and depth. Consistent vocabulary and units of measure are essential when documenting or describing the wound. (See *Measuring wound depth,* page 20.)
- ✔ *Color and type of wound tissue*. Wound bed description and wound color provide a consistent approach in defining the tissue in the base of the wound. Descriptors such as granulation tissue, slough, and eschar are typically used to define tissue type. Tissue color also has been used to distinguish viable from nonviable tissue and is another descriptor that assists in the management process.
- ✔ *Exudate or drainage amount and type*. The amount of wound exudate or drainage is assessed and described with each dressing change. The number of dressing

Identifying primary and secondary lesions

These guidelines will help you differentiate between primary and secondary lesions.

Primary lesions

Primary lesions are those present at the onset of the disease.

Bulla	■ A vesicle larger than 5 mm in diameter
Cyst	■ An elevated, circumscribed area of the skin filled with liquid or semisolid fluid
Macule	■ A flat, circumscribed area ■ Brown, red, white, or tan in color
Nodule	■ An elevated, firm, circumscribed, and palpable area ■ Can involve all layers of the skin ■ Larger than 5 mm in diameter
Papule	■ An elevated, palpable, firm, circumscribed lesion ■ Generally less than 5 mm in diameter
Plaque	■ An elevated, flat-topped, firm, rough, superficial papule ■ Larger than 2 cm in diameter (papules can coalesce to form plaques)
Pustule	■ An elevated, superficial area that's similar to a vesicle but filled with pus
Vesicle	■ An elevated, circumscribed, superficial, fluid-filled blister ■ Less than 5 mm in diameter
Wheal	■ An elevated, irregularly shaped area of cutaneous edema ■ Solid, transient, and changing, with a variable diameter ■ Red, pale pink, or white in color

Secondary lesions

Secondary lesions are the result of changes over time caused by disease progression, manipulation (scratching, rubbing, picking), or treatments.

Crust	■ Slightly elevated ■ Variable size ■ Consists of dried serum, blood, or purulent exudate
Excoriation	■ Linear scratches on the skin, which may or may not be denuded
Lichenification	■ Rough, thickened epidermis ■ Accentuated skin markings caused by rubbing or scratching (e.g., chronic eczema, lichen simplex)
Scale	■ Heaped-up keratinized cells ■ Flaky exfoliation ■ Irregular ■ Thick or thin, dry or oily ■ Variable size ■ Silver, white, or tan in color

changes needed per week can help in estimating the amount of exudate present. Large amounts of exudate may indicate an infection and a barrier to healing.

✔ *Odor*. Odor helps define the presence and type of bacteria in the wound and is assessed only after the clinician has cleaned the wound.

✔ *Periwound skin condition*. Periwound skin is assessed for color and temperature. Inflammation or erythema may indicate wound infection or dermatitis. Assessing the periwound skin for maceration or denuded tissue is also important. Macerated periwound skin should prompt the clinician to assess the topical wound dressing for its ability to manage exudate. Macerated or denuded periwound skin is also a concern when the clinician needs to anchor a dressing.

✔ *Wound margins*. The condition of the wound margins can provide the clinician with information about the wound's chronicity or healing ability. Newly formed epithelium along the wound edge, commonly flat and pale pink to lavender in color (termed the *edge effect*), indicates stimulated healing.

✔ *Pain*. The presence, absence, or type of pain may indicate infection, underlying tissue destruction, neuropathy, or vascular insufficiency.

✔ *Adjunctive therapies*. Adjunctive therapies and support—such as negative-pressure wound therapy, support surfaces for bed and chair, and rehabilitation services—play a vital role. The patient's wound should define the level of therapy needed.

✔ *Patient knowledge of the disease and wound management*. The educational needs of the patient must be evaluated on an individual basis, beginning with the nonjudgmental assessment of the patient's knowledge relevant to the care plan. An experienced clinician should direct the educational activities.

✔ *Dressing management*. A moist wound-healing environment requires a proper dressing. Considerations for choosing proper primary and secondary dressings are based on wound characteristics, including size, undermining or tunneling, and amount of exudate. (See *Measuring wound tunneling,* page 21.)

A thorough wound assessment includes:

- condition of the skin around the wound
- status of the wound (whether acute or chronic)
- amount of wound exudate, if any
- presence or absence of necrosis
- appearance of the wound, such as whether it is red, yellow, or black
- evidence of possible infection or lack thereof
- degree of cleaning and packing required
- nature of the dressings needed
- management of the drainage.

Additional qualifying factors for wound management

Body measurements

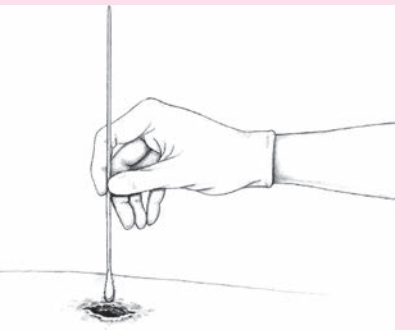
To ensure accuracy, patient stature (height and weight) must be measured by the clinician rather than reported by the patient.

If standing height can't be measured, knee height calipers may be used. These calipers measure the length of the lower leg from the bottom of the foot to the

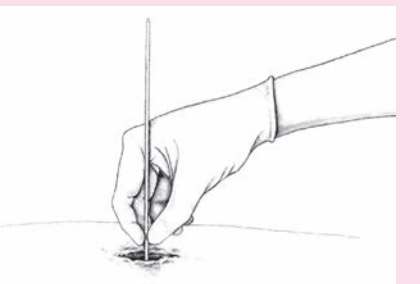
Measuring wound depth

To properly evaluate healing, the clinician must measure the wound initially and regularly during treatment. One method is to use a sterile, flexible applicator and follow the procedure below.

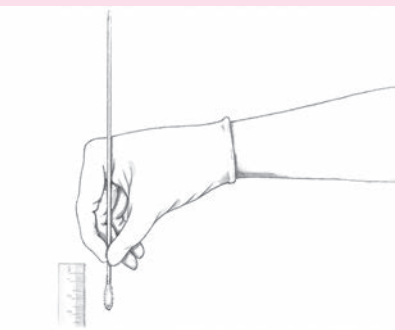
- Put on gloves. Gently insert the applicator into the deepest portion of the wound that you can see.



- Grasp the applicator with your thumb and forefinger at the point corresponding to the wound's margin.



- Carefully withdraw the applicator while maintaining the position of your thumb and forefinger. Measure from the tip of the applicator to that position.
- According to your facility's policy, record the depth (in centimeters) on a tracing of the wound, showing the actual position of the deepest parts of the wound.



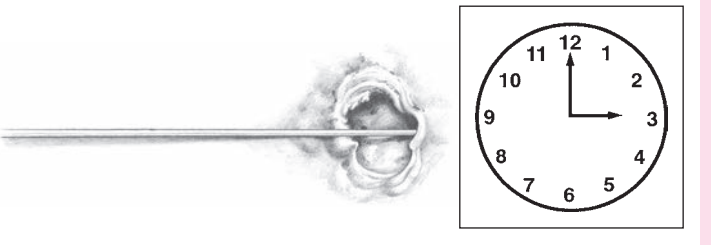
Measuring wound tunneling

The clinician should document both the direction and depth of tunneling, as outlined below.

Direction of tunneling

To determine the direction of tunneling, perform the following steps:

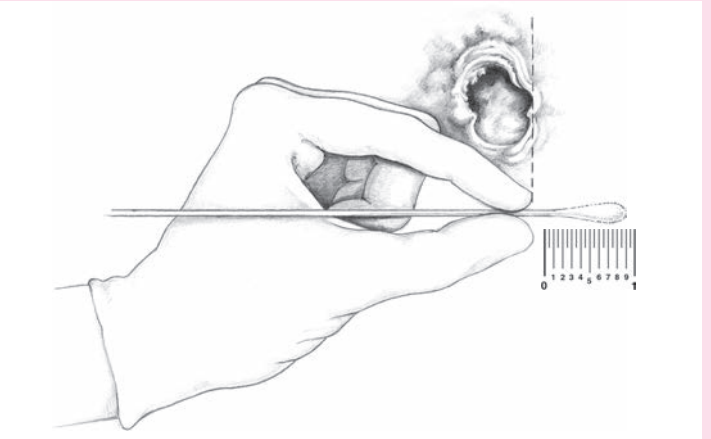
- Put on gloves and gently insert the applicator into the sites where tunneling occurs.
- View the direction of the applicator as if it were a hand of a clock (12 o'clock points in the direction of the patient's head).
- Progressing in a clockwise direction, document the deepest sites where the wound tunnels (e.g., 3 o'clock).



Depth of tunneling

To measure the depth of tunneling, perform the following steps:

- Insert the applicator into the tunneling areas.
- Grasp the applicator where it meets the wound's edge.
- Pull the applicator out, place it next to a measuring guide, and document the measurement (in centimeters).



top of the patella, and a mathematical formula is then used to determine the patient's height.

Other body measurements—such as triceps skin-fold measurement, mid-arm circumference, and mid-arm muscle circumference—have limited usefulness in most wound care settings.

Any changes in the patient's weight, as well as a history of the weight change, need further evaluation to provide information about the patient's normal weight. Interview family members if the patient is unable to provide a history because of illness or mental deficiency.

Laboratory tests

Laboratory tests help evaluate the patient's nutrition and hydration status. A complete nutritional assessment includes an evaluation of both a standard multiple analysis and a complete blood count as well as protein stores, electrolyte and fluid balance, renal function, liver function, glucose levels, anemias, and immune status. It also may include other specific nutritional laboratory values, such as prealbumin, folic acid, vitamin B_{12}, ferritin, and transferrin levels, along with lymphocyte count. The accompanying table indicates the levels of mild, moderate, and severe depletion for common protein status laboratory values. (See *Markers of malnutrition* below; see also chapter 5.) Many laboratory assays, such as albumin, are affected by hydration status. It's important to repeat laboratory tests after a patient has been rehydrated.

Nutritional assessment

Performing a complete assessment of nutritional status is critical to making sure the patient's diet is optimal for supporting the healing process. In 2009, the European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel published "Prevention and Treatment of Pressure Ulcers." These guidelines summarize evidence-based practices for pressure ulcer prevention and treatment.

Markers of malnutrition

Marker	Normal value	Mild depletion	Moderate depletion	Severe depletion
Percent of usual body weight	100%	85%–95%	75%–84%	< 75%
Albumin (g/dL)	≥ 3.5	2.8–3.4	2.1–2.7	< 2.1
Prealbumin (mg/dL)	16–30	10–15	5–9	< 5
Transferrin (mg/dL)	> 200	150–200	100–149	<100
Total lymphocyte count (mm^3)	2,500	<1,500	<1,200	< 800

From Whitney, E. N., et al. (1998). Understanding normal and clinical nutrition (5th ed.). Reprinted with permission of Brooks/Cole, a division of Thomson Learning: www.thomsonrights.com. Fax (800) 730-2215.

A subset of the guidelines reviews general and specific nutritional recommendations for patients with pressure ulcers.

General recommendations

Screen and assess the nutritional status of everyone at risk for pressure ulcers in every health care setting. Early identification and management of undernutrition is very important in reducing the risk of pressure ulcers. Keep these points in mind:

- Make sure your health care setting has a nutritional screening policy in place and that it specifies the screening frequency.
- To perform the screening, use a valid, reliable tool that's quick, easy to use, and acceptable to both patient and clinician.
- Refer any patient with nutritional and pressure ulcer risk to a registered dietitian and also, if needed, to a multidisciplinary nutritional team that includes a registered dietitian, a nurse specializing in nutrition, a physician, a speech and language therapist, an occupational therapist, and, if needed, a dentist.
- If the screening identifies a risk of pressure ulcers, malnourishment, or nutritional risk, then a registered dietitian or multidisciplinary nutritional team should conduct a more comprehensive assessment.
- Provide nutritional support to anyone with nutritional and pressure ulcer risk, following the nutritional cycle. This should include nutritional assessment, estimation of nutritional requirements, comparison of nutrient intake with estimated requirements, appropriate nutritional intervention using the appropriate feeding route, monitoring and evaluation of nutritional outcome, and frequent reassessment of nutritional status while the patient remains at risk.
- Keep in mind that patients may need different forms of nutritional management during the course of an illness. Follow relevant evidence-based guidelines on enteral nutrition and hydration for those at risk for pressure ulcers and nutritional problems.
- Offer any patient with nutritional and pressure ulcer risk at least 30 to 35 kcal/kg of body weight/day, with 1.25 to 1.5 g/kg/day of protein and 1 mL of fluid intake/kcal/day.

Specific recommendations

- In addition to the usual diet, offer high-protein mixed oral nutritional supplements, tube feeding, or both to patients with nutritional and pressure ulcer risk that results from acute or chronic disease or surgical intervention.
- Oral nutrition (via normal feeding, additional sip feeding, or both) is the preferred route and should be used whenever possible. Oral nutritional supplements are helpful because many patients at risk for pressure ulcers cannot meet their nutritional needs through normal oral food intake. What's more, oral nutritional supplements seem to be linked to a significant reduction in pressure ulcer development compared to routine care.
- Enteral (tube feeding) and parenteral (delivered outside the alimentary tract) nutrition may be needed if oral nutrition is inadequate or impossible based on the patient's condition and goals.
- Administer oral nutritional supplements, tube feeding, or both between regular meals to avoid the possibility of reduced intake of food and fluid during regular mealtimes.

Review of systems

A review of systems is typically a question-and-answer session intended to provide the clinician with a full description of the patient's complaints. The systems addressed during the review include:

- constitutional signs and symptoms, such as fatigue, fever, weakness, and weight loss
- eye problems, such as double vision, pain, eye strain, or impaired vision
- ears, nose, mouth, or throat signs and symptoms, including ear pain, sinus drainage, pain when swallowing, impaired hearing, and mouth pain or sores
- cardiovascular signs and symptoms, including chest pain, claudication, edema, heart or circulatory problems, hypertension, or pain while resting
- respiratory signs and symptoms, such as shortness of breath or wheezing
- GI signs and symptoms (such as appetite changes, bloating, fecal incontinence, or stomach pain) and bowel habits
- genitourinary signs and symptoms, such as burning on urination, discharge, hematuria, or incontinence
- musculoskeletal signs and symptoms, such as muscle or joint pain, stiffness, swelling, or edema
- integumentary (skin) signs and symptoms, such as previous wound sites, previous ostomy sites, pigmentation changes, pruritus, lumps, or rashes
- neurologic signs and symptoms, including loss of sensation, headaches, tremors, seizures, numbness, or paralysis
- psychological signs and symptoms, such as change in sleeping patterns, ability to comply with treatment plan, and attitudes toward health
- endocrine signs and symptoms, such as excessive thirst or hunger, excessive sweating, and disorders such as diabetes or thyroid conditions
- hematologic and lymphatic signs and symptoms (such as bleeding, bruising, or anemia) and previous transfusions
- allergic and immunologic signs and symptoms, such as allergies, reactions, immune symptoms or problems, and autoimmune disorders.

Physical assessment

A thorough physical examination includes the following:

- determination of constitutional signs and symptoms: temperature, pulse, blood pressure, height, and weight
- examination of the eyes for such signs and symptoms as dry, pale, discolored conjunctiva and edema of eyelids
- evaluation of the ears, nose, mouth, throat, and neck for signs and symptoms, such as impaired hearing, dry mouth, dry throat, loss of teeth, and inflammation of the tongue
- cardiovascular assessment of pulses, temperature gradient, color changes, skin turgor, and lower-extremity circulation changes, edema, or venous filling
- respiratory evaluation for such signs and symptoms as shortness of breath and wheezing
- GI evaluation for the appearance of stoma, wounds, or skin conditions
- genitourinary evaluation, including assessment of the appearance of stoma, wounds, or the presence of skin conditions
- musculoskeletal evaluation, including the appearance of digits and nail beds, presence of limited joint mobility, muscular appearance and strength, orthopedic deformities, gait evaluation, and plantar pressure assessment

Norton scale

To use this scale, assess the five conditions listed below and assign appropriate scores. A total score of 14 or less indicates risk of pressure ulcer. A score below 12 indicates high risk.

Name_____ **Date**_____

Physical condition	Mental condition	Activity	Mobility	Continence
Good 4	Alert 4	Walks 4	Full 4	Good 4
Fair 3	Apathetic 3	Walks with help 3	Slightly limited 3	Occasional incontinence 3
Poor 2	Confused 2	Sits in chair 2	Very limited 2	Frequent incontinence 2
Very poor 1	Stuporous 1	Remains in bed 1	Immobile 1	Urine and fecal incontinence 1
TOTAL	TOTAL	TOTAL	TOTAL	TOTAL

Total score _____

- integumentary (skin and/or breast) evaluation, including temperature changes that may indicate a "hot spot" or decrease in circulation, and skin appearance, the presence of calluses or fissures, and the absence or presence of hair
- neurologic assessment, including results of Semmes-Weinstein monofilament test, deep tendon reflex testing, Babinski test, and vibration perception threshold assessment
- psychological evaluation, including body image and orientation to person, place, present surroundings, and time
- endocrine findings
- lymphatic assessment, including groin, lymph nodes, axillae, and neck
- allergy and immunology evaluation, including assessment of the patient's skin for dryness, macules, papules, or rashes.

Risk assessment tools

Risk assessment tools are used to predict a patient's level of risk and prevent various disease states. Some risk assessment tools are specific to particular areas of risk, such as pressure ulcers or diabetic foot ulcers. Nutritional risk assessment tools enable the clinician to calculate the patient's risk for nutritional deficits. Other factors—such as laboratory values, radiologic studies, and vascular studies—should also be considered when evaluating a patient's level of risk.

Examples of risk assessment tools and the parameters evaluated include:

- Braden scale for pressure ulcers, which evaluates sensory perception, moisture, activity, mobility, nutrition, and friction and shear (see Appendix C).
- Norton scale for pressure ulcers, which evaluates physical condition, mental status, activity, mobility, and incontinence (See *Norton scale* above.)

- International Working Group of the Diabetic Foot risk categorization system, which evaluates risk for development of diabetic foot ulcers.

Nutritional status plays a significant role in establishing a patient's level of risk; nutritional assessment is a comprehensive process that includes:

- body measurements, including height, weight, body mass index, and degree of variation from usual body weight
- evaluation of laboratory test results to assess the patient's nutritional and hydration status, including complete blood count, protein stores, electrolyte and fluid balance, renal function, glucose levels, anemias, and immune status
- physical examination of hair, skin, lips, gums, teeth, tongue, nails, mucous membranes, hands, vision, mental status, and motor skills
- dietary interview, including food frequency and preferences; a 3-day diet recall; and digestive process concerns, such as nausea, constipation or diarrhea, chewing problems, swallowing trouble, or flavor or taste changes.

The information collected from the dietary interview will enable the clinician to determine the patient's nutrient needs and recommend any dietary changes.

Manual assessment

Manual screening tools, used to assist the clinician in making an accurate diagnosis, include the following:

- Perfusion assessment tests include ankle-brachial index (ABI) and tissue perfusion testing. ABI is a simple, noninvasive test to determine the difference in blood pressure between the upper and lower extremities. ABI is important to assess for the presence of arterial insufficiency, which occurs in about 25% of patients with venous disease. An ABI less than 1.0 contraindicates the use of compression therapy until further evaluation for the presence of arterial disease is performed. Tissue perfusion using skin perfusion pressure, transcutaneous oxygen, or both is indicated for patients with suspected initial calcification (those with diabetes, those who need dialysis, and older adults) because an ABI can be falsely elevated in these patients.
- Cultures identify whether infection is present. A wound infection is caused by colonization of viable wound tissue by microorganisms whose presence causes local tissue damage. Identifying the microorganisms that are inhibiting wound healing enables the clinician to develop a care plan. Culture types include swab, tissue biopsy, punch biopsy, and needle aspiration.
- Lower-leg and foot assessments evaluate vascular and neuropathic risk factors. Lower-leg pulses usually include palpation and auscultation of right and left femoral, right and left popliteal, right and left posterior tibial, and right and left dorsalis pedis. Foot pulses usually include right and left posterior tibial and right and left dorsalis pedis. Other parameters evaluated include skin temperature changes, color and circumference of the lower leg, sensory level of the feet, capillary refill time, and toe pressures.
- Palpation of pulses and Doppler readings assist the clinician in determining the degree of blood flow. Doppler ultrasound is a noninvasive screening tool used to determine the patient's vascular status.
- Segmental blood pressures assist in locating possible obstructions. These readings are taken at the ankle, below the knee, above the knee, and high up on

the thigh, using a Doppler probe and blood pressure cuff. Segmental blood pressures shouldn't vary more than 20 to 30 mm Hg between segments.

- The Semmes-Weinstein monofilament test helps to quantify the degree of neuropathy in patients with diabetes. This test is performed using a standard monofilament. A foot that is insensate to the monofilament, typically a 5.07 monofilament (10 g), is considered at risk for skin ulcerations (part of the neurologic examination).
- Vibration perception threshold assessment (part of the neurologic examination) is useful when evaluating a patient with diabetes who is at risk for skin ulceration.
- Transcutaneous oxygen tension ($TcPO_2$) provides a measurement of oxygenation at skin level. The reference value for $TcPO_2$ is 55 mg or greater.

DOCUMENTATION

Developing documentation guidelines, whether for pen and paper or computerized records, is a prerequisite to evaluating the clinical efficiency and cost-effectiveness of your facility. Proper documentation provides guidance for appropriate treatment decisions, evaluation of the healing process, support for reimbursement claims, and a defense for litigation. Once established, the documentation system should become the framework of clinical practice for all members of the wound care team.

CHECKLIST

Documentation

Skin and wound care documentation combines various information-gathering tools that reflect the wound's status. When assessing the patient with a skin condition or wound as it heals, documentation should include:

- ✔ chief complaint
- ✔ history of present illness
- ✔ medical, family, and social history
- ✔ review of systems
- ✔ physical assessment
- ✔ risk assessment
- ✔ manual assessment
- ✔ skin and wound assessment
- ✔ procedures performed
- ✔ supplies and tests ordered
- ✔ patient/caregiver education provided
- ✔ care plan
- ✔ discharge plan.

Chief complaint

The chief complaint—the specific reason the patient has sought care, recorded in his own words—links the reason for the patient's visit to the detailed history and physical assessment obtained by the clinician.

History of present illness

The clinician reviews the history of present illness information, including previous symptoms, physical examinations, risk assessments and screening tools, and skin and wound assessments. The history of present illness should include a complete chronological account of the chief complaint to date. Most of this information is subjective because it's based on the patient interview. If multiple chronic conditions are discussed—for example, lower leg pain and headaches—make sure to document this in the history of present illness to justify orders for tests or medications or treatments prescribed. Symptoms, such as pain, and current care of the presenting wound or skin care problem should be documented here.

Medical, family, and social history

Many elements affect wound healing, such as chronic illnesses or diseases, medications, allergies, diet, and activities of daily living. Review the patient's medical history, family, and social activities with particular attention to:

- autoimmune diseases, blood disorders, bowel disorders, cancer, cardiovascular disease, cerebral vascular disease, diabetes, heart disease, hypertension, kidney disease, liver disorders, malignancies and associated treatments, musculoskeletal disorders, neurologic infections, peripheral vascular disease, prior hospitalizations, renal failure, venous insufficiency, ostomy surgeries (including revisions or diversions), and chronic illnesses, including accidents or injuries that lead to chronic insufficiencies
- medications used, including chemotherapeutic agents, steroids, and corticosteroids
- allergies, such as to dressings and securement products, medications, or the environment
- previous vascular tests, such as palpation of pulses, ankle-brachial index (ABI), and transcutaneous oxygen tension
- previous radiologic tests, such as X-rays, bone scan, magnetic resonance imaging, and angiography
- dressing history, including products used effectively and ineffectively, and ostomy history, if any
- modality history, including products used effectively in the past and products that inhibited healing rate, laboratory values, nutritional values (such as albumin, prealbumin, and transferrin levels, and total lymphocyte count), chemistry values (such as blood urea nitrogen, creatinine, and liver enzyme levels; hepatitis panel; hemoglobin A1C level; and lipid panel), hematologic values (such as complete blood count, sedimentation rate, C-reactive protein, protein S, and protein C), immunologic values (such as rheumatoid factor and immune complexes), and microbiology values (such as biopsy and quantitative cultures)
- activities of daily living, such as alcohol use, recreational drug use, modality use, smoking, and eating patterns.

Thorough documentation provides the information the clinician needs to accurately and effectively assess and treat the patient with a chronic wound.

Skin and wound characteristics

Wound care documentation includes a variety of information that reflects skin and wound status across the healing continuum. Providing an accurate description of skin and wound characteristics is critical during each patient visit. These findings assist the clinician in mapping care during the wound management process. Wound classification establishes a common language for wound assessment and wound healing. It helps to foster sound clinical judgments, provides a universal scheme for documentation, and allows better evaluation of treatments.

Accurate measurements of wound length, width, depth, and tunneling complement and complete the classification of a wound (see *Wound measurements*, page 33). Other essential documentation elements include a description of the skin around the wound, the wound's surface (intact, exuberant granulation tissue, or necrotic tissue), and the drainage or exudate found in the wound.

Three main types of classification systems are used; two are based on the degree of tissue layer destruction, and the third is based on the color of the wound bed. The values obtained include cause, qualitative information, and quantitative information.

Cause

Ulcerations, particularly on the lower legs or feet, commonly occur from arterial insufficiency, venous hypertension, neuropathy, or a combination of these conditions. A common cause is a decrease in blood supply to the area. Predisposing factors, such as the anatomic location of the ulcer and distinctive wound characteristics, help to distinguish among ulcers of the lower extremities. (See *Differentiating arterial, diabetic, and venous ulcers* in chapter 3, page 65.)

Establishing the cause of the wound or skin condition will help identify the correct classification and management process. Underlying medical conditions—such as poor nutrition, diabetes, or neuropathy—may explain why the wound may be healing slowly. These underlying conditions need to be treated concurrently. Finally, treatment history is significant because the clinician may learn which management modalities have been tried and either succeeded or failed.

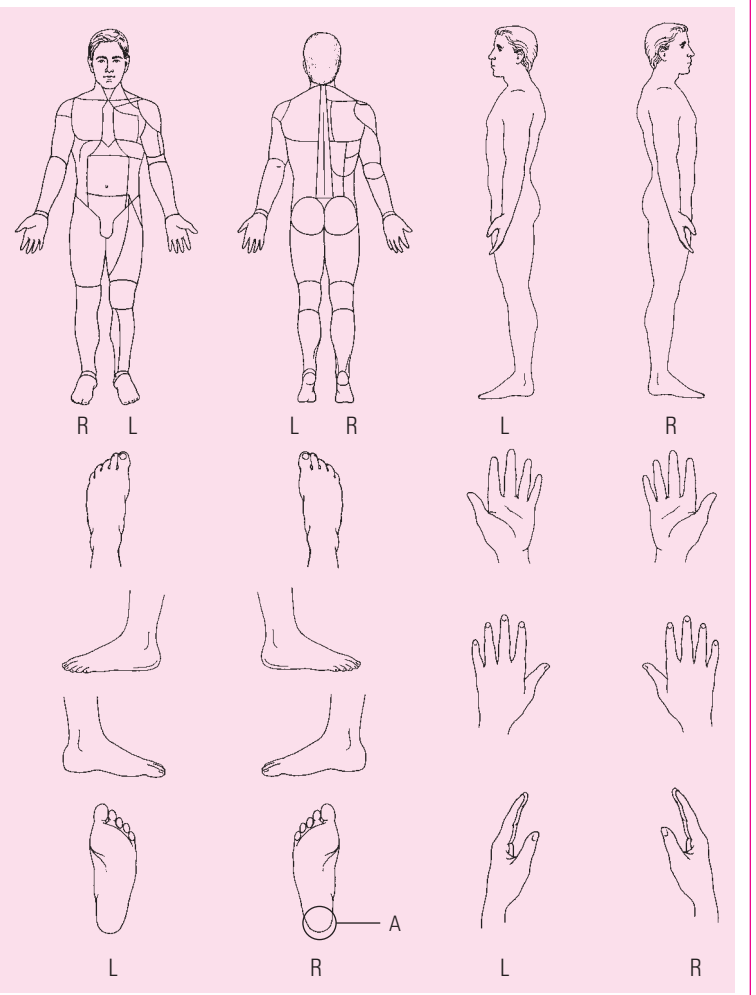
The anatomic location of existing skin breakdown (e.g., left hip, right lateral malleolus, or right ischial tuberosity) should be documented consistently. A documentation form with diagrams of different anatomic sites is a helpful tool. (See *Wound and skin assessment tool,* page 30.) One way to use this form is to mark the areas involved and assign a different letter for each location to ensure consistency of documentation.

Qualitative information

Qualitative information includes the following:

- Anatomic location describes the extremity and nearest bony prominence or anatomic landmark.
- Classification describes the degree of tissue layer destruction. Wound classification establishes a common language for wound assessment and wound healing, helps foster sound clinical judgments, provides a universal method for documentation, and allows better evaluation of treatments. Staging systems identify certain types of wounds by stage. Wounds also may be classified by thickness or color. (See *Other criteria for classifying wounds,* page 31.)

Wound and skin assessment tool



- Edema, or swelling, of tissues may indicate vascular compromise.
- Document exudate describing the amount, color, and consistency. Amount is documented as light, moderate, or heavy or as scant, moderate, large, or copious. Drainage color and consistency can be described as serous (clear, watery plasma), sanguineous (bloody [fresh bleeding]), serosanguineous (plasma and red blood cells), or purulent (thick drainage, white blood cells and living or dead organisms, possibly with a yellow, green, or brown color that suggests the type of infecting organism).

Other criteria for classifying wounds

Wounds can also be classified by thickness and color, as described here.

Thickness

Partial thickness and full thickness are terms commonly used to classify wounds whose primary cause is something other than pressure. Partial-thickness wounds extend through the first layer of skin (the epidermis) and into, but not through, the second layer of skin (the dermis). Partial-thickness wounds heal by reepithelialization. Full-thickness wounds extend through both the epidermis and the dermis and may involve subcutaneous tissue, muscle, and possibly bone. Full-thickness wounds primarily heal by granulation, contraction, and reepithelialization. Examples of wounds that may be partial- or full-thickness wounds include skin tears, lacerations, surgical wounds, and vascular (venous and arterial) ulcers.

Describing a wound as partial thickness or full thickness identifies the depth of the wound. However, it doesn't identify the condition of intact skin, the identifiable layers of tissue exposed (e.g., bone), or the color of the exposed wound bed.

Color

A three-color concept of wound classification was adapted by Marion Laboratories for use with traumatic, surgical, and other wounds that heal by secondary intention (open wound bed). The system can be used as a component of wound assessment and as a tool to help direct treatment. The three-color concept classifies wounds as red, yellow, or black.

- Red may indicate clean, healthy granulation tissue. When a wound begins to heal, a layer of pale pink granulation tissue covers the wound bed, which later becomes beefy red.
- Yellow may indicate the presence of exudate or slough and the need for wound cleaning. Exudate can be whitish yellow, creamy yellow, yellowish green, or beige.
- Black may indicate the presence of eschar (necrotic tissue), which slows healing and provides a site for microorganisms to proliferate.

If a wound displays two or even all three colors at once, intervention strategy is based on the least desirable color present. For example, if a wound is both yellow and black, intervention strategy is the type used for a black wound. Some facilities classify mixed wound colors by percentages, for example, 75% black and 25% yellow.

- Odor defines the presence or absence of high bacteria counts in the wound and should be assessed only after the clinician has cleaned the wound. A pungent, strong, foul, fecal, or musty odor suggests critical colonization or infection.
- Periwound skin is assessed for color and temperature. When checking for potential skin breakdown or assessing the skin around an existing pressure ulcer or other wound, begin with temperature. Warmth may indicate pressure ulcer formation, if the skin is intact, or the presence of an underlying infection.

- Type of tissue exposed, including wound bed description and wound color, provides a consistent definition of the tissue in the base of the wound. Descriptors—such as granulation tissue, slough, or eschar—are generally used to define the tissue types. Color of the tissues also has been used to distinguish viable tissue from nonviable tissue and is another descriptor that aids the management process.

A description of the wound margin condition may provide the clinician with information related to the wound's chronicity or wound-healing ability.

Pain: The fifth vital sign

Pain, if present, may indicate infection, swelling, or edema; underlying tissue destruction that isn't visible; or vascular insufficiency. Document the presence of severe pain or tenderness within or around the wound, and report it to the primary care clinician. Document the absence of pain, which may indicate nerve destruction or neuropathy. Work with the patient who can't communicate verbally but can understand commands to locate the site of any pain. If the patient is unable to respond verbally or with simple hand gestures, watch for signs of pain, such as facial grimaces, retraction of a body part, or tenseness during the procedure. Document the patient's nonverbal as well as verbal responses because both are important descriptors. Specific information related to pain, tolerance of dressing changes, ability to provide self-care, and response to adjunctive therapies and treatments (such as rehabilitation) assist in developing a proactive care plan.

The Joint Commission has developed evidenced-based pain management standards that have been incorporated into the requirements for Joint Commission accreditation. To comply with these standards, facilities must implement policies and procedures to inform patients of their right to pain relief and demonstrate that pain is being routinely addressed, reassessed, treated, and managed effectively. Assessment data collected to determine the patient's pain level include the following.

- Pain intensity: Use a pain-intensity rating scale appropriate for the patient population. Document pain intensity at present, worst, and least levels. If possible, use the same pain rating scale consistently in the organization and among disciplines.
- Location: Ask the patient to mark the site on a diagram or to point to the site of pain.
- Quality, patterns of radiation, and character: Elicit and record the patient's own words whenever possible.
- Onset, duration, variations, and patterns
- Alleviating and aggravating factors
- Present pain management regimen and effectiveness
- Pain management history: Include a medication history, presence of common barriers to reporting pain and using analgesics, past interventions and response, and the patient's manner of expressing pain.
- Effects of pain: Ask about pain's impact on everyday issues, such as work, sleep, appetite, relationships with others, emotions, and concentration.
- Patient's pain goal: Include goals for managing pain intensity and goals related to function, activities, and quality of life.
- Physical examination and observation of the pain site.

Quantitative information

Quantitative assessment elements are objective rather than subjective and include precise measurements.

Ankle and calf circumference

Ankle and calf circumference (for vascular parameters) provides the measurement around the extremity.

Photography

Wound documentation is usually supplemented with a photograph of the wound when needed for legal or clinical purposes. Photographic documentation helps the clinician assess the wound and measure changes over time. Typically, the wound is photographed in color on initial assessment, prior to and after wound debridement, and then at select intervals according to facility policy.

Wound measurements

Accurate wound measurements assist the wound care team in designing an appropriate care plan. Size of the wound is determined by calculating length, width, and depth, usually in centimeters, or by measuring volume or surface area. Several methods exist for measuring wounds, including linear or automated measurement, wound tracings, and wound molds. The direction and depth of any tunneling also should be described. A wound's surface area includes depth and undermining. Use consistent vocabulary and consistent units of measure when documenting and describing wound measurements.

Length and width. The length and width of any wound are measured as linear distances from wound edge to wound edge. To ensure accurate and consistent measurements, establish landmarks for wound measurements. For example, look at the wound as if it were a clock face. The top of the wound—12 o'clock—is toward the patient's head. Conversely, the bottom of the wound—6 o'clock—is in the direction of the patient's feet. Therefore, length can be measured from 12 to 6 o'clock, using the patient's head and feet as guides. Width can be measured from side-to-side or hip-to-hip or from 3 to 9 o'clock.

Length and width can also be documented by making a tracing of the wound on transparent paper with a permanent marker. The tracing should be placed in a plastic bag (for infection control) and may be kept in the patient's chart for reference throughout treatment. If the wound is healing normally, subsequent tracings will show a progressive decrease in size.

Depth. The depth of a wound can be described as the distance from the visible surface to the deepest point in the wound base. If the depth varies, measure different areas of the wound bed to confirm the deepest site. Document your findings according to your facility's policy. (See *Measuring wound depth*, page 20.) When assessing a pressure ulcer, also document the depth of tissue loss by staging it on a scale of 1 to 4. Stages 3 and 4 are the most serious, sometimes requiring surgical closure or grafting.

Volume. An alternative method for measuring a wound cavity is to determine wound volume. This can be done by filling the wound cavity with an amorphous material (such as dental alginate paste), allowing the material to solidify, removing the resulting mold of the wound, and submerging the mold in a calibrated container that contains a known amount of water. The amount of water displaced is the wound volume. This technique is used mainly in research and laboratory studies, rather than daily clinical practice.

Tunneling. Also referred to as rimming or undermining, tunneling is tissue destruction underlying intact skin. Both the direction and the depth of tunneling should be documented. (See *Measuring wound tunneling*, page 21.)

University of Texas diabetic foot classification system

Stage	Grade 0	Grade I	Grade II	Grade III
A	Prelesion or postlesion completely epithelialized	Superficial wound, not involving tendon, capsule, or bone	Wound penetrating to tendon or capsule	Wound penetrating to bone or joint
B	Infected	Infected	Infected	Infected
C	Ischemic	Ischemic	Ischemic	Ischemic
D	Infected and ischemic	Infected and ischemic	Infected and ischemic	Infected and ischemic

Reprinted with permission from Inlow, S., et al. (2000). Best practices for the prevention, diagnosis, and treatment of diabetic foot ulcers, *Ostomy/Wound Management, 46*(11), 55–68.

When documenting partial- and full-thickness wounds, include length, width, and depth, as well as tunneling (if present) in full-thickness wounds. All partial-thickness wounds have depth because the wound has penetrated through the epidermis. Because measuring superficial wounds is difficult, some clinicians choose to document the depth as less than 0.1 cm. Any depth equal to or greater than 0.1 cm can be measured with a measuring device. Other parameters to use when describing partial- and full-thickness wounds are the color of the wound bed, appearance of the skin around the wound (periwound skin), and the presence of tunneling, drainage, and odor.

Wound classifications

Pressure ulcers are documented using the staging classification system described in chapter 3. For diabetic foot ulcers, the University of Texas classification system can be used. (See *University of Texas diabetic foot classification system* above.)

Procedures

The body of documentation should detail every aspect of the procedure performed. Procedures include debridement, application of a biologic skin substitute, or application of a multilayer sustained graduated compression system. Components of the procedure performed include, but aren't limited to:

- consent for the procedure
- physical examination completed and updated in the last 7 days
- correct patient, correct limb, correct site procedural verification
- name of the physician or clinician performing the procedure
- preoperative diagnosis
- procedure description
- anesthesia
- complications
- postoperative diagnosis
- procedure performed (e.g., techniques used and tissues removed).

Ordering of supplies and tests

The clinician must supply an order for all the care the patient receives related to the treatment. Product supplies, tests, and modalities to be documented may include:

- wound care supplies such as alginates, collagens, composites, contact layers, foams, hydrocolloids, hydrogels, specialty absorptive dressings, surgical supplies (miscellaneous), transparent films, and wound fillers
- drugs such as topical steroids, debriding agents, and growth factors
- modalities such as lower-limb immobilizers, total contact cast, foot casts or boots, removable walking braces with rocker-bottom soles, crutches, walkers, or canes
- adjunctive therapies and support surfaces, such as negative pressure wound therapy pumps or support surfaces for bed and chair
- noninvasive tests, such as segmental blood pressures, Doppler waveform analysis, toe pressures, and transcutaneous oxygen tension
- vascular tests
- laboratory tests, such as fasting or random blood glucose level, glycohemoglobin (hemoglobin A_{1C}) level, complete blood count with or without differential, erythrocyte sedimentation rate, wound cultures, blood cultures, urinalysis, prealbumin and transferrin levels, and blood chemistries
- support surfaces, such as mattress overlays, mattress replacements, total bed replacements, and chair cushions
- referrals, such as rehabilitation management, wellness programs, and diabetes education.

When documenting an order for dressings, remember to include:

- cleanser
- anatomic location
- primary dressing
- secondary dressing, if applicable
- securement device, if applicable
- duration of need
- frequency of change.

When documenting an order for prescription drugs, remember to include:

- name of drug and unit of measure
- route
- frequency
- duration of use
- prescriber's name and signature
- number of refills.

When ordering radiology, vascular, and laboratory tests, remember to:

- order the exact name of the test performed in your facility
- select the diagnosis code that supports the medical necessity of the test.

When ordering a support surface, remember to speak with your support surface representative to clearly understand the guidelines set forth for your care setting.

When ordering a referral for your patient, remember to ask the referring department if any specific information is required so that the patient's appointment can be scheduled without delay.

Patient education

Patient education and compliance are the cornerstones of successful wound and skin care and warrant thorough documentation. The educational needs of the

patient should be evaluated to determine his current knowledge base relevant to the care plan determined. A clinician familiar with the care plan should direct the educational activities. Principles of adult learning should be used to develop, implement, and evaluate the effectiveness of the educational activity. Measuring and documenting the patient's retention of the material also is important for a successful plan.

The Joint Commission and the Panel for the Prediction and Prevention of Pressure Ulcer in Adults have identified patient education as a critical element of care delivery.

Effective patient education includes:

- identifying the barriers to learning, including cultural, physical (pain), learning style, and environmental barriers
- performing a needs assessment of the patient and his caregiver to determine their knowledge levels, beliefs, and compliance practices as well as perceived educational needs
- assessing the patient's and caregiver's readiness to learn
- identifying patient and caregiver learning styles, including an assessment of the patient's reading and comprehension abilities
- identifying the patient's and caregiver's overall learning goals
- identifying and managing physical stressors that affect learning, such as pain
- documenting and reevaluating the patient's skin and wound care skills at each visit.

Care plan

The Joint Commission defines a *care plan* as "a plan, based on data gathered during patient assessment, that identifies the patient's care needs, lists the strategy for providing services to meet those needs, documents treatment goals and objectives, outlines the criteria for terminating specified interventions, and documents the individual's progress in meeting specified goals and objectives. The format of the 'plan' in some organizations may be guided by patient-specific policies and procedures, protocols, practice guidelines, clinical paths, care maps, or a combination of these. The care plan may include care, treatment, habilitation, and rehabilitation."

The care plan answers the following questions:

- Have all of the diagnosis codes been chosen to support the clinical documentation?
- Have the short-term goals accurately reflected the patient's condition?
- Have the long-term goals accurately reflected the patient's status?

Discharge plan

The discharge summary provides a synopsis of all patient events during the course of care. All the events, assessments, and diagnoses found in the discharge summary should be easily found in the previous documented visits.

Documenting care takes time and coordination of efforts from all team members for a complete and accurate portrayal of the care performed. (See *Top 20 strategies for effective skin and wound documentation,* page 37.) Given the fast pace of our society as well as the clinical and regulatory constraints to date, it's prudent for

Top 20 strategies for effective skin and wound documentation

- Use a comprehensive electronic medical record (EMR) to improve clinical and operational efficiencies and maximize workflow.
- Use a comprehensive EMR to improve accuracy and legibility and to analyze performance data.
- Review all pertinent local and national policies.
- Use clinical best practice pathways and algorithms to ensure consistent care.
- Ensure timely and complete documentation for accurate coding and billing. This isn't optional.
- Administer annual documentation staff competencies.
- Create a comprehensive glossary for your clinical practice setting to ensure accurate documentation.
- Declare your clinical strengths and weaknesses. Develop an educational plan to improve your performance.
- Develop a Quality Improvement plan.
- Develop policies and procedures for accurate documentation.
- Document concurrently with the patient's visit to accurately record the care provided.
- Establishing complete documentation guidelines can ensure accurate statistical databases, financial planning, clinical staffing, and increased revenues.
- Investigate your facility's documentation requirements.
- Perform a documentation audit to ensure accurate documentation.
- Provide ongoing educational seminars to review documentation standards.
- Review all pertinent Medicare coverage decisions.
- Understand who bears responsibility for clinical documentation in the medical record.
- Ensure appropriate medical record standards.
- Validate the competency of each practitioner in the department.
- Be cognizant of the information contained within your EMR.

Source: Tri-assess Premier Software and the Clinical Wound Manager Manual Series, Policies and Procedures Manual. © Wound Care Strategies, Inc., 2011.

clinicians to record assessment, documentation, clinical, and financial outcome data in an electronic database. The data collected can then be used to advance critical pathways, improve product formularies, validate contract fees with payers, and improve patient and physician satisfaction, which in turn increases business opportunities.

3 Understanding and managing chronic wounds

Venous, arterial, and diabetic ulcers (often referred to as *lower-extremity ulcers*), as well as pressure ulcers, are common. Managing these frequently problematic wounds can be difficult, exacting a costly toll on the patient's well-being. In addition, health care expenditures in the United States related to the evaluation and management of vascular wounds are estimated to run into the billions of dollars.

Management of vascular, diabetic, and pressure ulcers has improved over the past decade as clinicians have realized the importance of proactive measures and a multidisciplinary team approach. The introduction of newer treatment modalities, such as growth factors and biologic skin replacements, holds the promise of treating difficult wounds, accelerating the wound-healing process, and preventing new wound formation to a degree not previously thought possible.

If the patient is receiving palliative or hospice care, the care plan might not be as aggressive for wound care and may address ulcer management through cleansing and dressing the ulcer, turning and repositioning the patient, and managing pain issues rather than achieving complete wound healing.

PRESSURE ULCERS

A pressure ulcer is a localized injury or cell death involving skin, underlying tissue, or both. Pressure ulcers typically form over a bony prominence as a result of compromised circulation caused by pressure or pressure plus shear, friction, or both. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated.

Pressure ulcers may be superficial (caused by local skin irritation with subsequent surface maceration) or deep (originating in underlying tissue). Deep ulcers may go undetected until they penetrate the skin.

It's unclear how many people in the United States have pressure ulcers, although the Agency for Healthcare Research and Quality (AHRQ) reported in 2008 that hospitalizations involving patients with pressure ulcers—developed either before or after admission—increased by nearly 80% between 1993 and 2006. AHRQ's analysis found that of the 503,300 pressure ulcer–related hospitalizations in 2006:

- Pressure ulcers were the primary diagnosis in about 45,500 admissions—up from 35,800 in 1993.
- Pressure ulcers were a secondary diagnosis in 457,800 hospital admissions—up from 245,600 in 1993. These patients were admitted primarily for pneumonia, infections, or other medical problems.

Patients at risk for pressure ulcers

At greatest risk for pressure ulcers are patients compromised by the following conditions:

- chronic illness that requires bed rest
- dehydration
- diabetes mellitus
- diminished pain awareness
- fractures
- history of corticosteroid therapy
- immunosuppression
- incontinence
- malnutrition
- mental impairment, possibly related to coma, altered level of consciousness, sedation, or confusion
- multisystem trauma
- paralysis
- poor circulation
- previous pressure ulcers
- significant obesity or thinness.

- Among hospitalizations involving pressure ulcers as a primary diagnosis, about 1 in 25 admissions ended in death. The death rate was higher when pressure ulcers were a secondary diagnosis—about 1 in 8.
- Pressure ulcer–related hospitalizations are longer and more expensive than many other hospitalizations. While the overall average hospital stay is 5 days and costs about $10,000, the average pressure ulcer–related stay is 13 to 14 days and costs $16,755 to $20,430, depending on medical circumstances.

Because pressure ulcers are most likely to develop in patients who experience sustained pressure over bony prominences, those who spend most or all of their time in bed or a seating device such as a wheelchair without shifting their body weight properly are at great risk. Risks increase with various cofactors, such as partial or total paralysis and malnutrition. (See *Patients at risk for pressure ulcers* above.)

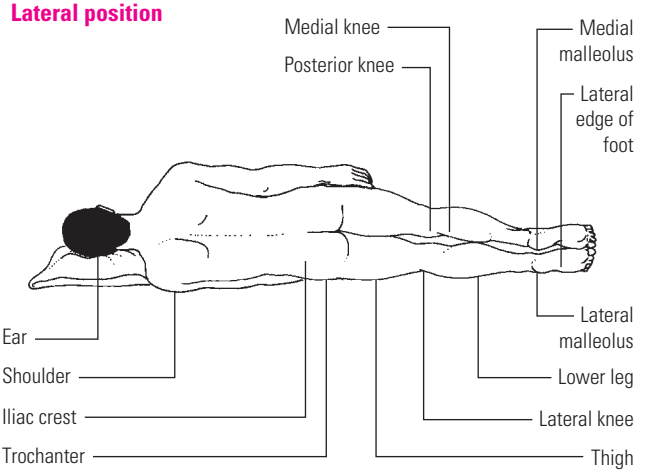
Pathogenesis

Most pressure ulcers develop when soft tissue is compressed between a bony prominence (such as the sacrum) and an external surface (such as a mattress or the seat of a chair) for a prolonged period. (See *Common pressure ulcer sites,* pages 40 and 41.) Pressure—applied with great force for a short period or with less force over a longer period—disrupts blood supply to the capillaries, impedes blood flow to the surrounding tissues, and deprives tissues of oxygen and nutrients. This leads to local ischemia, hypoxia, edema, inflammation and, ultimately, cell death. The result is a pressure ulcer, also called a *bed sore, decubitus ulcer,* or *pressure sore*.

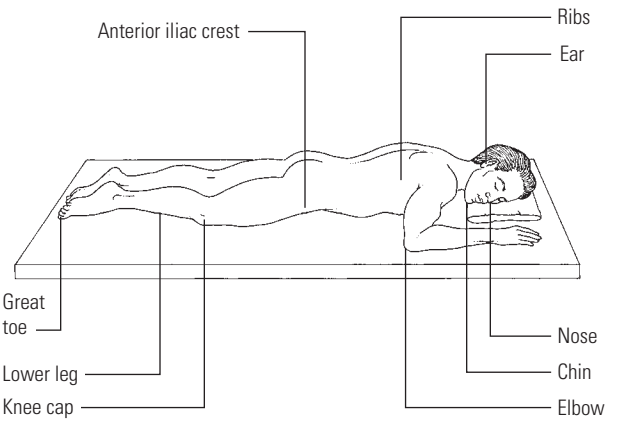
Common pressure ulcer sites

These figures show the anatomic locations that are susceptible to pressure ulcer formation.

Lateral position

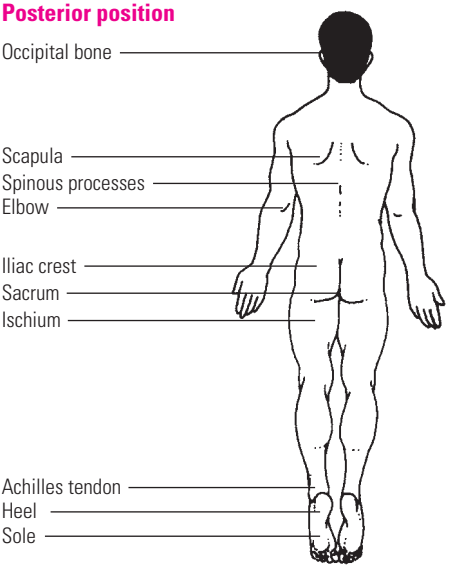


Prone position

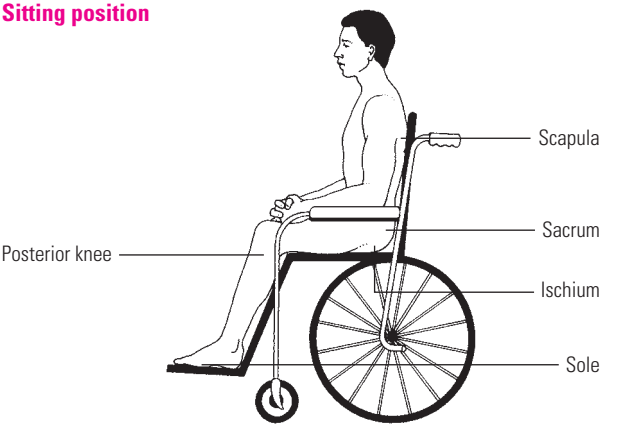


Common pressure ulcer sites (*continued*)

Posterior position



Sitting position



Shear, which separates the skin from underlying tissues, and friction, which abrades the top layer of skin, also contribute to pressure ulcer development. Contributing systemic factors include infection, malnutrition, edema, obesity, emaciation, multisystem trauma, and certain circulatory and endocrine disorders.

Assessment

Blanching erythema—a reddened area that blanches when compressed with a finger—is an early sign that an ulcer may be forming over a bony prominence. The condition may resolve without tissue loss if pressure on the site is reduced or eliminated. Nonblanchable erythema, a more serious sign, suggests that tissue destruction is imminent or has occurred. The skin may appear bright red to dark red or purple. If deep tissue damage is also present, the area may be indurated or boggy when palpated. Wound management effectiveness and duration depend on wound severity.

Several classification systems identify pressure ulcers by stages, identifying wounds by the tissue layers involved. These systems don't describe a wound completely; rather, they provide an anatomic description of the wound's depth. The National Pressure Ulcer Advisory Panel (NPUAP) system for describing pressure ulcers is a combination of the most commonly used staging systems and is also used to classify other wound types.

When documenting the stages of pressure ulcers, the health care professional should be familiar with the vocabulary necessary for accurate description and measurement, and treatment of these ulcers must acknowledge the differing stages. In 2007, The National Pressure Ulcer Advisory Panel redefined the definition of a pressure ulcer and the stages of pressure ulcers, including the original four stages and adding two stages to cover deep tissue injury and unstageable pressure ulcers. This new classification system was the culmination of over 5 years of work beginning with the identification of deep tissue injury in 2001.

Pressure ulcer stages

The NPUAP's revised staging system for pressure ulcers is synopsized here.

Suspected deep tissue injury

The least advanced pressure ulcer stage involves a purple or maroon localized area of discolored intact skin or a blood-filled blister caused by damage to underlying soft tissue from pressure, shear, or both. This presentation may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.

Deep tissue injury may be difficult to detect in patients with dark skin tones. Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar. Additional layers of tissue may be exposed rapidly, even with optimal treatment.

Stage 1

Stage 1 involves intact skin with nonblanchable redness of a localized area, usually over a bony prominence. The area may be painful, firm, soft, warmer, or cooler as compared to adjacent tissue. Stage I may be difficult to detect in individuals with dark skin tones. Darkly pigmented skin may not have visible blanching, although its color may differ from the surrounding area. Blanching may indicate "at risk" persons.

Stage 2

This stage involves partial-thickness loss of dermis presenting as a shallow open ulcer with a red or pink wound bed, without slough. It also may present as an intact or open/ruptured serum-filled blister or a shiny or dry shallow ulcer without slough or bruising. Bruising indicates suspected deep tissue injury. This stage should not be used to describe skin tears, tape burns, perineal dermatitis, maceration, or excoriation.

Stage 3

This stage involves full-thickness tissue loss. Subcutaneous fat may be visible, but bone, tendon, and muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. Ulcers at this stage may include undermining and tunneling.

The depth of a stage 3 pressure ulcer varies by anatomical location. Because the bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue, stage 3 ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage 3 pressure ulcers. Bone and tendon are not visible or directly palpable.

Stage 4

A stage 4 pressure ulcer involves full-thickness tissue loss with exposed bone, tendon, or muscle. Slough or eschar may be present on some parts of the wound bed. Stage 4 pressure ulcers often include undermining and tunneling.

The depth of a stage 4 pressure ulcer varies by anatomical location. Like stage 3 ulcers, those involving the bridge of the nose, ear, occiput, or malleolus may be shallow because these areas have little subcutaneous tissue. However, stage 4 ulcers can extend into muscle and supporting structures (e.g., fascia, tendon, or joint capsule), making osteomyelitis possible. Exposed bone or tendon is visible or directly palpable.

Unstageable

This new NPUAP stage is used to describe full-thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green, or brown), eschar (tan, brown, or black), or both in the wound bed. Until enough slough and eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined. Stable (dry, adherent, intact, without erythema or fluctuance) eschar on the heels serves as "the body's natural (biological) cover" and should not be removed.

No matter what the stage of a pressure ulcer, the health care practitioner must carefully assess the patient and document the true appearance of the skin condition or wound in the medical record. Reassessment of the skin condition or wound is paramount to further defining changes to the patient's skin.

The error of reverse staging

Staging is intended to describe the amount of tissue destroyed rather than the amount of tissue healed. Reverse staging rests on the misconception that a *stage 4* ulcer becomes a *stage 3* ulcer and proceeds upward through the staging system as it heals. However, original tissue that was destroyed by the wound (such as subcutaneous tissue, muscle, and bone) is instead replaced with granulation tissue and new epithelium. Review the NPUAP position statements about reverse staging by visiting www.npuap.org.

Because tools to measure pressure ulcer healing didn't exist until after 1900—and because it's essentially required for documentation, consistency of care, and reimbursement (in care settings)—some clinicians continue to use reverse staging. More efficient methods to describe wound healing include tools such as the Pressure Sore Status Tool, the Pressure Ulcer Scale for Healing, the Sessing scale, and the Sussman tool. Alternatively, the clinician may simply document:

- dimensions of size (length and width)
- dimensions of depth
- dimensions of tunneling or undermining
- tissue amount and type (eschar, slough, or granulation)
- amount and qualitative description (color, thickness, and odor) of exudate.

Regular comparisons between the current depth of the wound at its worst point and the depth at the same point as documented on admission allow an accurate evaluation of wound healing. Health care professionals should develop specific wound care policies and procedures based on standard guidelines, such as those of AHRQ; the Wound, Ostomy and Continence Nurses Society; and the NPUAP.

Kennedy terminal ulcer

A Kennedy terminal ulcer is a type of a pressure ulcer some patients or residents develop as they are dying. It presents with certain characteristics:

- It tends to be on the sacrum or coccyx, although Kennedy terminal ulcers have been reported on other areas of the body.
- It has a sudden onset.
- It begins as an abrasion, blister, or darkened area and can open and progress rapidly to a stage 2, 3, or 4 ulcer.
- It typically contains the colors red, yellow, black, or purple.
- Its borders tend to be irregular.
- It tends to have the appearance of a pear, butterfly, or horseshoe shape. The horseshoe shape has been reported in patients who are bariatric and dying, with a sudden-onset ulcer.
- Death tends to occur in weeks to months after a Kennedy terminal ulcer appears.

Kennedy pressure ulcers were discovered in 1983, when Karen Lou Kennedy, RN, CS, FNP, coordinator of Bryon Health Center Medical Clinic in Fort Wayne, Indiana, started one of the first skin-care teams in a long-term care facility. Pressure ulcers were looked at weekly by the pressure ulcer team, which included the medical clinic coordinator, Director of Nursing, pharmacist, head nurse of the floor, and dietician. Pressure ulcer pictures and records were kept on a spreadsheet. In looking at the spreadsheet data, it was noticed some of the patients who died with pressure ulcers had the same characteristics. Over time, they began to recognize the similarities.

Further studies need to be completed to add to the science and information on the Kennedy terminal ulcers.

Pressure ulcer versus Kennedy terminal ulcer

A Kennedy terminal ulcer tends to come on suddenly. Often the nurse or caregiver will say, "Oh, my gosh, that wasn't there yesterday!" or even the last time the patient was turned. You may also hear, "I worked Friday, and it wasn't there. I was off for the weekend, came back on Monday, and there it was!" A Kennedy terminal ulcer gives the appearance of having been there for several days or even weeks longer than it has been.

Treating a Kennedy terminal ulcer

Kennedy terminal ulcers are treated like other ulcers with similar characteristics. In other words, you treat what you see. If the ulcer is superficial, you may need to cover and protect it. If it has developed to stage 3 or 4 and is draining, you may need a dressing that is more absorbent.

Managing pressure ulcers

As an aid to risk assessment and management, AHRQ published two booklets for health care professionals: *Pressure Ulcers in Adults: Prediction and Prevention,* and *Treatment of Pressure Ulcers*. The agency also published a handbook for patients, available in English and Spanish, titled *Preventing Pressure Ulcers: A Patient's Guide to Treating Pressure Sores*. Although these resources were published respectively in 1992 and 1994, they continue to provide the basic guidelines needed to develop a sound program. Additionally, the Wound, Ostomy, and Continence Nurses Society published guidelines for pressure ulcer care, titled *Prevention and Management of Pressure Ulcers*.

In 2009, the European Pressure Ulcer Advisory Panel (EPUAP) and NPUAP developed the *Quick Reference Guide for the Prevention and Treatment of Pressure Ulcers* based on a 4-year collaborative effort. The more comprehensive *Clinical Practice Guideline* on which the *Quick Reference Guide* is based provides a detailed analysis and discussion of available research, critical evaluations of the assumptions and knowledge of the field, description of the methodology used to develop the guideline, and acknowledgments of editors, authors, and other contributors. The *Quick Reference Guide* contains excerpts from the *Clinical Practice Guideline,* but users should not rely on these excerpts alone.

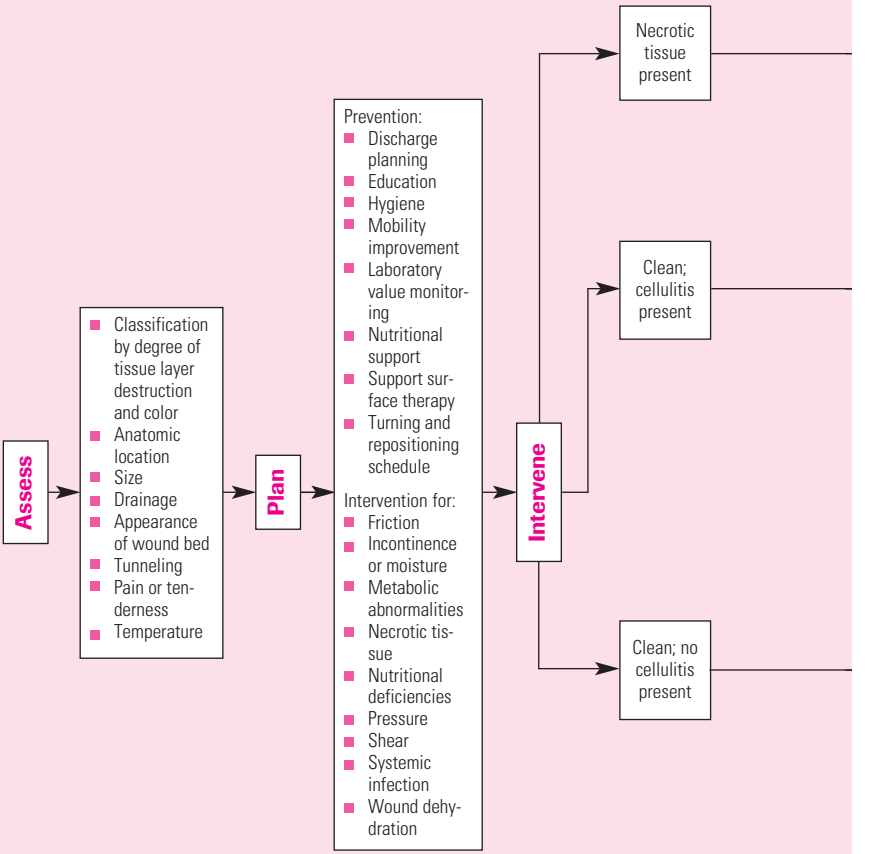
The goal of this international collaboration was to develop evidence-based recommendations for the prevention and treatment of pressure ulcers that could be used by health care professionals throughout the world. An explicit scientific methodology was used to identify and evaluate available research. In the absence of definitive evidence, expert opinion (often supported by indirect evidence and other guidelines) was used to make recommendations. Guideline recommendations were made available to 903 individuals and 146 societies or organizations registered as stakeholders in 63 countries on six continents. The final guideline is based on the available research and the accumulated wisdom of the EPUAP, NPUAP, and international stakeholders. Both documents are available through the NPUAP website at http://www.npuap.org. The *Quick Reference Guide* has been translated into several languages; translations are available on the EPUAP website at http://www.epuap.org.

All stages of pressure ulcers require topical wound care, and surgical intervention may be required for stages 3 and 4. Topical wound care varies with the management modalities used and the ulcer's stage. (See *Topical management algorithm for wound care,* pages 46 and 47.) Interventions to reduce pressure over bony prominences, such as the use of support surfaces, are vital to the success of the care plan.

If infection develops or the patient is immunocompromised, immediate surgical debridement may be necessary, as described later in this chapter. In stage 3 pressure ulcers, spontaneous closure may take months and may cause scar tissue that can predispose the patient to recurrent pressure ulcers. For these reasons, surgical excision and closure may be used to manage these ulcers. Stage 4 ulcers are handled similarly, but debridement may be more radical when a bony prominence is involved.

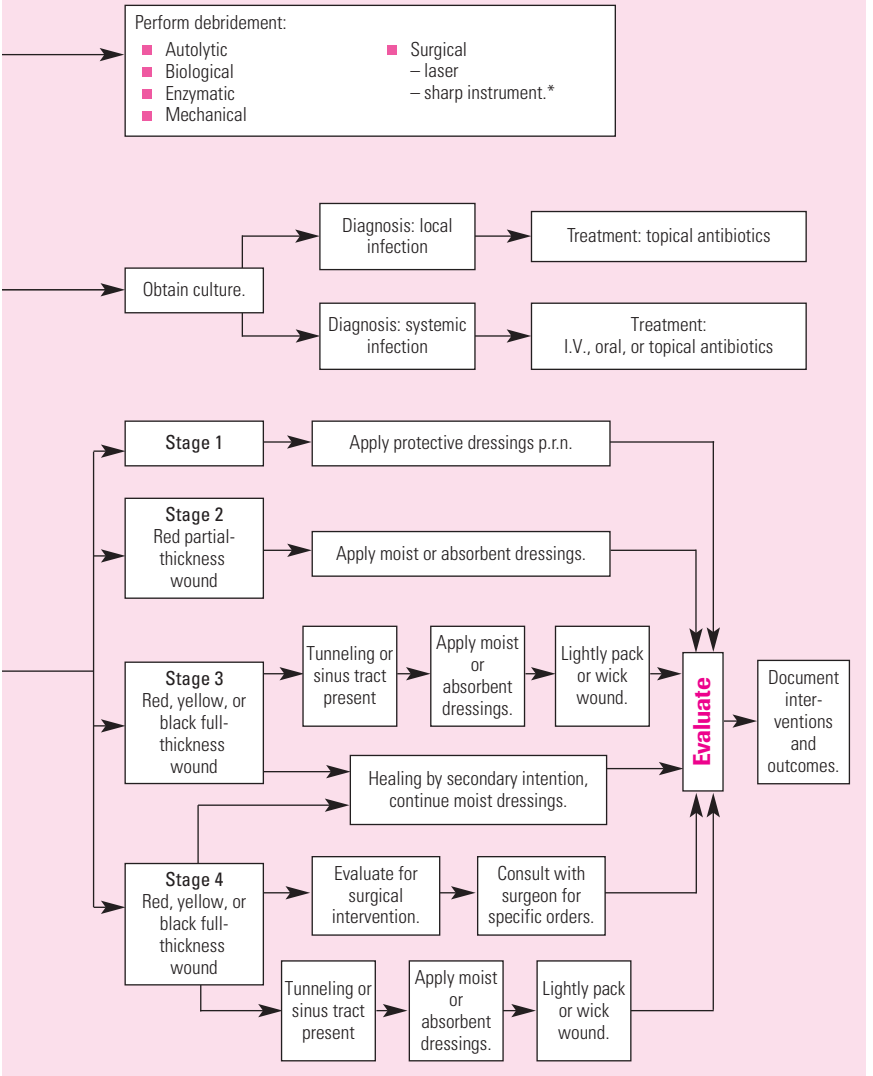
Topical management algorithm for wound care

Use this flowchart to help you effectively assess, plan, intervene, and evaluate wounds. You'll need to exclude patients with diabetic or neurotrophic ulcers and those with stages 3 and 4 osteomyelitis, systemic infection, or venous stasis ulcers.



*Debridement performed according to practitioner's state practice, professional regulation standards, and competency validation.

Hess, C.T. *Clinical Wound Manager Manual Series for the Wound Care Department.* © Wound Care Strategies, Inc., 2011.


Perform debridement:
Autolytic
Biological
Enzymatic
Mechanical
Surgical
– laser
– sharp instrument.*
Obtain culture.
Diagnosis: local infection
Treatment: topical antibiotics
Diagnosis: systemic infection
Treatment: I.V., oral, or topical antibiotics
Stage 1
Apply protective dressings p.r.n.
Stage 2 Red partial-thickness wound
Apply moist or absorbent dressings.
Stage 3 Red, yellow, or black full-thickness wound
Tunneling or sinus tract present
Apply moist or absorbent dressings.
Lightly pack or wick wound.
Healing by secondary intention, continue moist dressings.
Stage 4 Red, yellow, or black full-thickness wound
Evaluate for surgical intervention.
Consult with surgeon for specific orders.
Tunneling or sinus tract present
Apply moist or absorbent dressings.
Lightly pack or wick wound.
Evaluate
Document inter-ventions and outcomes.

Tissue flaps are commonly used for surgical management of pressure ulcers. They involve the transfer of skin and underlying structures to fill a defect. Tissue flaps are classified according to the tissue layers included and the surgical methods used to transfer the tissue. All flaps require partial detachment of the tissue from its original site (with the base remaining attached).

An accurate assessment of the skin and wound type will assist the clinician in designing and implementing an effective care plan.

Mobility

For most patients, maintaining current activity level, mobility, and range of motion is sufficient to prevent pressure ulcers or for their early treatment. If a patient has a mobility or activity deficit, implement the interventions listed below to help protect against the adverse effects of pressure, friction, and shear. (Also see the "Pressure ulcer prevention program" checklist below.)

Repositioning

Any bed-bound patient at risk for pressure ulcers should be repositioned at least every 2 hours, if consistent with overall patient goals. A written schedule should be used for repositioning.

Positioning devices

For patients in bed, use positioning devices such as pillows or foam wedges to keep bony prominences (knees and ankles e.g.,) from directly contacting each other.

Pressure relief for the heels

Bed-bound patients who are completely immobile should have a care plan that includes use of devices that relieve all pressure on the heels, usually by raising them off the bed. Don't use donut-type devices.

Side-lying position

When placing a patient in the side-lying position, avoid positioning directly on the trochanter.

Bed positioning

Keep the head of the bed at the lowest degree of elevation to minimize shear, consistent with the patient's other medical conditions and restrictions. Limit the amount of time the head of the bed is elevated.

Lifting devices

For patients who can't assist with transfers and position changes, use a lifting device, such as a trapeze or the bed linens, to move rather than drag the patient in bed.

Pressure-reducing devices for heels

Any patient at risk for a pressure ulcer should be placed on a pressure-reducing device when in bed. Such devices include foam, static air, gel, and water mattresses.

Pressure from sitting

Any patient at risk for a pressure ulcer should avoid uninterrupted sitting in a chair or wheelchair. The patient should be repositioned, shifting the points under

pressure, at least every hour, or be put back to bed if consistent with overall patient management goals. Patients able to shift their weight should be taught to do so every 15 minutes.

Pressure-reducing devices for chairs

For chair-bound patients, use a pressure-reducing device such as those made of foam, gel, air, or a combination. Don't use donut-type devices.

Postural alignment

For chair- or wheelchair-bound patients, attend to postural alignment, weight distribution, balance, stability, and pressure relief.

Plans and scheduling

A written plan for the use of positioning devices and schedules may be helpful for chair-bound patients.

Employing the strategies outlined here in a comprehensive plan of care creates the first line of defense for patients at risk for skin breakdown. In addition, make use of the recommendations in this pressure ulcer prevention checklist.

CHECKLIST

Pressure ulcer prevention program

To create a successful pressure ulcer prevention program, consider these simple steps:

- ✔ Assess the types of patients who reside in your facility, focusing on their skin and wound care needs.
- ✔ Identify the etiologic factors contributing to skin and wound care needs.
- ✔ Implement a pressure ulcer risk assessment tool and use it repeatedly, as needed, based on patient presentation and care setting.
- ✔ Determine the support surfaces needed to manage patients in your facility.
- ✔ Develop a skin care formulary to maintain or improve patients' skin integrity (see chapter 2 for a list of commonly ordered supplies; also see Part 2 for examples of specific products).
- ✔ Incorporate a multidisciplinary skin care team to evaluate patients on admission and periodically thereafter.
- ✔ Assess and reassess the degree of malnutrition associated with patients' age, weight, intake, and laboratory values (see chapter 2; also see chapter 5 for laboratory values in chronic wound management).
- ✔ Develop a laboratory formulary of tests that facilitate managing patients' nutritional status.
  - Albumin level is a gross indicator of nutritional status and fluid balance.
  - Prealbumin level reveals acute nutritional status changes.
  - Total lymphocyte count indicates immunosuppression and autoimmunity, which can result from decreased protein intake.

- ✔ Include rehabilitation professionals in the skin care team to evaluate patients for proper off-loading devices to prevent or manage pressure ulcers.
- ✔ Establish a bowel and bladder program for incontinent patients.
- ✔ Develop policies, standards, and care procedures to support the facility's practice model (see chapter 6).
- ✔ Document care in a progress note or current wound assessment; include the following information:
  - Update the patient's clinical course of treatment.
  - Document and explain the need for diagnostic tests (such as laboratory values).
  - Summarize the patient assessment and care plan.
- ✔ Ensure staff knowledge of documentation standards (see chapter 6).
- ✔ Educate the staff at least annually on all aspects of skin and wound care (see chapter 6).
- ✔ Maintain the head of the bed at or below 30 degrees or at the lowest degree of elevation consistent with the patient's medical condition.
- ✔ Turn and position patients at least every 2 to 4 hours on a pressure-reducing mattress or at least every 2 hours on a non-pressure-reducing mattress.
- ✔ Reposition chair-bound patients every hour if they can't perform pressure-relief exercises every 15 minutes.
- ✔ Avoid using foam rings, donuts, and sheepskins as pressure-reducing devices.
- ✔ Use pressure-relief devices in the operating room for patients at risk for pressure ulcer development.
- ✔ Relieve pressure under patients' heels by placing pillows or other devices under the calves.
- ✔ Establish a bowel and bladder program for incontinent patients.
- ✔ Use incontinence barriers to protect and maintain skin integrity.
- ✔ Consider a pouching system or collection device to contain urine or stool and to protect the skin from effluent.
- ✔ Maintain adequate nutrition compatible with the patient's wishes or condition to maximize the potential for healing.
- ✔ Educate patients and caregivers about the causes and risk factors associated with pressure ulcer development and ways to minimize risk.
- ✔ Develop a care plan consistent with the patient's overall plan.

VENOUS ULCERS

About 1% of the general population and 3.5% of people older than age 65 have venous leg ulcers, and the number is rising as the population ages. The recurrence

rate of venous ulcers is nearly 70%. It's estimated that the cost of care for venous ulcers exceeds $40,000 *per episode*. At an estimated 2.5 million Americans with venous ulcers, the total cost of treatment may be as high as $3.5 billion annually. As many as 2 million workdays per calendar year are lost because of chronic venous ulcers.

Moreover, venous ulcers are believed to account for 70% to 90% of chronic leg ulcers. These ulcers can be difficult to heal. The incidence of venous ulceration increases with age, with women being three times more likely than men to develop venous leg ulcers. In some studies, 50% of patients had venous ulcers that persisted for more than 9 months, and 20% had ulcers that didn't heal for more than 2 years. Other studies indicate that, after healing, more than 60% of patients experienced a recurrence of venous ulcers.

Pathogenesis

The proper diagnosis and management of venous ulcers begins with a basic understanding of the venous system of the lower extremities. The venous circulation consists of the superficial veins (greater and lesser saphenous) and their branches, the deep veins (popliteal and femoral), and the perforating veins (which connect the superficial and deep veins). During calf muscle contraction, such as that which occurs with normal ambulation, the veins empty from the superficial veins, to the perforating veins, to the deep veins, and back to the heart. Retrograde blood flow is prevented by venous valves, which exist in all three venous components mentioned above. In the presence of healthy veins and calf muscles, standing deep vein pressure is about 80 to 90 mm Hg. With ambulation, the calf squeezes the blood toward the heart, and the venous pressure drops to 30 to 40 mm Hg.

Chronic venous insufficiency is the result of deep vein obstruction, incompetent venous valves, and inadequate calf muscle function. Partial or complete deep vein obstruction may occur from thrombosis, scar tissue, obesity, pregnancy, or malignancy. Valves may be incompetent due to lower-leg trauma, deep vein thrombosis, or congenital anomalies. Poor calf muscle function may be secondary to paralysis, decreased ankle joint mobility (as seen with fractures or arthritis), decreased activity, or muscle atrophy. Abnormalities in the veins, valves, and calf muscles result in impaired venous return and abnormally high venous pressure, both at rest and with ambulation. In other words, the venous pressure doesn't drop with ambulation as seen in normal venous and calf function; it remains high at 80 to 90 mm Hg. This leads to edema and altered microcirculation in the skin, which results in impaired healing.

Venous ulcers are commonly precipitated by trauma. The patient may have experienced the trauma weeks to months before, and the wound never healed. The patient may also report that he had a pruritic rash (stasis dermatitis), and the ulcer started after he scratched the skin. Finally, a spontaneous blister may form in the presence of severe edema and, after rupture, result in a chronic wound. Once the wound occurs, the high venous pressure and resulting edema interferes with healing. (See *Hypotheses for venous ulceration*, page 52.)

Assessment

A thorough history and physical examination is essential for the diagnosis of venous ulceration. In obtaining the history, the clinician should focus on risk factors, such as a history of deep vein thrombosis, leg trauma (crush injury, fracture,

Hypotheses for venous ulceration

Fibrin cuff hypothesis
High venous pressures lead to distention of the capillary bed and leakage of macromolecules, such as fibrinogen, into the tissue. The fibrinogen polymerizes to fibrin, which then forms a barrier around the capillaries, preventing oxygen and nutrients from reaching the tissue. This leads to ulceration.

White blood cell hypothesis
Flow through the capillary is decreased due to high venous pressures. White blood cells, quite large when compared to red blood cells, plug the capillary, leading to local ischemia. The trapped cells release proteolytic enzymes and oxygen metabolites that damage the endothelium, making it more permeable to leakage of macromolecules into the tissue. These activated white cells also cause a local inflammatory reaction.

Trap hypothesis
Macromolecules, such as fibrin, trap growth factors and other important proteins making them unavailable for tissue repair and maintenance of tissue integrity.

or surgery), congenital venous abnormality, limited mobility with impaired calf muscle pump (arthritis, paralysis, or a muscular disorder), pregnancy, heart failure, family history of venous disease, obesity, gender, and advanced age.

Characteristic clinical findings include the presence of varicosities, hyperpigmentation, lipodermatosclerosis, and dermatitis. The shape of the leg may also provide a clue—for example, the "inverted bottle shape" is a sign of lipodermatosclerosis. Venous ulcers tend to have flat wound edges, without undermining. (See *Clinical findings associated with venous leg ulcers,* page 53.)

The American Venous Forum has developed a system, known by the acronym CEAP, for classifying venous disease based on:

- **C**linical signs
- **E**tiology of venous disease (congenital or primarily or secondarily acquired)
- **A**natomic distribution (superficial, perforating, and deep veins)
- **P**athologic condition (obstruction or reflux). (See *CEAP classification of venous disease,* page 54.)

The use of noninvasive vascular testing facilitates identification of the anatomic and pathologic aspects of this system. Use of the CEAP classification system improves documentation, assists in planning treatment strategies, and facilitates insurance approval of various treatments and surgical interventions.

When assessing the patient with venous disease, it's crucial to rule out coexisting peripheral arterial disease (PAD). If normal pulses can't be felt due to edema, a Doppler examination will reveal biphasic or triphasic sounds, in the absence of PAD. If the pulses are abnormal, an ankle-brachial index (ABI) must be performed to quantify arterial flow at the ankle. If the ABI indicates decreased arterial flow, further noninvasive vascular testing should be done before treatment.

Clinical findings associated with venous leg ulcers

Assessment parameter	Assessment finding
Wound location	30%–40% of wounds occur superior to the medial malleolus (near the saphenous vein); the remainder occur primarily in the lower one-third of the calf.
Appearance of wound bed	Wound bed appears "ruddy" or "beefy" red and granular.
Wound shape and margins	Wound has flat, irregular margins without undermining.
Drainage or exudate	Drainage or exudate may be moderate to heavy, depending on the amount of edema.
Surrounding skin	Surrounding skin will exhibit venous dilation, including submalleolar venous flare (typical of venous insufficiency), telangiectasias, reticular veins, varicose veins, edema (typical of more advanced venous disease), atrophie blanche, maceration, hyperpigmentation (from hemosiderin staining), dermatitis, and lipodermatosclerosis. Scarring from prior healed ulcers is also possible.
Pain	Presence of pain with venous leg ulcers is controversial. Many believe that pain usually isn't present; however, several studies have reported severe pain occurring in as many as 76% of patients with venous ulcers. Deep ulcers, particularly around the malleoli, or small venous ulcers surrounded by atrophie blanche are the most painful. Generally, patients report that pain occurs with leg dependence (for example, sitting or standing) and diminishes with leg elevation.

Although most leg ulcers are venous ulcers, the clinician should suspect other causes when the wound looks atypical (presence of necrotic tissue, exposed tendon, livedo reticularis on surrounding skin, or a deep, "punched-out" ulcer), has been present for longer than 6 months, or hasn't responded to good care. Don't hesitate to take a biopsy when in doubt. (See *Differential diagnosis of lower-extremity ulcers,* page 55.)

Complications associated with venous ulceration include the development of dermatitis, wound infection (bacterial and fungal), osteomyelitis, squamous cell carcinoma, and basal cell carcinoma. Venous ulceration can be further complicated by the presence of acute or chronic lipodermatosclerosis, or arterial insufficiency.

CEAP classification of venous disease

The American Venous Forum's CEAP system is used to categorize venous disease according to **C**linical signs, **E**tiology, **A**natomic distribution, and **P**athologic condition.

■ Class 0	No visible or palpable signs of venous disease
■ Class 1	Telangiectasias, reticular veins, malleolar flare (noted below the malleolus)
■ Class 2	Varicose veins
■ Class 3	Edema without skin changes
■ Class 4	Skin changes ascribed to venous disease (pigmentation, eczema, lipodermatosclerosis)
■ Class 5	Skin changes as defined above, with healed ulceration
■ Class 6	Skin changes as defined above, with active ulceration

Reprinted with permission from Porter, J. M. & Moneta, G. L. (1995.) An international consensus committee on chronic venous disease. *Journal of Vascular Surgery, 21*(4), 635–645.

Diagnostic testing

Performing the appropriate diagnostic tests is paramount when evaluating the patient with a suspected venous ulcer. The results of the tests will provide the basis for proper interventions and patient management. Recommended tests are listed below.

- Perfusion assessment tests include *ABI* and *tissue perfusion testing*. ABI is a simple, noninvasive test that determines the difference in blood pressure between the upper and lower extremities. ABI is important to assess for the presence of arterial insufficiency, which is present in approximately 25% of patients with venous disease. An ABI less than 1.0 contraindicates the use of compression therapy until further evaluation for the presence of arterial disease is performed. (See Appendix F, *Ankle-brachial index use in patients with diabetes.*) Tissue perfusion using skin perfusion pressure and/or transcutaneous oxygen is indicated in patients for whom initial calcification is suspected (diabetes, dialysis, older adults) because an ABI can be falsely elevated in these patients.
- *Contrast venogram* is a radiographic picture of the venous system obtained using radiopaque dye injected into a dorsal pedal vein. This test is less desirable than ABI because it's invasive. In addition, the test places the patient at risk for inducing local thrombophlebitis and deep vein thrombosis. Nonionic dye should be used in patients with renal insufficiency.
- *Doppler ultrasonography* is a qualitative, noninvasive test to establish the absence or presence of venous reflux. Excellent sensitivity and specificity is obtained when the test is done at the saphenofemoral or saphenopopliteal junctions; other sites may not accurately reflect venous status.
- *Air plethysmography* provides a quantitative assessment of calf venous reflux and calf muscle pump function. It measures venous filling index, which is the best determinant of the clinical severity of venous disease. It also assists in

Differential diagnosis of lower-extremity ulcers*

Inflammatory disorders
- Granuloma annulare
- Necrobiosis lipoidica
- Pyoderma gangrenosum
- Sweet's syndrome/disease

Malignancy
- Malignant transformation of long-standing ulcer (Marjolin's ulcer)
- Metastatic malignancies
- Primary skin malignancies
- Ulcers associated with hematologic or internal malignancies

Pressure ulcers

Infectious disorders
- Bacterial (*Pseudomonas,* staphylococcal scalded skin syndrome, streptococcal necrotizing fasciitis)
- Fungal (blastomycosis, chromomycosis, Madura foot)
- Mycobacterial (*Mycobacterium leprae, M. tuberculosis, M. ulcerans*)
- Parasitic (Chagas disease, leishmaniasis)
- Viral (herpes simplex, herpes zoster)

Trauma (burns, postsurgical trauma)

Factitial ulcers

Bites (dog, snake, spider)

Medication-related ulcers
- Drug reactions leading to blisters and large-scale wounds (erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis)
- Ulcer-causing medications used to treat malignancies (doxorubicin, hydroxyurea, radiation)

Autoimmune disorders
- Blistering (epidermolysis bullosa, pemphigoid, pemphigus)
- Nonblistering (dermatomyositis, lupus, rheumatoid arthritis, scleroderma)

Atherosclerotic arterial ischemic ulcers

Nonatherosclerotic ischemic ulcers
- Hypertensive ulcers (Martorell's ulcer)
- Sickle cell disease
- Thromboangiitis obliterans
- Vasculitis
  - Churg-Strauss syndrome
  - Henoch-Schönlein purpura
  - Leukocytoclastic vasculitis
  - Microscopic polyangiitis
  - Polyarteritis nodosa
  - Urticarial vasculitis
  - Wegener's granulomatosis
- Vasculopathy
  - Cryoagglutination (cryoglobulins, cryfibrinogens)
  - Embolic (cholesterol emboli, hyperoxaluria)
- Thrombotic
  - Antiphospholipid antibody syndrome, Sneddon's syndrome
  - Coumadin necrosis
  - Degos disease
  - Disseminated intravascular coagulation, purpura fulminans
  - Factor 5 Leiden deficiency
  - Heparin necrosis
  - Homocystinuria
  - Livedoid vasculitis
  - Polycythemia vera
  - Protein C/S deficiency
  - Thrombotic thrombocytopenic purpura
- Vasospastic/Raynaud's disease
- Venous ulcers

Neuropathic disorders
- Diabetes
- Leprosy

*See Appendix E, *Laboratory tests to rule out atypical causes of leg ulcers,* for screening laboratory tests for these diagnoses.

identifying patients who are suited for venous reconstruction. However, this test doesn't provide information about the venous status above the knee.

- *Photoplethysmography* is a quick, easy test that uses a photoelectrode to measure blood flow and blood volume changes in the skin at rest and after calf muscle exercise to determine venous refill time, a determinant of severity of venous reflux.

Management

The key to treating any chronic wound is to address the underlying etiology. Because elevated venous pressure and resulting edema is the problem with venous ulcers, compression therapy to control this is crucial to successful management. Leg elevation, dressings, and debridement all play important roles in managing venous ulcers.

New technologies—such as skin substitutes and biologics, growth factors, and gene therapy—provide greater choices for the treatment of chronic venous ulcers.

Compression therapy

The mainstay of treatment of venous ulcers, compression therapy improves the rate of ulcer healing, reduces the incidence of recurrence, and prolongs the interval to a first recurrence. Between 50% and 60% of patients heal with compression therapy alone within 6 months. Some of the physiologic changes that have been reported using compression therapy include improvement of lymphatic drainage, reduction of superficial venous pressure, improvement of blood flow velocity through unoccluded deep and superficial veins, and reduction of reflux in the deep veins. Studies have shown that venous ulcers that demonstrate healing after 4 weeks of compression therapy are likely to be completely healed by 24 weeks. In contrast, venous ulcers that don't show healing after 4 weeks of compression therapy tend to remain problematic. Compression products are described in Part 3 of this book.

Compression can be safely applied to patients with an ABI less than 0.9. Cautious use is necessary for patients with an ABI between 0.7 and 0.9. Compression is contraindicated if the ABI is at or below 0.7. A low ABI warrants referral to a vascular surgeon for further testing and evaluation. Uncompensated heart failure may also be a contraindication for compression therapy.

Consider the patient's desires regarding the type of device used for compression therapy. It doesn't matter if a particular device is best for a patient if he won't wear it. Available products can be categorized into two main types: rigid compression and elastic compression.

Using compression therapy

Paste bandages or multilayer wraps are typically used for ulcer treatment. Once these devices are applied, the patient should be seen again in 3 to 4 days to assess the wound and the patient's ability to tolerate compression therapy. If he has significant edema and exudate, twice-weekly changes may be necessary until the edema and exudate decrease. In addition, if the patient is having pain related to edema, the initial wraps should be applied with less compression to decrease pain and help him become accustomed to the therapy. Sufficient analgesia should be provided so that the compression therapy can be used comfortably.

Once the edema is reduced, the pain and exudate typically decrease. The wrap should then be applied with the recommended stretch and changed weekly. Once

the wound is healed, the patient will be anxious to be out of the device; however, it's prudent to maintain the compression (with weekly changes) for an additional 2 to 4 weeks after healing to allow the scar to mature and strengthen. Many ulcers have rapidly recurred from a simple friction injury secondary to stocking application and removal over weak scar tissue. Once the ulcer has healed, stockings, wraps, or leggings are used for long-term compression. For patients with mild venous disease, a stocking with 20 to 30 mm Hg of compression can be used; for patients with severe disease, a stocking with 30 to 40 mm Hg of compression may be necessary. Also, it must be consistently reinforced to the patient that the key to preventing ulcers from recurring is lifelong compression therapy. The patient must regularly replace his device. A typical Ace wrap, for example, may need to be replaced after 1 month; a pair of quality stockings will maintain compression for 4 to 6 months.

Rigid compression

Rigid, or inelastic, compression is effective at reducing edema in the ambulatory patient. It provides low resting pressure and high ambulatory pressure. This type of wrap or legging doesn't stretch, so when the calf muscles contract during ambulation, they press against this rigid "container" and are forced to contract inward, massaging the veins and pumping blood toward the heart. Because a competent calf muscle pump is essential for the efficacy of rigid compression, this modality is less effective with patients who are nonambulatory, have limited ankle joint mobility, or have a muscular disorder.

Examples of rigid compression devices include paste bandages, Circ-Aid leggings, and low-stretch bandages. Paste bandages, traditionally called *Unna's boot*, are composed of gauze bandages impregnated with a gelatinous substance and zinc oxide paste. They provide a moist wound-healing environment, and many will hydrate dry skin. A disadvantage of the paste bandage is its inability to conform to the changing volume of the leg as edema decreases; when used alone, the paste bandage will maintain compression only for about 48 hours. Typically, an elastic wrap is applied over the paste bandage component to maintain compression for longer periods. Dressings can be used over the wound or gauze, and can be added between the paste bandage layer and the elastic wrap for exudate absorption. Caution should be used with patients with a history of contact sensitivity because they may react to the ingredients in the paste bandage.

Elastic compression

Elastic compression provides high resting pressure and moderately high ambulatory pressure (lower than rigid compression during walking). Because of sustained pressure at rest, it is ideal for nonambulatory patients or patients who don't have a competent calf muscle pump. However, its sustained high pressure at rest can lead to pain and pressure areas, especially in a patient with mild arterial disease (those with an ABI of 0.7 to 0.9).

Compression stockings, elastic wraps, and multilayer wraps are examples of elastic compression devices that aid venous return when used in conjunction with leg elevation. Compression stockings are available with different grades of pressure, and they can be applied often, even though they may be difficult to apply. Patients who desire daily showers may appreciate use of a stocking for ulcer treatment.

Elastic wraps are inexpensive products that maintain pressure at about 20 to 30 mm Hg, depending on how they are applied, their thickness, and their age. They also allow the patient to shower. After being washed, however, these wraps

lose some of their compression capability. Newer elastic wraps with printed rectangles that stretch to squares when applied correctly are available. These wraps will maintain compression through 20 washings.

Multilayer wraps, consisting of three to four dry layers, are high-stretch bandages that stay in place for up to 1 week at a time. This compression system, made up of several different components, has been clinically proven to achieve pressures of 30 to 40 mm Hg at the ankle, graduating to 12 to 17 mm Hg below the knee. Padding is applied as the initial layer to assist in redistributing the pressure around bony prominences and absorbing wound exudate. The remaining layers are elastic, cohesive bandages that achieve sustained graduated compression. The multilayer system is appropriate for both ambulatory and nonambulatory patients. It's flexible and comfortable and can control heavy drainage. These bandages may slip down the leg and wrinkle more often than paste bandages, but they have the advantage of not causing sensitivity reactions.

Compression pumps facilitate venous return, decrease edema, and enhance fibrolytic activity. They function by inflation and deflation of select chambers on a given cycle, providing the "pumping" action needed to assist in resolving venous hypertension. Although this process may prove to be effective for some patients, it may be too time-consuming for some patients and caregivers. In addition, it may lead to lymphatic congestion in the upper thigh and pelvic region, further worsening lymphatic return.

Dressings

Topical wound management varies according to the wound's characteristics, including amount of exudate, size of the wound, presence or absence of infection, and the characteristics of the surrounding skin. Moisture-retentive dressings, such as hydrocolloids and certain foams, should be selected for wounds with light to moderate drainage. Absorbent dressings—such as foams, alginates, and specialty absorptive dressings—should be selected for wounds with moderate to heavy exudate. Some dense foam dressings will also provide local compression under wraps, especially important if the ulcer is located in a concave area, such as inferior or posterior to the malleolus. (See Part 2 of this book.)

VENOUS DERMATITIS

Venous, or stasis, dermatitis is defined as erythema and scaling that can vary from subacute, to acute, to chronic inflammation. It may be present on the legs of patients with chronic venous insufficiency. It must be differentiated from cellulitis, which is an acute infectious process that requires systemic antibiotics.

Stasis dermatitis is not well understood. It may be related to changes in the skin due to the chronic edema and congestion of venous insufficiency, or it may be due to contact with sensitizing products. Such products may include:

- ointment bases and preservatives, such as wool alcohols (lanolins), parabens, propylene glycol, ethylene diamine, and cetyl stearyl alcohols
- antibacterial agents, such as sodium fusidate, gentamicin sulfate, and neomycin
- additives in bandages, such as ester gum resin, colophony (adhesives), and additives, which prevent rubber and elastic from perishing
- medicated preparations that may contain benzocaine, neomycin, antihistamine creams, or balsam of Peru
- over-the-counter preparations that contain fragrances and preservatives.

Identifying venous dermatitis

Venous dermatitis can be classified as subacute, acute, or chronic inflammation.

Subacute inflammation
Characterized by legs becoming dry and scaly, this tends to show up more in the winter months and climates where the humidity is very low. As the condition persists, brown staining called *hemosiderin* can occur as a result of iron left behind from the disintegration of red blood cells leaking out of veins due to increased hydrostatic pressure. Products for treating subacute inflammation can include lubricating creams or lotions (to treat dry skin) or group II to V topical steroid creams or ointments.

Acute inflammation
Acute inflammation is characterized by red, superficial itchy plaques, which may have eczematous inflammation, cellulitis, or both. Weepy crusts may appear. Treatment of acute inflammation can be accomplished by wet compresses, group III to V topical steroids, and systemic antibiotics.

Chronic inflammation
Characterized by repeated inflammation of an already poorly vascularized area, this condition causes red, cyanotic-looking plaques. Permanent skin thickening occurs along with thick scales, giving the skin a bumpy, cobblestone appearance. Products uses to treat chronic inflammation include cool compresses initially, followed by group II to V topical steroid creams or ointments.

Assessment

Inspection of the skin is crucial to assessment of venous dermatitis. Be alert for dry skin, characterized by scaling, flakiness, or peeling of the superficial layer. Second to controlling edema, keeping the skin of the lower extremities from drying out is an important step in preventing acute, subacute, and chronic conditions. Preventing dryness helps prevent the skin condition from progressing. (See *Identifying venous dermatitis*.)

Allergen testing

Allergen testing can be done in several ways to detect whether the patient is allergic to a product.

- *An open patch test* is performed by placing the suspected allergen on the skin of the upper outer arm and leaving it uncovered. The product is applied twice daily for 2 days, and the site should be checked twice daily.
- *A use test* is performed by placing the product on a site away from the original dermatitis. The product is applied twice daily for at least 7 days to the outer arm or the skin of the antecubital fossa. The test is stopped and considered positive if a reaction occurs.

- *Closed patch testing* is performed by placing the product on the skin and covering it with an adhesive bandage, which is taken off in 24 hours for initial assessment.

Patients with venous insufficiency should be tested directly on the legs below the knees, as the skin tends to be more sensitive there with severe disease. The skin may react to products on the legs, but not the arms. Patch tests are considered positive if intense itching and/or redness occurs.

When subacute inflammation occurs, suitable products include lubricated creams or lotions (as already described for dry skin) or intermediate- to high-potency topical steroid creams or ointments. Treatment of acute inflammation can be accomplished by wet compresses, intermediate- to high-potency topical steroids, and systemic antibiotics. Products used to treat chronic inflammation include cool compresses (used initially), followed by intermediate- to high-potency topical steroid creams or ointments.

Management

Many products are available for the management of venous dermatitis; therefore, knowing the ingredients in some of the more commonly used products makes choosing a product easier. For example, ingredients that help moisturize skin include aloe vera, allantoin, cetyl alcohol, stearyl alcohol, and vitamins A and E. Ingredients that help protect the skin include:

- petrolatum, a semitransparent ointment
- zinc oxide, a white paste or cream
- dimethicone, a silicone cream that can be transparent upon application and dries quickly.

Additional treatments include the following:

- Oral antibiotics are effective against staphylococci. For example, cephalexin is useful when cellulitis is present. However, even severe dermatitis, in the absence of cellulitis, doesn't require antibiotic therapy.
- Wet compresses of Burow's solution, saline, or tepid water may be applied for 30 to 60 minutes several times daily. These compresses tend to suppress inflammation while softening dry, scaly skin. Care should be taken to discontinue the compress before excessive dryness occurs.
- Topical steroids, such as Group II to V steroid creams, may be effective. Ointments are typically used for moistening the skin, and creams are typically used for drying it. Many creams contain more preservatives than ointments, and some patients may have adverse reactions to these preservatives. Fluocinolone acetonide ointment 0.025% is an example of an intermediate-potency topical steroid with no preservatives.
- Leg elevation is useful because most venous disease is accompanied by edema, which should be managed if not eliminated.

ARTERIAL ULCERS

Arterial ulcers fail to heal due to impaired blood flow to the wound, possibly as a result of disruption in microvascular blood flow, such as in vasculitis, microthrombosis, Raynaud's phenomenon, and sickle cell anemia. More commonly, macrovascular flow is disrupted due to atherosclerosis. Caused by deposits of cholesterol, lipids, and calcium in the lumen of vessels, atherosclerosis may affect any artery in the body and lead to impaired arterial flow. Peripheral arterial disease

(PAD) is atherosclerosis of the large and medium-sized vessels of the lower extremities.

The incidence of atherosclerosis increases in the elderly. Patients with arterial ulcers are typically older than age 50. The reported incidence of PAD ranges from 2.2% in patients ages 50 to 59, to 7.7% in patients ages 70 to 74. The patient with PAD may present with a history of coronary artery disease, cerebrovascular disease, hyperlipidemia, diabetes, hypertension, and cigarette smoking. He may have undergone prior revascularization procedures and amputation.

Pathogenesis

Arterial insufficiency is the impairment of arterial blood flow leading to tissue ischemia and, potentially, necrosis. Such impairment can occur acutely (trauma or thrombosis) or chronically (atherosclerosis). Both acute and chronic arterial insufficiency can lead to the formation of lower-extremity ulcers. Arterial insufficiency can occur at any level, from large arteries to arterioles and capillaries. Tissue ischemia that leads to leg ulcers tends to occur more in large-vessel or mixed disease.

Obstruction of arterial flow can be classified as anatomic or functional. Anatomic causes of obstruction include thrombosis, emboli, atherosclerosis, and vasculitis. Functional impairment occurs with conditions such as Raynaud's phenomenon, in which abnormal vasomotor function leads to reversible obstruction. Reversible ischemia tends to cause pain and, infrequently, results in ulceration. Other potential causes of impaired arterial flow include disruption (trauma), fistulas, and aneurysms. Nonatherosclerotic or vasculitic causes should be considered in the patient with signs of tissue ischemia but normal pulses.

The most common cause of arterial ulcers is atherosclerosis. Risk factors for the development of atherosclerosis include age, smoking, diabetes mellitus, hypertension, dyslipidemia, family history, obesity, and sedentary lifestyle. It's estimated that 5% to 20% of leg ulcers are caused by ischemia due to PAD. These ulcers typically result from trauma—for example, the patient may have developed a blister from a shoe. Regardless, in the presence of severe PAD, a chronic wound results if blood flow is insufficient to meet the metabolic demands of tissue repair.

Arterial insufficiency may also act with other pathologic mechanisms, leading to tissue necrosis and ulceration. Diabetic foot ulcers, for example, may result from the combination of neuropathy, trauma, and arterial insufficiency.

Assessment

The initial assessment of any ulcer begins with a thorough history and physical examination. Although most leg ulcers are caused by venous insufficiency, one must carefully assess the patient for the presence of arterial insufficiency as well because concomitant arterial disease can delay or prevent healing. In addition, compression therapy—the cornerstone of treatment for venous insufficiency—can cause tissue necrosis and ulceration in patients with underlying arterial disease.

The history should include screening for risk factors for atherosclerosis—especially smoking, diabetes, hyperlipidemia, and hypertension. A medical history of coronary artery disease (angina pectoris or myocardial infarction) and carotid disease (transient ischemic attacks or ischemic stroke) increases the likelihood of PAD. Claudication, a burning sensation of the calf muscles exacerbated by ambulation and relieved by rest, is the physical manifestation of arterial insufficiency of the large arteries of the legs.

Arterial ulcers tend to have a "punched-out" appearance, being small and round, with smooth, well-demarcated borders. The wound base is typically pale and lacks granulation tissue. Wet or dry necrotic tissue may be present. Arterial ulcers tend to occur over the distal part of the leg, especially the lateral malleoli, the dorsum of the feet, and the toes. These ulcers can be shallow or deep and usually are painful. Typically, the patient complains of pain when the feet are elevated, especially at night, and states that the pain is reduced with leg dependence. In addition to these common features, the physical examination may reveal a decrease in peripheral pulses, lack of hair over the distal leg, and cyanosis, pallor, and atrophy of the surrounding skin. Lifting the leg greater than 60 degrees can induce pallor in the ischemic limb. When dropped to a dependent position, the limb may become very red.

Vasculitic ulcers have some characteristics similar to arterial ulcers, including their location, size, and shallow depth. There are several typical differences, however; for example, many vasculitic ulcers have irregular shapes and borders. In addition, the base of the wound tends to be necrotic with significant vascularity. The surrounding skin is usually hyperemic rather than pale. Vasculitis may also feature other cutaneous manifestations, including palpable purpura, petechiae, and persistent urticaria.

Diagnostic testing

Testing should be done to obtain anatomic and physiologic data. Noninvasive testing is crucial to determine arterial functioning. Angiography is performed to plan the revascularization procedure after noninvasive testing has indicated a functional problem. It makes no difference whether an angiogram demonstrates a severe stenosis if the noninvasive testing indicates adequate functional flow. Various tests can be performed to assess the patient with a suspected arterial ulcer, including the following.

- ABI is a simple calculation that can be performed in the clinic to assess the patient for arterial insufficiency. Blood pressures are measured over the brachial artery in the arm and the dorsalis pedis and posterior tibial artery at the ankle. The ankle pressure, measured using a handheld Doppler device, should be the same as, or slightly higher than, the brachial pressure. Arterial insufficiency is likely if the ABI (the higher of the two ankle pressures is selected and divided by the brachial pressure) is 0.9 or less. Claudication typically occurs when the ABI is less than 0.8. An ABI of 0.5 to 0.75 represents severe arterial disease, whereas an ABI less than 0.5 is considered limb-threatening. The ABI is inexpensive, noninvasive, and carries a reportedly high degree of sensitivity and specificity. (See Appendix F, *Ankle-brachial index use in patients with diabetes*.)
- Segmental pressures, obtained in a noninvasive test, can be used to confirm arterial insufficiency. Supine systolic pressures are recorded at the following sites: high thigh, low thigh, below the knee, and above the ankle. These segmental pressures should be about the same as, or slightly higher than, the brachial systolic pressure. A drop in the segmental pressure of more than 20 to 30 mm Hg indicates arterial occlusion. Abnormally high pressures, especially in the presence of dampened waveforms, indicate medial calcification of the arteries, which leads to noncompressibility. When this is present, segmental pressures can't be used to assess arterial disease.

- Toe pressures are measured by a small pneumatic cuff placed around the toe; this cuff monitors blood flow using a photoelectrode. As the cuff is inflated, the photoelectrode records absence of flow; as the cuff is deflated, it records the pressure when flow returns. The reference value for a normal toe-brachial index is greater than 0.8. A toe pressure of less than 30 mm Hg indicates poor healing potential. This measurement is rarely affected by medial calcification.
- Arterial waveforms can be obtained using pulse volume recording or Doppler waveform analysis. The normal arterial waveform is triphasic. A monophasic waveform is indicative of moderate arterial occlusive disease, whereas severe disease is indicated by a severely blunted waveform.
- In color duplex scanning, ultrasound provides anatomic and physiologic data about arterial flow. This test determines extent of arterial disease.
- Transcutaneous oxygen measurements ($TcPO_2$) can be used to assess the patient for microvascular insufficiency. A measurement greater than 30 mm Hg indicates adequate perfusion, whereas a value less than 20 mm Hg indicates disease. If the tissue surrounding an ulcer has a $TcPO_2$ less than 20 mm Hg, the wound typically won't heal.
- Skin perfusion pressure (SPP) is a measure of postocclusive reactive hyperemia. It is measured using a laser Doppler flow sensor to monitor reperfusion following controlled occlusion and release of pressure in a pneumatic cuff. The pressure cuff is placed around the toe, foot, or ankle and attached to a monitor that records pressures. The laser Doppler flow sensor may be placed proximal to the wound or other locations on the foot to measure capillary blood flow. As the cuff is inflated, pressure is exerted on the skin, which causes capillary flow to cease. As the cuff is deflated, the sensor notes the point at which flow returns; this is the skin perfusion pressure. An SPP measurement greater than 30 mm Hg indicates adequate perfusion for healing; a value less than 20 mm Hg indicates poor potential for healing.
- Lower-extremity angiography is the gold standard for diagnosing arterial vascular disease. This procedure is indicated for patients who are candidates for revascularization procedures. The test has associated risks, including cholesterol plaque embolization, acute vascular occlusion, arterial damage, and contrast-induced nephropathy.
- Magnetic resonance angiography (MRA) is a noninvasive means of determining the presence and severity of arterial obstruction. It has become an increasingly important tool in the diagnosis of PAD and may ultimately supplant lower-extremity arteriography as the gold standard. Because of the strong magnetic field, patients whose bodies contain metallic objects, such as a cardiac pacemaker or a vascular clip, can't undergo magnetic resonance angiography. In addition, many patients who suffer from severe claustrophobia are unable to tolerate the small confines of the magnetic resonance imaging machine, which is used to perform the test.

Management

Revascularization is the key to treating arterial ulcers secondary to PAD. Other measures include topical therapy, conservative debridement, and pain control. Treatment is also directed at the pathogenic causes of arterial disease. For example, the management of atherosclerosis includes exercise therapy, reduction of cholesterol levels, smoking cessation, and control of blood pressure and blood glucose levels.

Management of vasculitic ulcers and other conditions that cause arterial insufficiency is typically directed at correcting the underlying condition; however, these conditions are not discussed in this text.

DIABETIC ULCERS

According to the Centers for Disease Control and Prevention's 2011 National Diabetes Fact Sheet, 25.8 million people (8.3% of the population) have diabetes, with 18.8 million people diagnosed with the disease and 7 million undiagnosed. Among Americans age 65 and older, 10.9 million (26.9%) had diabetes in 2010.

From 2005 to 2008, based on fasting glucose or hemoglobin A_{1c} levels, 35% of Americans age 20 or older and 50% of those age 65 or older had prediabetes. Applying this percentage to the entire U.S. population in 2010 yields an estimated 79 million American adults age 20 or older with prediabetes.

Diabetes is the seventh leading cause of death in the United States and a major cause of heart disease and stroke. It's the leading cause of kidney failure, new cases of blindness, and nontraumatic lower-limb amputations among American adults. More than 60% of nontraumatic lower-limb amputations occur in people with diabetes. Risk factors include peripheral neuropathy, vascular disease, limited joint mobility, foot deformities, abnormal foot pressures, minor trauma, a history of ulceration or amputation, and impaired visual acuity. Moreover, the leading risk factor for ulceration is a previous ulcer. In other words, once a person has had a diabetic ulcer, he is likely to develop one again. However, even among patients with diabetes, ulcers must still be differentiated between venous, arterial, and diabetic. (See *Differentiating arterial, diabetic, and venous ulcers,* page 65.)

The financial and emotional costs and the potential complications associated with the effects of diabetic foot ulcers are overwhelming. Preventing the loss of limb and function is the goal of the multidisciplinary team caring for the patient with a diabetic foot ulcer. To achieve this end, clinicians must understand the scope and severity of diabetes and its physiologic results.

As diabetes progresses, underlying clinical conditions—such as neuropathy, vascular disease, foot deformity, and infection—become more prevalent. These conditions may occur alone or with other factors. An estimated 60% to 70% of patients with diabetes have peripheral neuropathy, 15% to 20% have peripheral vascular disease, and 15% to 20% have both.

Pathogenesis

The pathogenesis of diabetic ulcers varies according to their etiology. A diabetic ulcer may arise due to diabetic neuropathy, peripheral arterial disease, or diabetic foot structure.

Diabetic neuropathy

Diabetic neuropathy, which commonly accompanies long-term diabetes, is commonly overlooked and undiagnosed until an ulcer or pain in the extremity develops. However, early diagnosis and an aggressive ulcer prevention plan can be very successful. Both are imperative to decreasing the number of amputations in this population.

Diabetic neuropathy involves components of the sensory, motor, and autonomic nervous systems. Sensory damage causes the patient to lose the sensation of pain; he may, in fact, lose all sensation, which results in partial or total numbness

Differentiating arterial, diabetic, and venous ulcers

Arterial ulcers	Diabetic ulcers	Venous ulcers
PREDISPOSING FACTORS		
■ Peripheral vascular disease (PVD) ■ Diabetes mellitus ■ Advanced age	■ Diabetic patient with peripheral neuropathy ■ Long-term uncontrolled or poorly controlled diabetes	■ Valve incompetence in perforating veins ■ History of deep vein thrombophlebitis and thrombosis ■ Previous history of ulcers ■ Obesity ■ Advanced age
ANATOMIC LOCATION		
■ Between toes or tips of toes ■ Over phalangeal heads ■ Around lateral malleolus ■ At sites subjected to trauma or rubbing of footwear	■ On plantar aspect of foot ■ Over metatarsal heads ■ Under heel	■ On medial lower leg and ankle ■ On malleolar area
PATIENT ASSESSMENT		
■ Thin, shiny, dry skin ■ Hair loss on ankle and foot ■ Thickened toenails ■ Pallor on elevation and dependent rubor ■ Cyanosis ■ Decreased temperature ■ Absent or diminished pulses	■ Diminished or absent sensation in foot ■ Foot deformities ■ Palpable pulses ■ Warm foot ■ Subcutaneous fat atrophy ■ Arterial assessment findings if patient also has PVD	■ Firm edema ■ Dilated superficial veins ■ Dry, thin, scaly skin ■ Evidence of healed ulcers ■ Periwound and leg hyperpigmentation ■ Possible dermatitis
WOUND CHARACTERISTICS		
■ Even wound margins ■ Gangrene or necrosis ■ Deep, pale wound bed ■ Blanched or purpuric periwound tissue ■ Severe pain ■ Cellulitis ■ Minimal exudate	■ Even wound margins ■ Deep wound bed ■ Cellulitis or underlying osteomyelitis ■ Granular tissue present unless PVD is present ■ Low to moderate drainage	■ Irregular wound margins ■ Superficial wound ■ Ruddy, granular tissue ■ Usually minimal to moderate pain ■ Frequently moderate to heavy exudate

of the foot. Because of this loss of sensation, also known as a loss of protective sensation, the patient may be unaware of trauma or a damaging process in the foot. The patient can discover blisters, wounds, or infections only by doing a visual foot check or experiencing systemic signs of infection.

Motor neuropathy, another facet of diabetic neuropathy, can cause changes in the biomechanics of the weight-bearing foot. Imbalances of the foot occur when some muscles atrophy and opposing muscles are unchecked in their action. This can lead to changes in which particular surfaces bear weight in phases of the gait cycle. Deformities such as claw toes, which aren't accommodated in normal shoes, can result and may produce areas of pressure or friction.

Diabetic neuropathy may also affect the autonomic nervous system, which controls the functions of smooth muscle, glands, and visceral organs. Possible effects include changes in the vascular tone, which result in abnormal blood flow, and anhidrosis, which leads to fragile, dry skin that's easily damaged and difficult to heal. Autonomic neuropathy also leads to a decreased flame reaction, in which vasodilation in response to injury or infection is impaired.

Damage associated with diabetic neuropathy is irreversible; however, controlling blood glucose levels can prevent or delay further damage. Pain that may accompany diabetic neuropathy can be treated in various ways. Some risk factors for developing diabetic neuropathy, such as hyperglycemia, hypertension, smoking, cholesterol levels, and heavy alcohol use, are modifiable. Patient education about these risk factors and the benefits of controlling these areas is imperative.

Peripheral arterial disease

Peripheral arterial disease is a serious medical problem for patients with and without diabetes. In those with diabetes mellitus, the process of atherosclerosis is accelerated and involves vessels of the entire body. Treatment for narrowing of the arteries and thrombosis includes antiplatelet therapy, surgery for the damaged and blocked vessels, and noninvasive techniques for better evaluation of the vascular status.

Diabetic foot structure

When the physiologic processes of diabetic neuropathy occur in the lower extremity, structural and functional changes in the foot result. Most diabetic foot ulcers result from mechanical forces that exceed what the tissue is able to bear and repair. Because diabetic neuropathy causes loss of protective sensation, the patient can't feel the overloaded tissue. Diminished blood flow and the skin's weakened state mean that the tissue may have difficulty bearing normal stress, much less increased stress to particular areas due to muscle imbalance, poor footwear, and gait changes.

Several structural changes can occur in the diabetic foot. The most severe cases are seen in those who develop Charcot foot (neuroarthropathy). Charcot foot usually first presents with erythema, increased local skin temperature, swelling, bounding pulses and, sometimes, moderate pain. Distinguishing Charcot foot from cellulitis can be difficult. However, the patient with Charcot foot doesn't have a fever or an elevated white blood cell count, which would be present with infection.

In patients with long-term Charcot foot, actual osseous destruction can be viewed on X-ray. This bony destruction occurs at the distal ends of the metatarsals and the ankle bones. Because the patient usually has neuropathy and decreased sensation, chronic cases generate little pain. Continued ambulation results in further bony destruction and stress fractures. Resulting bony fracture changes cause

the arch structure to collapse. The foot then takes on a new weight-bearing rocker-bottom shape. The major pressure area of the gait cycle now becomes the arch, an area of ulceration for many patients with Charcot foot.

Ulcerations are common in patients with diabetes, even without Charcot factors. The heads of the metatarsals are major areas of ulceration. Although pressure is known to increase on the tissue in the area of eventual ulceration, the cause of this increased pressure is under investigation. One theory holds that weakness of the intrinsic muscles results in the claw toe deformity and the displacement of the fatty pads that normally cushion the metatarsal heads. This loss of cushioning results in easier ulceration. However, some studies have examined the integrity of the plantar fascia as the source of the claw toe deformities.

Weakness of the musculature responsible for dorsiflexion and plantarflexion of the foot and ankle complex is another effect of long-term diabetes and may play a role in load patterns on the plantar surface. Changes also occur in the joint mobility of foot structures. The first ray (the first metatarsal and phalange) may lose mobility, thus increasing pressure on the first metatarsal head. Other areas of limited joint mobility are associated with increased ulcerations. These include the subtalar joint with increased plantar pressure and the fourth and fifth metatarsals and phalanges.

Plantar callus formation in diabetic feet is commonly the focus of treatment. Callus formations occur in weight-bearing and non–weight-bearing areas of the diabetic foot. Although some clinicians believe that the callus is a response to increased pressure on the specific point, it may also stem from the autonomic effects of neuropathy and the resulting skin changes. Once present, the callus causes increased pressure and can lead to an underlying blister or hematoma. It should be trimmed off regularly to avoid ulceration. In addition, shoe gear should be adjusted to offload weight from the area of increased pressure.

Assessment

Wound care team members should be proactive when assessing and managing a patient with a diabetic foot structure. For clinical management to be effective, the team must have a keen understanding of the disease state and the patient's current overall health, not just the status of the foot as well as an awareness of his actual and potential risk factors.

Patient history

Clinical team members must ask specific questions with regard to patient history to determine the status of the patient's diabetes. (See *Diabetes assessment questions,* page 68.)

The clinician can't take for granted the patient's ability to care for himself. Rather, the patient should be asked to provide both verbal descriptions of self-care techniques (including foot care, foot checks, and insulin administration) and physical demonstrations of self-care (for example, the ability to assess the feet and between the toes). The clinician's responsibility is to accurately document the goals that the patient achieves.

Physical examination

Obtaining a verbal patient history provides the clinician with only half of the clinical picture—a thorough evaluation of the patient's lower legs, feet, and toes

Diabetes assessment questions

- When was the patient diagnosed with diabetes?
- What is the medication regimen for this patient?
- Does the patient have a clear understanding of the disease process and potential complications?
- How often does the patient self-monitor his blood glucose level?
- Has the patient had a blood test to check the glycosylated hemoglobin levels (a measure of glycemic control) in the past 3 months?
- Has a licensed professional, that is a certified diabetic educator or dietitian, counseled the patient?
- Does the patient complain of lower limb or foot pain (indicative of claudication)?
- Has the patient ever experienced foot ulcers?
- Has the patient suffered any known heart disease?

Source: Hess, C.T. *Clinical Wound Manager Manual Series for the Wound Care Department.* © Wound Care Strategies, Inc., 2011.

for muscular tone, skin and tissue integrity, and vascular status is also essential. (See *Physical assessment checklist,* page 69.)

Assessment to evaluate the diabetic foot should include the following:

- Perform the Semmes-Weinstein test.
- Obtain the patient's ABI to assess blood flow, or refer the patient for more advanced arterial vascular studies. ABI should be interpreted with caution in patients with diabetes secondary to a high degree of calcified or stenotic vessels, which give falsely elevated values.
- Examine the patient's feet for ulcers, especially the plantar aspect of the toes, laterally to the foot, between the toes, and the tips of the toes.
- Evaluate the patient's footwear. Does it protect the feet, or does it promote rubbing?

Semmes-Weinstein test

The most widely used test for identifying loss of protective sensation in a diabetic foot is the Semmes-Weinstein test. Annual screening with this test is recommended for all patients with diabetes. (See *Monofilament test to assess protective sensation,* pages 70 and 71.)

Risk factor evaluation

Evaluating the patient's foot ulcer risk is part of assessment. Risk factors for patients with diabetes include:

- absent protective sensation
- autonomic neuropathy causing fissure and integument and osseous hyperemia
- foot deformity causing high-pressure focal points
- history of foot ulceration
- history of lower-extremity amputation

CHECKLIST

Physical assessment checklist

- ✔ Has the team member performed a general physical examination that assesses the patient for signs of neuropathy and muscle wasting?
- ✔ Has the team member evaluated the patient's popliteal and pedal pulses?
- ✔ Has the team member described the condition of the patient's foot or feet? Is there evidence of Charcot foot, healed or existing areas of breakdown, or poor nail condition?
- ✔ Has the team member noted the overall status of the skin and presence of any scars from previous ulcers or surgery?
- ✔ Has the team member noted any other lower-extremity conditions such as venous insufficiency, which may complicate treatment?

Source: Hess, C.T. *Clinical Wound Manager Manual Series for the Wound Care Department.* © Wound Care Strategies, Inc., 2011.

- impaired vision
- limited joint mobility
- obesity
- poor control of blood glucose levels, resulting in advanced glycosylation and impaired wound healing
- poorly designed or poorly fitting footwear, causing or inadequately protecting the foot from tissue breakdown
- vascular insufficiency.

Documentation and patient teaching

After completing a thorough patient history and physical assessment, the clinician should document the findings in detail. The next step is to educate the patient about the disease process and the importance of his role in the care plan. This also involves assessing the patient's preferred learning style and accommodating that style in the teaching plan. Providing the patient with the proper skills and products needed to prevent foot ulceration is a team approach.

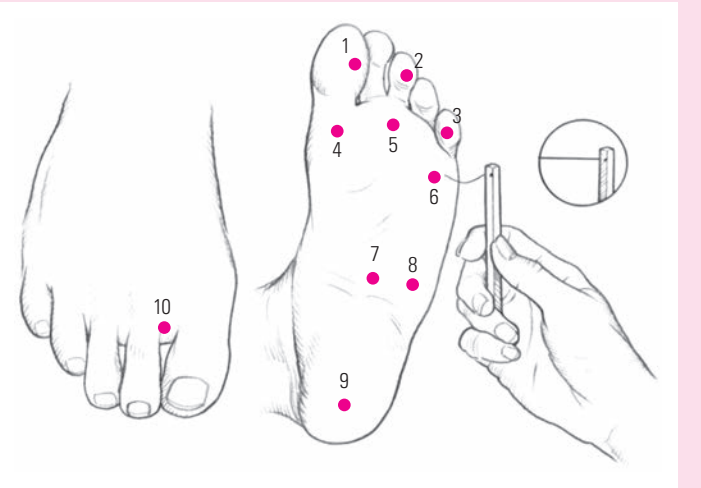
Diabetic foot ulcer classification

Diabetic ulcers are described according to their depth and are classified using a grading system. The most commonly used system is the Wagner Ulcer Grade Classification, developed by Wagner and Meggitt. (See Appendix B, *Wagner ulcer grade classification.*) According to this scale, the lower-grade ulcer is less complex and may respond to medical intervention. Higher grades may need surgery or amputation.

Some difficulties in using the Wagner scale have led to the development of several other assessment scales. One example is the Brodsky scale, which combines depth and ischemia. The University of Texas diabetic foot classification system is also used to classify diabetic foot ulcers. (See *University of Texas diabetic foot classification system* in chapter 2, page 34.)

Monofilament test to assess protective sensation

A Semmes-Weinstein monofilament is commonly used to assess protective sensation in the feet of patients with diabetes. A 10-g (5.07 log) monofilament wire is applied to each foot at 10 sites—the plantar aspect of the first, third, and fifth digits; the plantar aspect of the first, third, and fifth metatarsal heads; the planter midfoot medially and laterally; the plantar heel; and the dorsal aspect of the midfoot.



Loss of protective sensation is indicated when a patient can't feel the monofilament at 4 or more sites. These pointers ensure that the procedure is done correctly:

- Place the patient in a supine or sitting position with legs supported and shoes and socks removed. Touch the Semmes-Weinstein monofilament to the patient's arm or hand to demonstrate what it feels like. During the test, the patient should respond "yes" each time he feels the pressure of the monofilament on his foot.
- Make sure the patient's feet are in a neutral position, with toes pointing straight up. Have the patient close his eyes. Hold the Semmes-Weinstein monofilament perpendicular to the patient's foot, then press it against the first site, increasing the pressure until the monofilament wire bends into a C shape. Make sure it does not slide over the skin. The device should be held in place for about 1 second. After the patient responds, record the response on a foot screening form. Use a "+" for a positive response and a "—" for a negative response. Then move to the next site.

Monofilament test to assess protective sensation (*continued*)

- Test sites in random order, and vary the time between applications so that the patient can't guess the correct response. If the patient has an ulcer, scar, callus, or necrotic tissue at the test site, apply the monofilament along the perimeter of the abnormality, not directly on it.
- If results show a loss of protective sensation, the patient should be taught self-assessment with the Semmes-Weinstein monofilament, although this doesn't replace a professional evaluation.

Adapted with permission from Sloan, H. L., & Abel, R. J. (1998). Getting in touch with impaired foot sensitivity. *Nursing 98, 28*(11), 50–51.

Infection in the diabetic foot

Diabetic foot infections are always serious and should be considered limb threatening. A patient with diabetes may be unaware of the presence of an infection, resulting in delayed diagnosis and management. Diabetes itself, diabetic neuropathy, vasculopathy, and lack of proper wound healing mechanisms all contribute to the problem of infection in patients with diabetes. The disease compromises the immune system, which results in decreased function of defense mechanisms. Patients with diabetes also have increased problems with nail fungi and skin infections, which can damage the skin and allow access for bacteria.

Infection spreads easily in the foot because of its compartmentalized structure. Edema associated with infections can cause elevated compartmental pressures, leading to ischemia and further foot damage. This problem of compartmental spread is commonly seen in ulcerative infections that move rapidly through the plantar fascial plane and compartment.

A diagnosis of infection requires the presence of two or more signs of infection, including purulent drainage, crepitus, fluctuance, loss of glycemic control, and systemic signs. Because the diabetic patient's response to infection may be impaired, white blood cell count and erythrocyte sedimentation rate may not be elevated, further complicating diagnosis.

Bone infection results in destructive bone changes that may mimic those of neuropathy or Charcot disease. Bone infections are difficult to diagnose with X-rays, bone scans, or other procedures; destructive changes may not be visible on an X-ray, for example, for 3 to 4 weeks. Hence, the clinician should always suspect the presence of osteomyelitis when bone can be palpated through a chronic open wound. Correlation with localized wound status, drainage, systemic signs, and location supports a diagnosis of bone infection. Identifying the organism that has invaded the bone requires a bone culture because it may not be the same organism that appears on the swab cultured from the surrounding wound.

Treatment of the ulcer infection centers on debridement of the necrotic wound tissue, glycemic control, administration of systemic antibiotics, and good local wound care. If the patient has peripheral vascular disease, achieving adequate antibiotic levels in the area of tissue damage may be difficult because of poor tissue

perfusion. If the patient has osteomyelitis, the treatment is usually prolonged 6 weeks or more to allow for the poor penetration of antibiotic into the bone. In some cases, the only way to eliminate the infection is to remove the bone.

Management

Key elements of the management regimen developed by the wound care team, which should always include the patient and his family, include preventing future damage, minimizing current damage, and ensuring maximum function and quality of life. This means preventing amputation and loss of life associated with the diabetic foot.

Interventions to achieve these goals include both nonsurgical and surgical options. Patient education, prevention, and management programs are also essential in managing diabetic foot ulcers.

Nonsurgical options

Nonsurgical management of the diabetic foot includes maximizing wound care by maintaining an appropriate wound environment, debriding necrotic tissue, eliminating pressure areas on the foot, and improving the muscular strength and length of the lower extremity.

Relieving pressure areas on the foot, or offloading, sounds easier than it is. It relies on patient compliance, clinician understanding of biomechanics, and availability of the appropriate products or materials.

Total contact casting is widely considered the best way to offload diabetic foot wounds. The pressure is redistributed across the rest of the plantar surface and away from the wound through careful cast application. Casting materials are available in most clinics, and patient compliance is relatively high because the cast is applied and removed by the clinical team.

Other methods of offloading include custom-molded ankle-foot orthoses, posterior splints, orthotic dynamic splints (which are bivalved and similar to a total contact cast), and custom-molded healing sandals. Prefabricated products, such as cast walkers, are also available. These walkers may be more appropriate for patients with vascular compromise or wounds that require frequent care. Other options include customizable postoperative shoes and shoe materials provided through trained professionals.

Whatever the options for offloading available in a facility, they all require a complete education plan for the patient, a level of commitment on the patient's part—compliance is key to successful wound healing—and close monitoring, with any necessary modifications made promptly.

Physical therapy can also assist in diabetic wound healing with programs that address muscular imbalances in the lower extremity and foot, gait changes, offloading, and exercise programs to assist in glycemic control. Electric stimulation, another modality widely available through physical therapy, is highly effective in assisting the wound-healing process. In addition, physical therapists in many states are able to perform sharp debridement and are active members of the wound care team in both inpatient and outpatient settings.

Surgical options

Many patients need surgery to aid in healing the diabetic foot ulcer. Such intervention may involve addressing nail issues, debridement to remove necrotic tissue, or changing the wound from a chronic, nonhealing state to an active, inflammatory

(acute) state to jump-start the healing process. When osteomyelitis is present, the infected section of the bone must usually be removed to allow the ulcer to heal. Osteotomy—partial bone removal—may be necessary if the bone is a source of pressure during weight bearing. Osteotomies and tendon releases to address structural changes are occasionally performed as preventive measures in foot areas that are highly prone to breakdown. However, these approaches are controversial.

Vascular issues in the diabetic foot should be assessed for possible surgical intervention. If the foot doesn't have adequate blood supply, healing won't occur despite the wound care team's best efforts. Vascular assessment and frequent reassessment are imperative throughout the patient's care. The incorporation of risk assessment tools can complement this reassessment process. (See *Risk assessment tools*, in chapter 2, page 25.)

MANAGING A WOUND ACCORDING TO ITS CONDITION

Managing wounds continues to be a challenge. The first step in the management process is determining the underlying etiology of the wound by investigating the patient's condition. Understanding the underlying diagnosis and associated comorbidities will provide guidance for overall patient management. Next steps are to manage the wound by its condition based on best practice standards (see Appendix D, Clinical pathways integrated with evidence-based decisions). Topical management is a part of this process.

Familiarizing yourself with the major categories of skin and wound care products and their actions, indications, contraindications, advantages, and disadvantages will help you to choose the most appropriate dressing, drug, or device for a patient's wound. Also consider the product's availability and its application and removal procedures. In many cases, one product can help you meet more than one therapeutic goal.

The following list describes features of the ideal dressing, drug, or device for skin and wound care:

- Provides an optimal healing environment
- Contours to the wound
- Provides an atraumatic environment upon removal
- Prevents maceration
- Provides nonadherence to the periwound skin
- Debrides autolytically in the presence of necrotic tissue
- Validates your formulary with published evidence.

Each time a clinician changes the patient's dressing or removes a product, a number of questions should be answered:

- Is the product providing too little or too much wound hydration?
- Is the product causing pain and trauma to the wound when it is removed?
- Is the product removed easily from the wound bed?

Once a product or products have been chosen, the clinician must manage the wound according to its condition. For example, if necrotic tissue is present in the wound, one must evaluate whether debridement of necrotic tissue from the wound is an appropriate next step. For example, you must be cautious about debriding arterial wounds and unusual wounds until consulting with the physician for an appropriate plan based on the patient's underlying condition.

Debridement

Through debridement—the process of removing devitalized tissue and foreign material from a wound—the clinician may also be removing senescent and nonmigratory cells in and around the wound. Removing these materials may contribute to the release of available growth factors in the wound.

CHECKLIST

Debridement checklist

Before performing any type of debridement:

- ✔ Know your professional practice act.
- ✔ Know who can debride in your facility.
- ✔ Know your limitations.
- ✔ Review policy and procedures for debridement technique with staff.
- ✔ Create policy for assessment and implementation of debridement plan of care.

If debridement is indicated, several options are available. Debridement techniques include autolytic, biosurgical, enzymatic, mechanical, and surgical. The type of debridement technique chosen and the frequency with which it's used depends on the overall patient condition and care plan.

- *Autolytic debridement* allows the body to lyse or break down necrotic tissue by using its own enzymes and defense mechanisms. Many dressings are designed to promote autolysis. Autolytic debridement is accomplished by using occlusive dressings. These dressings help maintain a moist wound environment, thereby promoting reepithelialization. They have also been shown to reduce pain, enhance autolytic debridement, and provide a barrier to infection. There are five basic types of occlusive dressings: hydrogels, alginates, hydrocolloids, foams, and films. Because venous ulcers tend to have moderate to high exudate, the use of film or hydrogel dressings isn't a common choice.
- *Biosurgical debridement* employs sterilized bottle fly maggots (*Phaenicia sericata*) to debride wounds. Larval therapy is simple to use and doesn't require extensive medical training. Contraindications to larval therapy include wounds involving vital organs or exposed blood vessels. The potential for allergic reactions—such as rhinoconjunctivitis, angioedema, and contact dermatitis—exists in susceptible people. Aesthetic concerns and wound pain or discomfort are also considerations.
- *Enzymatic debridement* harnesses enzymes to break down necrotic tissue without affecting viable tissue. Agents used for enzymatic debridement are available only by prescription and are ordered by the patient's health care provider. The available enzyme preparations differ in efficacy.
- *Mechanical debridement* is the use of physical force to remove necrotic tissue. The four techniques of mechanical debridement include applying a wet-to-dry dressing, using wound irrigation, using a whirlpool bath, and removing the necrotic tissue by a sharp surgical technique. Therapy may range from conservative to aggressive, and depending on the type of injury, debridement techniques may be combined. For example, mechanical methods may be used with

enzymatic methods, such as topical agents that absorb exudate and debris. The major disadvantage of mechanical debridement is that it's nonselective, frequently removing viable tissue with necrotic tissue.

- *Surgical debridement* involves removing dead or devitalized tissue with a sharp instrument or laser, either at the bedside or in the operating room. Surgical excision and skin grafting may be used for certain types of wounds, such as deep burns. Typically, the patient receives a local or general anesthetic. A laser can deliver high energy levels to a small surface area, providing instant hemostasis and sterilization of the wound. Venous ulcers may benefit from curettage to remove fibrin and senescent cells. This is especially important when preparing the wound for the application of bioengineered skin.

Once a wound is debrided, continue to manage it based on its condition, by assessing the exudate amount, periwound skin condition, and depth of wound, to name a few clinical characteristics.

Identifying and managing wound infections

After assessing the patient and the wound, the clinician can develop a care plan that focuses on preparing the wound bed for healing. The goals of wound bed preparation include removing necrotic or fibrinous tissue, reducing the total number of senescent or abnormal cells, decreasing exudate and bacterial load, and increasing granulation tissue. These goals are achieved through a multistep process, using strategies designed to improve wound status. (See *Managing bacterial bioburden*, pages 76 to 81.)

Bacterial balance

Most wounds contain various organisms. The notion of bacterial balance stresses the clinician's need to recognize when the bacterial load has increased via a change in granulation tissue appearance and exudate amount.

Contamination or colonization

In a chronic wound that's healing, the level of the bacterial load present is called contamination or colonization. This is a steady state of replicating organisms in the wound that don't cause injury or delay wound healing.

For a patient with contamination or colonization, the clinician should select topical therapies that can create and maintain a moist wound environment. Adjunctive therapies, in combination with absorbent topical management products, may assist wound healing. For example, compression therapy may be combined with a moist wound dressing in a patient with a venous ulcer. Patient education for the care of the chronic wound is paramount to achieving and maintaining a healed wound.

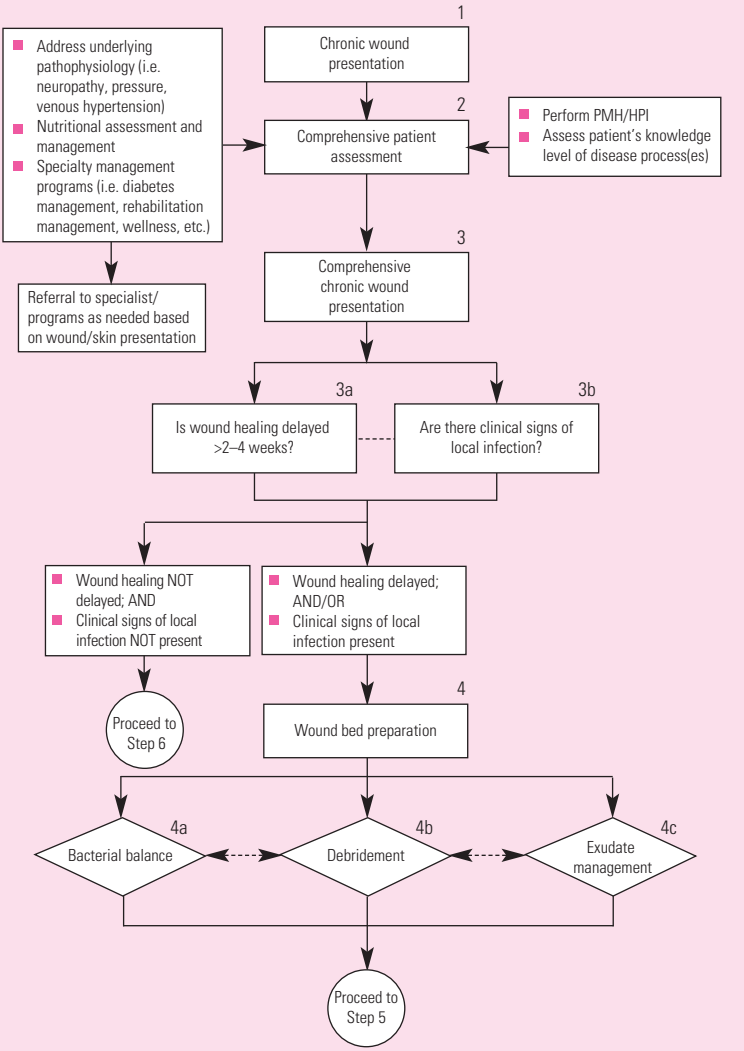
Critical colonization

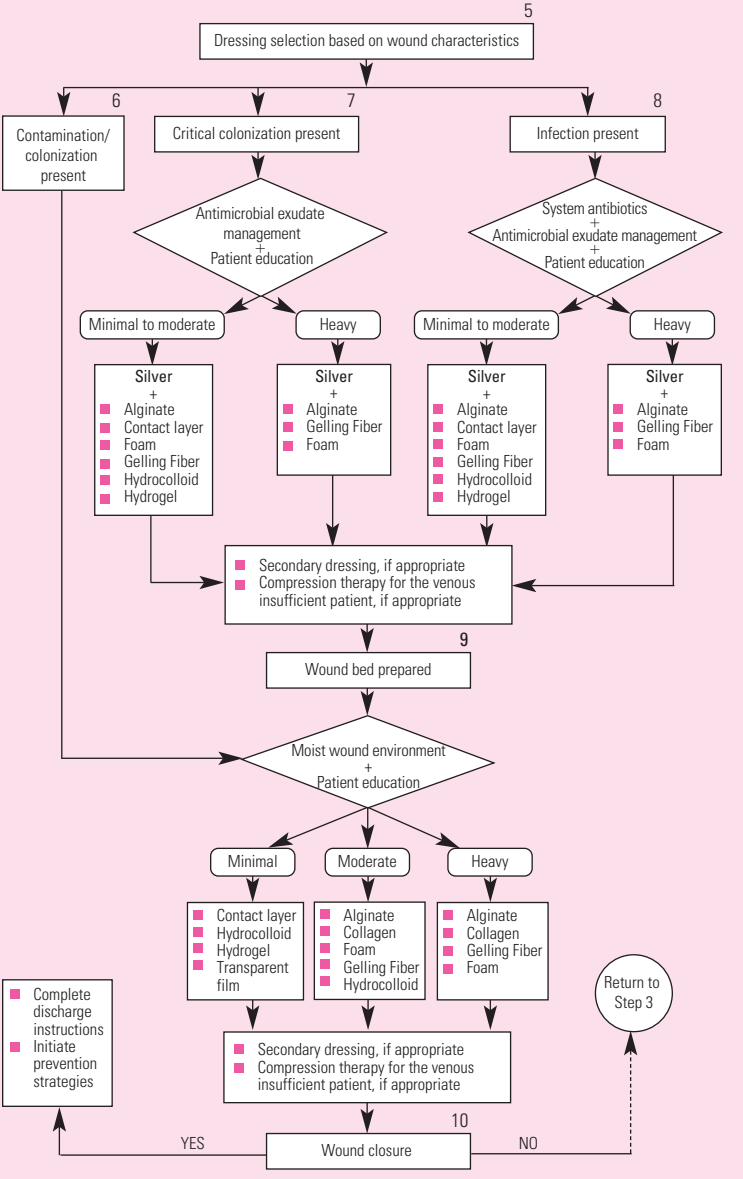
The next level of bacterial load is critical colonization. This level is characterized as replicating (infectious) organisms that cause a change in the wound's status. The clinician may observe understated clinical features in the wound's appearance, including:

- absent or abnormal granulation tissue
- change in color of the wound bed from previous evaluations
- delayed healing
- excessive or increased serous exudate

Managing bacterial bioburden

Use this algorithm and the explanation of its 10 steps (pages 78 to 81) to guide you through the wound management process.




5
Dressing selection based on wound characteristics
6
Contamination/ colonization present
7
Critical colonization present
8
Infection present
Antimicrobial exudate management + Patient education
System antibiotics + Antimicrobial exudate management + Patient education
Minimal to moderate
Heavy
Minimal to moderate
Heavy
Silver + Alginate Contact layer Foam Gelling Fiber Hydrocolloid Hydrogel
Silver + Alginate Gelling Fiber Foam
Silver + Alginate Contact layer Foam Gelling Fiber Hydrocolloid Hydrogel
Silver + Alginate Gelling Fiber Foam
Secondary dressing, if appropriate
Compression therapy for the venous insufficient patient, if appropriate
9
Wound bed prepared
Moist wound environment + Patient education
Minimal
Moderate
Heavy
Contact layer Hydrocolloid Hydrogel Transparent film
Alginate Collagen Foam Gelling Fiber Hydrocolloid
Alginate Collagen Gelling Fiber Foam
Return to Step 3
Complete discharge instructions
Initiate prevention strategies
Secondary dressing, if appropriate
Compression therapy for the venous insufficient patient, if appropriate
10
YES
Wound closure
NO

(continued)

Managing bacterial bioburden (*continued*)

1 Chronic wound
An insult or injury that has "failed to proceed through an orderly and timely process to produce anatomic and functional integrity, or proceeded through the repair process without establishing a sustained anatomic and functional result" as described by Lazarus, et al.

2 Comprehensive patient assessment
- Obtain a detailed assessment of the patient's past and current family, social, and medical history.
- Obtain a medication list of current and past medications and dressings that have failed.
- Review all laboratory, radiology, vascular studies that have been obtained.
- Review the patient's nutritional status and supportive therapies.
- Review all support surfaces and positioning devices used to manage the patient's tissue load.
- Address all underlying pathologies compromising the wound healing process (neuropathic, pressure, vascular, venous hypertension).
- Review all physician and non-physician consults related to specialty management programs for skin and wound care.
- Correct all underlying pathologies compromising the wound healing process. Assess the patient's knowledge level relative to the disease process and document any and all factors that affect learning needs.

3 Comprehensive wound assessment
A detailed assessment of the patient's wound status should include but isn't limited to:
- location
- size (length, width, depth, undermining)
- color and type of wound tissue
- exudate/drainage amount or type
- odor
- periwound skin condition
- wound margins
- pain
- dressing management
- adjunctive therapies
- patient knowledge level of disease process and wound management.

3a Is wound healing delayed more than 2 to 4 weeks?
One assessment parameter predictive of delayed wound healing is the lack of wound closure or decrease in wound size. Validated research suggests the level of bacteria could be a causative factor for delay or impairment of wound healing.

3b Are there clinical signs of local wound infection?

The clinical signs and symptoms of local wound infection include:

- abnormal odor
- absent or abnormal granulation tissue
- change in color of the wound bed
- delayed healing
- friable granulation tissue
- increased pain at the wound site
- increased serous exudate
- serous exudate with concurrent inflammation
- tunneling or pocketing of the wound.

4, 4a, 4b, 4c Wound bed preparation

Multi-step processes/strategies employed to improve the wound status through:

- Bacterial balance:
  - Understanding that all wounds are contaminated with a variety of organisms, bacterial balance stresses the need for the clinician to recognizing an increased bacterial load through a change in granulation tissue appearance and exudate amount.
- Debridement
  - Senescent and non-migratory cells in the wound may be removed during the removal of devitalized tissue and foreign matter from a wound.
  - Techniques: autolytic, biosurgical, enzymatic, and mechanical.
- Exudate management
  - Controlling the amount of exudate has been shown to improve healing through improving migration of key cells (such as keratinocytes, fibroblasts and endothelial cells) as well as matrix metalloproteinases (MMPs) and proteases.
  - Uses of exudate management devices employed are dependent on the etiology of the wound occurrence and may include compression therapy, absorptive dressing management, and/or mechanical devices/products.

5 Dressing selection based on wound characteristics

More than 2,000 wound products are available to assist the clinician in achieving successful wound healing. Clinicians should choose a dressing based on the following.

- Wound and skin-related factors, such as:
  - etiology, classification, anatomical location
  - wound size and depth
  - presence of undermining or tunneling
  - type of tissue present (i.e., granulation, slough, eschar)

(continued)

Managing bacterial bioburden (*continued*)

- appearance of wound edges
- condition of periwound skin
- volume of exudate
- presence of odor.

- Other considerations, including:
  - patient-related factors, such as odor control requirements, comfort and preferences; and cost benefit ratio
  - dressing related factors, such as availability, durability, adaptability, and uses.

6 Contamination or colonization

- Most chronic wounds that heal have bacteria present. This level of bacteria is called contamination/colonization and can be characterized as steady state of replicating organisms that maintain a presence in the wound but do not cause injury or delay the wound healing process.
- At this juncture, select topical therapies can be employed to create and maintain a moist wound environment.
- Adjunctive therapies, in combination with absorbent topical management products, may assist the patient in achieving wound healing. These therapies may include compression therapy.
- Patient education for the care of the chronic wound is paramount to achieving and maintaining a healed wound.

7 Critical colonization

- Critical colonization can be characterized as replicating (infectious) organisms present in the wound that begin to cause a change in the wound's status. At this time, the clinician may see understated clinical features in the wound's appearance which include:
  - foul or excessive odor
  - absent or abnormal granulation tissue
  - change in color of the wound bed from successive evaluations
  - delayed healing
  - friable granulation tissue
  - severe or increased pain at the wound site
  - excessive of increased serous exudate
  - serous exudate with concurrent redness of surrounding periwound wound edges
  - tunneling or pocketing of the wound.
- At this juncture, select topical therapies can be employed to decrease the bacterial load, contain exudate, and improve the qualities of the wound's granulation tissue.

- Adjunctive therapies, in combination with absorbent topical management products, may assist the patient in achieving wound healing. These therapies may include compression therapy.
- Patient education for the care of the wound is paramount to achieving and maintaining a healed wound.

8 Infection

- Infection can be characterized as organisms present in the wound and surrounding soft tissue that result in a host response, and lead to non-healing or decline of the wound (increase in size, pain). Classic clinical signs and symptoms include:
  - periwound and soft tissue edema (swelling)
  - periwound and soft tissue erythema
  - fever
  - foul odor
  - severe or increasing pain at the wound site
  - tenderness at the wound, periwound site, and surrounding soft tissue
  - excessive and/or purulent drainage
  - warmth of the surrounding soft tissue and periwound skin.
- At this juncture, appropriate systemic antibiotics in conjunction with select topical therapies can be employed to treat the bacterial infection, contain exudate, and improve the qualities of the wound's granulation tissue.
- Adjunctive therapies, in combination with absorbent topical management products, may assist the patient in achieving wound healing. These therapies may include compression therapy.
- Patient education for the care of the wound is paramount to achieving and maintaining a healed wound.

9 Wound bed prepared

Organized and holistic approaches/processes employed to optimize wound healing. Goals to maintain bacterial balance and remove necrotic debris and excessive exudates have been met.

10 Wound closure

The final phase of wound healing. Wound healing is defined as a restored epithelial covering but maturation of the epithelium may take weeks to occur. In tandem, wound remodeling (collagen and other matrix materials) occurs over a period of many months, and the healed wound is never as strong as the previously unwounded skin. Prevention of wound recurrence through patient education of risk factors and behavior modification are critical.

- foul or excessive odor
- friable granulation tissue
- serous exudate with concurrent redness of periwound edges
- severe or increased pain at the wound site
- tunneling or pocketing of the wound.

The clinician should select topical therapies that will reduce the bacterial load, manage exudate, and improve the qualities of the wound's granulation tissue. The patient may benefit from adjunctive therapies, such as compression therapy in combination with absorbent topical management products. Teach the patient to help achieve and maintain a healed wound.

Infection

A wound infection can be characterized as an invasion of organisms into the wound and surrounding soft tissue that results in a host response and leads to nonhealing or worsening of the wound. Classic signs and symptoms include:

- raised white blood cell count with increased newly developed cells (bands)
- excessive or purulent drainage
- fever
- foul odor
- periwound and soft tissue edema and erythema
- severe or increasing pain at the wound site
- tenderness at wound and periwound site and surrounding soft tissue
- warmth of the surrounding soft tissue and periwound skin.

Systemic antibiotics can be used with topical therapies to treat the bacterial infection, contain exudate, and improve the quality of the wound's granulation tissue.

Exudate management

Chronic wound fluid inhibits cell growth in culture and is interconnected with barriers to healing, including necrotic tissue and bacterial imbalance. Controlling the amount of exudate may improve healing by improving migration of key cells, such as keratinocytes, fibroblasts, and endothelial cells.

The type of exudate management device used depends on the cause of the wound and may include compression therapy, mechanical devices or products, or absorptive dressing management.

Best practices for managing the effects of lymphedema

4

About this chapter

This chapter offers an abbreviated synopsis of an international consensus document titled *Best Practice for the Management of Lymphoedema*. Endorsed by at least 18 lymphology societies worldwide, the document was produced by the Lymphoedema Framework, a United Kingdom–based research partnership launched in 2002 for the purpose of raising the profile of lymphedema and improving standards of care through the involvement of specialist practitioners, clinicians, patient groups, health care organizations, and the wound care and compression garment industry. This content was used with permission from the Lymphoedema Framework. The full, footnoted document is available free of charge from: http://www.woundsinternational.com/pdf/content_175.pdf

Lymphedema results from the accumulation of fluid and other elements (such as protein) in the tissues due to an imbalance between interstitial fluid production and transport (usually low output failure). It may arise from congenital malformation of the lymphatic system or from damage to lymphatic vessels or lymph nodes. The resulting swelling typically involves one or more limbs and possibly the corresponding quadrant of the trunk. Swelling also may affect other areas, such as the head, neck, breast, or genitalia. In patients with chronic lymphedema, large amounts of subcutaneous adipose tissue may form.

Although not completely understood, this adipocyte proliferation may explain why conservative treatment may not completely reduce the swelling and return the affected area to its usual dimensions. When lymphedema is inadequately treated, the stagnant, protein-rich fluid not only causes tissue channels to increase in size and number, but also reduces oxygen availability, disrupts wound healing, and fosters bacterial growth and the risk of lymphangitis.

Lymphedema may produce significant physical and psychological morbidity. Increased limb size can interfere with mobility and affect body image. Pain and discomfort are common, and increased susceptibility to acute cellulitis and erysipelas can result in frequent hospitalization and long-term dependence on antibiotics.

At birth, the risk of lymphedema is about 1 in 6,000. The overall prevalence has been estimated at 0.13% to 2%. In developed countries, the main cause of lymphedema is widely assumed to be cancer treatment. Indeed, 12% to 60% of cases have been reported in breast cancer patients and 28% to 47% in patients treated for gynecologic cancer. However, it appears that about one-quarter to one-half of affected patients have other forms of lymphedema, such as primary lymphedema and lymphedema associated with poor venous function, trauma, limb dependency, or cardiac disease.

This chronic condition is as yet incurable and, if ignored, can progress and become difficult to manage. Indeed, many people receive inadequate treatment, are unaware that treatment is available, or do not know where to seek help. However, lymphedema may be greatly alleviated by appropriate management. Appropriate specialized training is required before undertaking much of what this chapter presents.

RISK FACTORS FOR LYMPHEDEMA

Although the true risk factor profile for lymphedema isn't known, many factors may predispose a person to developing lymphedema or predict the progression, severity, and outcome of the condition. (See *Risk factors for lymphedema*.) Further epidemiology is required to completely identify these factors, and research is needed to establish how risk factors themselves can be modified to reduce the likelihood or severity of consequent lymphedema. Effective identification of patients at risk for lymphedema relies on awareness of causes, risk factors, preventive strategies, and self-monitoring.

Patients, caregivers, and health care professionals should be aware that there may be a considerable delay of several years from a causative event to the appearance of lymphedema.

Patients at risk of developing lymphedema and their partners and caregivers need to know what lymphedema is, why the patient is at risk, how to maintain good health, how to minimize the risk of developing lymphedema, early signs and symptoms, and whom to contact if swelling develops. A number of organizations disseminate information helpful in meeting these goals.

Steps to help reduce the risk of lymphedema include:

- taking good care of skin and nails
- maintaining an optimal body weight
- eating a balanced diet
- avoiding injury to at-risk areas
- avoiding tight underwear, clothing, watches, and jewelry
- avoiding exposure to extreme cold or heat
- using high-factor sunscreen and insect repellent
- using mosquito nets in areas where lymphatic filariasis is endemic
- wearing prophylactic compression garments, if prescribed
- getting exercise, movement, and limb elevation
- wearing comfortable, supportive shoes.

Risk factors for lymphedema

Upper limb and trunk lymphedema	■ Surgery with axillary lymph node dissection, particularly if extensive breast or lymph node surgery ■ Scar formation, fibrosis, and radiodermatitis from postoperative axillary radiotherapy ■ Radiotherapy to the breast or to the axillary, internal mammary, or subclavicular lymph nodes ■ Drain or wound complications or infection ■ Cording (axillary web syndrome) ■ Seroma formation ■ Advanced cancer ■ Obesity ■ Congenital predisposition ■ Trauma in an 'at-risk' arm (venipuncture, blood pressure measurement, injection) ■ Chronic skin disorders and inflammation ■ Hypertension ■ Taxane chemotherapy ■ Insertion of pacemaker ■ Arteriovenous shunt for dialysis ■ Air travel ■ Living in or visiting an area where lymphatic filariasis is endemic
Lower limb lymphedema	■ Surgery with inguinal lymph node dissection ■ Postoperative pelvic radiotherapy ■ Recurrent soft tissue infection at the same site ■ Obesity ■ Varicose vein stripping and vein harvesting ■ Genetic predisposition or family history of chronic edema ■ Advanced cancer ■ Intrapelvic or intra-abdominal tumors that involve or directly compress lymphatic vessels ■ Orthopedic surgery ■ Poor nutritional status ■ Thrombophlebitis and chronic venous insufficiency, particularly post-thrombotic syndrome ■ Any unresolved asymmetrical edema ■ Chronic skin disorders and inflammation ■ Concurrent illnesses such as phlebitis, hyperthyroidism, kidney or cardiac disease ■ Immobilization and prolonged limb dependency ■ Air travel ■ Living in or visiting a lymphatic filariasis endemic area

Differential diagnosis of lymphedema

These conditions may coexist with or cause lymphedema.

Unilateral limb swelling	■ Acute deep vein thrombosis ■ Arthritis ■ Baker's cyst ■ Postthrombotic syndrome ■ Presence/recurrence of carcinoma*
Symmetrical swelling	■ Chronic venous insufficiency ■ Congestive heart failure ■ Dependency or stasis edema ■ Drugs (calcium channel blockers, steroids, nonsteroidal anti-inflammatories) ■ Hepatic dysfunction ■ Hypoproteinemia ■ Hypothyroidism/myxedema ■ Lipedema ■ Renal dysfunction

*Presence or recurrence of carcinoma requires direct referral to the appropriate oncology service.

ASSESSMENT

Effective assessment of a patient at risk of or with possible lymphedema should be comprehensive, structured, and ongoing. Here, assessment has been divided into medical assessment and lymphedema assessment, but the two may run in parallel within the same health care setting.

Medical assessment

The medical assessment is used to diagnose lymphedema and to identify or exclude other causes of swelling. (See *Differential diagnosis of lymphedema* above.) If the patient presents to a primary care setting, the general practitioner may choose to conduct some initial screening investigations to exclude other causes of swelling before referring the patient for confirmation of the lymphedema diagnosis.

If the patient presents to secondary or tertiary care, assessment may be by a medical specialist. Most cases of lymphedema are diagnosed on the basis of the medical history and physical examination. The choice of investigations used to elucidate the cause of the swelling will depend on the history, presentation, and examination of the patient. They may include a complete blood count, urea and electrolytes, thyroid function tests, liver function tests, plasma total protein and albumin, fasting glucose, C-reactive protein, and others.

Specialist investigations may include:

- ultrasound to assess for skin thickening and tissue fibrosis
- color Doppler ultrasound to exclude deep vein thrombosis and evaluate venous abnormalities
- lymphoscintigraphy to identify lymphatic insufficiency when the cause of swelling is unclear and to differentiate lipedema and lymphedema

- micro-lymphangiography using fluorescein-labeled human albumin to assess dermal lymph capillaries
- indirect lymphography using water-soluble contrast media to differentiate lipedema and lymphedema
- CT/MRI scan to detect thickening of the skin, the honeycomb pattern characteristic of lymphedema, or a tumor that could be causing lymphatic obstruction
- bioimpedance to detect edema and monitor the outcome of treatment
- filarial antigen card test to detect infection with *Wuchereria bancrofti* in a person who has visited or is living in an area where lymphatic filariasis is endemic.

Primary lymphedema is usually diagnosed after exclusion of secondary lymphedema. Genetic screening and counseling may be required if there is a suspected familial link. Three gene mutations have been linked with primary lymphedema:

- *FOXC2*—lymphedema-distichiasis syndrome
- *VEGFR*-3—Milroy's disease
- *SOX18*—hypotrichosis-lymphedema-telangiectasia syndrome.

LYMPHEDEMA ASSESSMENT

Assessment should be performed at the time of diagnosis and periodically throughout treatment. Findings should be recorded systematically and form the baseline from which management is planned and progress monitored. (See *Lymphedema assessment form*, page 88.) Lymphedema assessment usually is carried out by a practitioner with specialist training.

Lymphedema staging

Several staging systems for lymphedema have been devised, including the International Society of Lymphology system. None has achieved international agreement, and each has its limitations.

Classification of severity

One method of establishing the severity of unilateral limb lymphedema is based on the difference in the limb volume between the affected and unaffected limbs. There is currently no formal system for classifying the severity of bilateral limb swelling or lymphedema of the head and neck, genitalia, or trunk. The severity of lymphedema can also be based on the physical and psychosocial impact of the condition. Factors to consider include:

- tissue swelling—mild, moderate, or severe; pitting or nonpitting
- skin condition—thickened, warty, bumpy, blistered, lymphorrheic, broken or ulcerated
- subcutaneous tissue changes—fatty/rubbery, nonpitting or hard
- shape change—normal or distorted
- frequency of cellulitis or erysipelas
- associated complications of internal organs (such as pleural fluid, chylous ascites)
- movement and function—impairment of limb or general function
- psychosocial morbidity.

A more detailed and comprehensive classification applicable to primary and secondary lymphedema remains to be formulated.

Lymphedema assessment form

Assessor: _____ **Date** _____

Name: _____ Male/female DOB: _____ Tel: _____
Address: _____

Patient number: _____ Next of kin: _____
Referred by: _____ Name of primary physician: _____

Diagnosis

Primary/secondary lymphedema/lipedema
Age of onset of edema:
Investigations:
Current symptoms:
Current/previous cellulitis:
Current treatment for lymphedema:
Past treatment for lymphedema:

Past medical history

Surgery: Cancer status:
Axillary clearance/sentinel node biopsy:
No. nodes +ve: No. nodes removed:
Radiotherapy: Chemotherapy:
Hormonal therapy: Venous/arterial disease:
Neurological disease:
Family history:

Current medications

Allergies:

Psychosocial/functional status

Emotional state:
Social support:
Employment:
Mobility:
ADL:

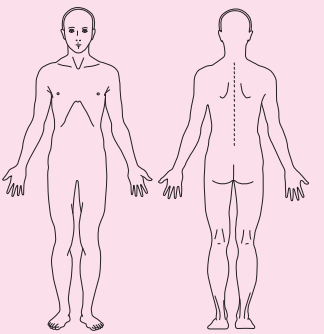
Nutritional assessment

Weight (kg):
Height (m):
BMI:
Waist circumference:

Current location of swelling

Swelling Pitting Tissue thickening

Dominant side; upper limb R/L; lower limb R/L
Skin condition:
Tissues in swollen area are predominantly: soft/firm
Swelling is predominantly: pitting/nonpitting



Stemmer sign: Hand: R +/– L+/– ABPI/TBPI: R leg
Foot: R +/– L+/– L leg

Pain assessment

Present?
Site/character:
Current treatment:

Limb circumference measurements

	Upper limb		Lower limb	
	R	L	R	L
Hand/foot Circumference (cm)				
Starting point (cm)				
Above elbow/knee (cm)				
Below elbow/knee (cm)				
Total limb volume (ml)				
Distal volume (ml)				
Proximal volume (ml)				
Distal : proximal ratio				
Excess total limb volume (ml and %)				
Excess distal limb volume (ml and %)				
Excess proximal limb volume (ml and %)				

Assessment of swelling

The duration, location, and extent of swelling and pitting should be recorded, along with the location of any lymphadenopathy, the quality of the skin and subcutaneous tissue, and the degree of shape distortion. Limb circumference and volume should be measured.

Limb volume measurement

Limb volume measurement is one of the methods used to determine the severity of lymphedema, the appropriate management, and the effectiveness of treatment. Typically, limb volume is measured on diagnosis, after 2 weeks of intensive therapy with multi-layer inelastic lymphedema bandaging (MLLB), and at follow-up assessment. In unilateral limb swelling, both the affected and unaffected limbs are measured. The difference in limb volume is expressed in milliliters (mL) or as a percentage. In bilateral limb edema, the volume of both limbs is measured and used to track treatment progress.

There is no effective method for measuring edema of the head, neck, breast, trunk, or genitalia. Digital photography is recommended as a way to record and monitor facial and genital lymphedema.

Edema is considered present if the volume of the swollen limb is more than 10% greater than that of the unaffected limb. The dominant limb should be noted because, even in unaffected patients, the dominant limb may have a circumference up to 2 cm greater and a volume as much as 9% higher than the nondominant limb. Several methods are available for estimating volume.

Water displacement method

Also known as water plethysmography, this method is the gold standard for calculating limb volume and is the only reliable method available for measuring edematous hands and feet. It uses the principle that an object will displace its own volume of water.

Circumferential limb measurement

Calculation of volume from circumferential measurements is the most widely used method. It is easily accessible and its reliability can be improved by following a standard protocol.

Perometry

Perometry uses infrared light beams to measure the outline of the limb. From these measurements, limb volume (but not hand or foot volume) can be calculated quickly and accurately.

Bioimpedance

Bioimpedance measures tissue resistance to an electrical current to determine extracellular fluid volume. The technique is not yet established in routine practice. However, it may prove useful in demonstrating early lymphedema, identifying lipedema, and in monitoring the outcome of treatment.

Limitations of excess limb volume

Calculation of excess limb volume is of limited use in bilateral lymphedema. In such cases, measurements can be used to track sequential changes in limb circumference to indicate treatment progress. In patients with extensive hyperkeratosis, elephantiasis, or tissue thickening, some of the excess volume will be from factors other than fluid accumulation.

Assessment of skin condition

The general condition of the patient's skin and that of the affected area should be assessed for:

- dryness
- pigmentation
- fragility
- redness, pallor, cyanosis
- warmth, coolness
- dermatitis
- cellulitis, erysipelas
- fungal infection
- hyperkeratosis
- lymphangiectasia
- lymphorrhea
- papillomatosis
- scars, wounds, ulcers
- lipodermatosclerosis
- orange peel skin (peau d'orange)
- deepened skin folds
- Stemmer sign (See *Understanding Stemmer sign*, page 91.)

Examples of some skin changes in lymphedema can be found in the source document for this chapter, along with indications for referring patients to dermatology or other specialist services.

Vascular assessment

The arterial vascular status of the legs of all patients with lower limb lymphedema should be assessed. The presence of peripheral arterial occlusive disease may contraindicate compression therapy or necessitate a reduction in the level of compression used.

Ankle-brachial pressure index (ABPI) provides an objective measure of the patency of the large arteries supplying blood to the foot. It is calculated from the ratio of the highest ankle systolic pressure for each limb to the highest systolic pressure in the arm. There are limitations to the test, particularly in the presence of lymphedema. Tissue thickening, hyperkeratosis, or edema may make it difficult to detect blood flow using the standard 8-MHz probe. Use of a 4-MHz probe and a larger size blood pressure cuff may overcome these problems.

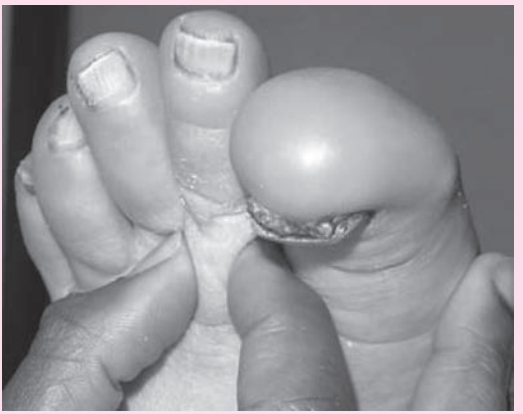
An ABPI of 1.0 to 1.3 is normal. An ABPI less than 0.8 indicates a degree of lower limb arterial occlusive disease that precludes the use of high compression. Inability to obliterate the pulse signal during measurement or an ABPI above 1.3 also indicates vascular disease.

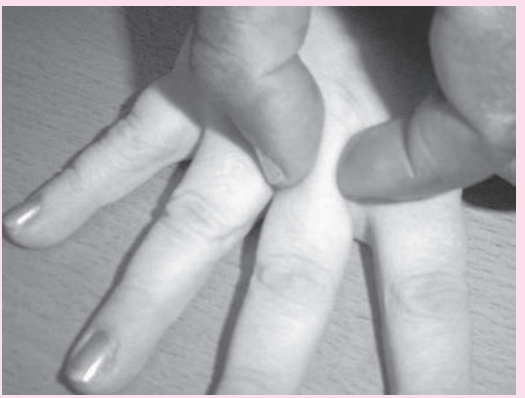
Measurement of toe-brachial pressure index (TBPI) may be useful if an ABPI is impossible or too painful to obtain. Alternatives for assessing vascular status include pulse oximetry and pulse oscillography of the limbs, but these may be subject to false-positive ischemic results in the presence of edema.

Use of these vascular assessment methods requires appropriate training in measurement technique and interpretation of results. If there is any doubt about the patient's peripheral arterial status, a vascular opinion should be sought.

Understanding Stemmer sign

In a normal person, you can raise a fold of skin at the base of the second toe or the base of the middle finger, as shown. If you can't raise such a fold, the patient may have lymphedema.





Psychosocial assessment

Lymphedema can result in functional impairment, reduced self-esteem, distorted body image, depression, anxiety, and problems with sexual, family, and social relationships. Psychosocial assessment will highlight areas that require referral for specialist intervention and factors that may have an impact on management and concordance with treatment.

Psychological evaluation should include asking patients how the swelling makes them feel about themselves alongside assessment for depression, anxiety,

cognitive impairment, lack of motivation, ability to cope, and understanding of disease and concordance with treatment.

Social factors that should be assessed include the effects of lymphedema on accommodation (accessibility, general living standards, heating/cooling), relational support, employment, education, financial status, and recreational activities.

Mobility and functional assessment

Assessment of a patient's mobility and functional status will help contribute to formation of a management plan and determine whether referral for further assessment is needed. The World Health Organization has produced a standardized, cross-cultural, non–disease-specific tool for functional assessment known as the WHO Disability Assessment Schedule. It's available at www.who.int/icidh/whodas.

Functional assessment of lymphedema affecting the head, neck, trunk, or genitalia should be undertaken by a lymphedema specialist. Patients with functional, joint, or mobility problems should be referred as appropriate for physiotherapy and/or occupational therapy assessment.

TREATMENT DECISIONS

The best practice management for lymphedema takes a holistic, multidisciplinary approach that includes:

- exercise or movement to enhance lymphatic and venous flow
- swelling reduction and maintenance to reduce limb size or volume, improve subcutaneous tissue consistency through compression and/or massage, and maintain improvements
- skin care to optimize its condition, treat complications of lymphedema, and minimize the risk of cellulitis or erysipelas
- risk reduction to avoid worsening lymphedema
- pain and psychosocial management.

Swelling reduction is achieved through a combination of compression (such as MLLB, compression garments, or both) and exercise or movement with or without lymphatic massage (manual lymphatic drainage [MLD], simple lymphatic drainage [SLD], or intermittent pneumatic compression [IPC]).

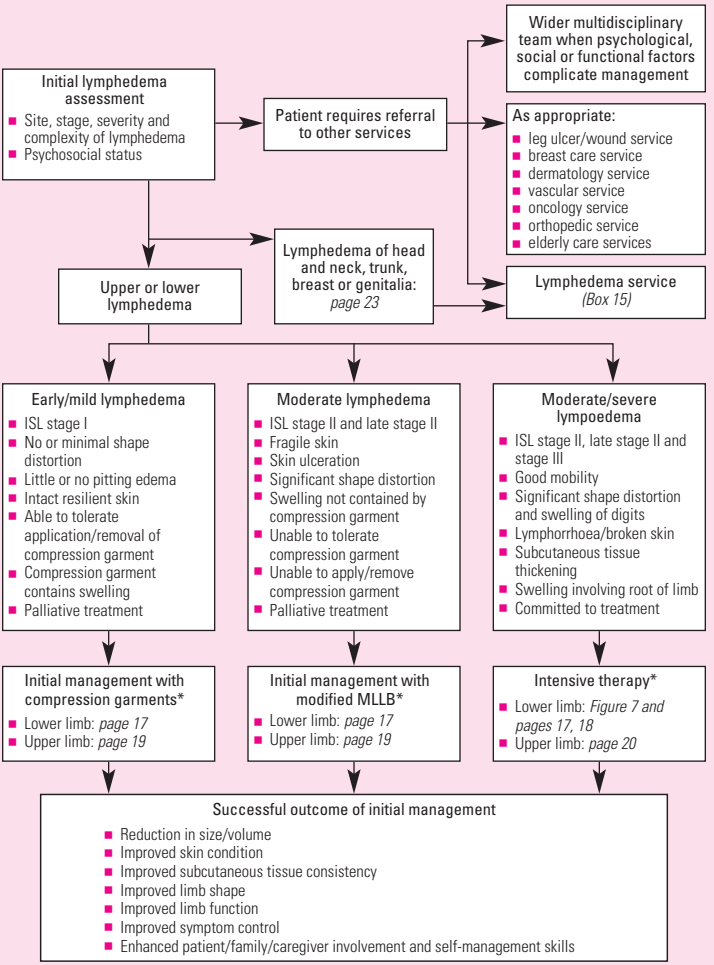
The precise form of management required will be determined by the site, stage, severity, and complexity of the lymphedema, and the patient's psychosocial situation. (See *Initial management of lymphedema,* page 93.) Patients may require referral to a lymphedema service or referral for assessment of coexisting medical, functional, or psychosocial problems. Successful management of lymphedema relies on patients and caregivers playing an active role.

Lower limb lymphedema

Initial management of lower limb lymphedema involves psychosocial support, education, skin care, exercise/movement, elevation and management of any concurrent medical conditions, and management of pain or discomfort. (See *Initial management of lymphedema,* page 93.) The patient's initial management also may include compression hose, modified MLLB, and intensive therapy. (See *Compression safety,* page 94.)

Initial management of lymphedema

This algorithm provides a guide for choosing the appropriate form of management and indicates where the chapter's source document provides more information.



* Includes skin care, exercise/movement, elevation ad breathing exercises.

Compression safety

Patients with lower limb lymphedema and a reduced ankle-brachial pressure index (ABPI) of 0.5 to 0.8 should not receive sustained compression exceeding 25 mm Hg. Patients with an ABPI less than 0.5 shouldn't receive compression at all. If arterial involvement is suspected, the patient should be seen by a vascular specialist before compression is introduced.

Acute infection
During periods of acute infection, compression should be reduced or removed if too painful. Medical supervision may be required, and any form of lymphatic massage should be stopped. The usual type and level of compression should resume when the acute phase of infection has resolved and the patient can tolerate the compression again. Patients who wear compression garments can use one of lower pressure, if available, or use modified bandaging until then.

Compression hose

Patients with mild lower limb lymphedema (International Society of Lymphology [ISL] stage I), minor pitting, no significant tissue changes, no or minimal shape distortion, or palliative needs may be suitable for initial management with compression hose. The pressure used should be guided by the patient's vascular status and ability to tolerate compression and manage the garment. Skin care, exercise/movement, elevation, and simple lymphatic drainage should be taught alongside self-monitoring and proper application, removal, and care of the hosiery. Patients' application and removal technique should be assessed and monitored.

Patients should be reviewed 4 to 6 weeks after initial fitting, and then after 3 to 6 months if response is satisfactory. Patients also should be reviewed at each garment renewal (about every 3 to 6 months).

Modified MLLB

Patients with ISL stage II or late stage II lower limb lymphedema may be candidates for initial treatment with modified MLLB, outside an intensive therapy regimen. Modified MLLB also may be useful in controlling symptoms in patients with cancer-related lymphedema and frail patients who have complex medical problems. Management should include skin care, exercise/movement, elevation, simple lymphatic drainage, and psychosocial support.

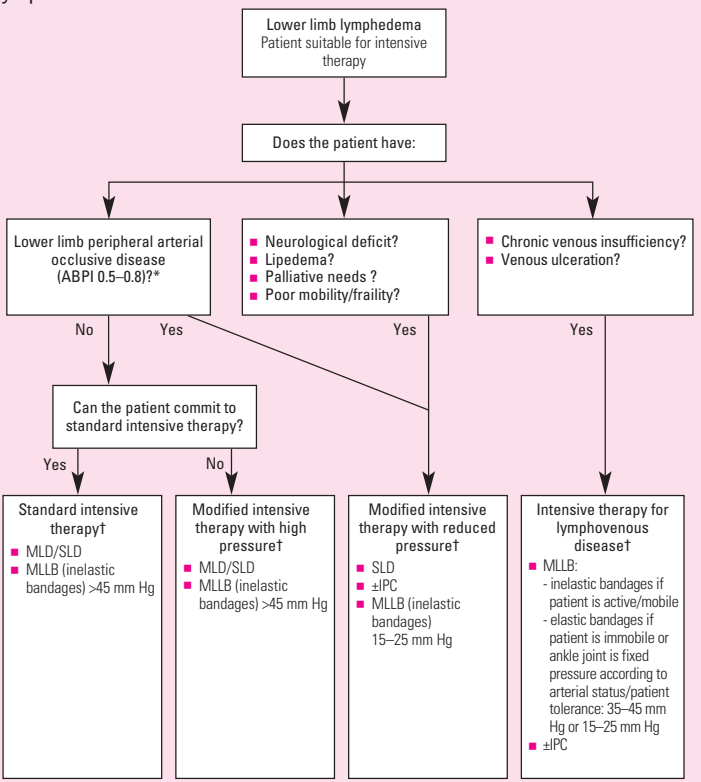
Intensive therapy

Intensive therapy reduces swelling by decongesting impaired lymphatic pathways, reducing lymphatic load, encouraging development of collateral drainage routes, and stimulating the function of remaining patent routes.

Intensive therapy is used in patients with ISL stage II, late stage II, and stage III lower limb lymphedema. (See *Elements of intensive therapy,* page 95.) Intensive therapy regimens use a combination of skin care, MLLB, exercise/movement, and elevation. The regimen may include manual lymphatic drainage or manual lymphatic drainage with intermittent pneumatic compression.

Elements of intensive therapy

This flowchart lays out intensive therapy options for patients with lower limb lymphedema.



* Patients with ABPI <0.5 should not receive compression therapy and should be referred to a vascular specialist.
† Includes skin care, exercise/movement, elevation and breathing exercises.

The frequency of treatment, degree of compression, and type of bandaging used should be adapted to the patient's physical and psychosocial needs and to the presence of venous ulceration and arterial or venous insufficiency. Intensive therapy programs are likely to be undertaken for 2 to 4 weeks, although a maximal effect may be achieved more quickly in some patients. During this time, treatment should be evaluated continuously and appropriate alterations made according to patient need and the effectiveness of the selected regimen.

Understanding manual lymphatic drainage

A key component of decongestive therapy, manual lymphatic drainage (MLD) is a gentle massage technique that aims to move fluid away from congested areas by increasing normal lymphatic activity and bypassing ineffective or obliterated lymph vessels. Although a wealth of clinical opinion is available on the benefits of MLD, little research has been done to conclusively support its use. The most appropriate techniques, optimal frequency, indications, and benefits of MLD all remain to be clarified. It remains a specialist skill that needs regular practice in order to maintain competence. Deep, heavy-handed massage should be avoided because it may damage tissues and worsen edema by increasing capillary filtration.

MLD may be indicated as part of intensive therapy, transition management, long-term management, or palliative care. On its own, MLD isn't sufficient treatment for lymphedema. It should be combined with compression therapy to support and maintain its effects. However, where compression is difficult or not well tolerated (as in lymphedema of the head, neck, trunk, breast, or genitalia), MLD may be the only realistic option.

Standard intensive therapy

Standard intensive therapy (sub-bandage pressure greater than 45 mm Hg) involves skin care, exercise/movement, elevation, manual lymphatic drainage, and MLLB with inelastic bandages undertaken daily. (See *Understanding manual lymphatic drainage* above.) Patients undergoing standard intensive therapy must be carefully selected and be willing and able to commit physically and emotionally to daily intensive therapy, including participation in exercise programs.

Modified intensive therapy with high pressure

Modified intensive therapy with high pressure (greater than 45 mm Hg) involves skin care, exercise/movement, elevation, manual and simple lymphatic drainage, and MLLB with inelastic bandages undertaken three times weekly. Suitable patients are able to tolerate high levels of compression, but are unable to commit to standard intensive therapy for physical, social, psychological, or economic reasons. Patients may include those who are elderly, are obese, or have poor mobility.

Modified intensive therapy with reduced pressure

Modified intensive therapy with reduced pressure (15 to 25 mm Hg) involves skin care, exercise/movement, elevation, simple lymphatic drainage, MLLB, and possibly intermittent pneumatic compression undertaken three times weekly. Patients are selected for this treatment when high levels of compression are either unsafe or difficult to tolerate. This includes those with:

- moderate concurrent lower limb peripheral arterial occlusive disease (ABPI 0.5 to 0.8) (Patients with an ABPI less than 0.5 should not receive sustained compression therapy but may benefit from special forms of intermittent pneumatic compression.)
- a neurologic deficit that will make sensing complications difficult
- lipedema/lipolymphedema, where lower levels of compression may be easier to tolerate

- cancer requiring palliative treatment
- co-morbidities requiring less aggressive reduction in swelling.

Intensive therapy for lymphovenous disease

Intensive therapy for lymphovenous disease (35 to 45 mm Hg or 15 to 25 mm Hg) involves skin care, exercise/movement, elevation, and MLLB with or without intermittent pneumatic compression undertaken either daily or three times weekly. Treatment frequency will be determined by the severity of the edema, skin condition, and rate of swelling reduction.

Suitable patients include those who have had deep vein thrombosis or those who have postthrombotic syndrome, who may be at risk of developing or who already have leg ulceration. Immediate ambulation with appropriate compression doesn't significantly increase the incidence of pulmonary embolism, produces a faster reduction of pain and swelling, and reduces the severity of postthrombotic syndrome. MLLB may need to be modified in the presence of venous ulceration, peripheral arterial occlusive disease, or immobility. Intermittent pneumatic compression may be particularly useful for the many patients with venous ulceration who have poor mobility and cannot elevate their legs.

In severe cases with significant limb distortion, edema, and tissue thickening, fitter patients may benefit from a period of standard intensive therapy.

Upper limb lymphedema

As in the lower limbs, initial management for upper limb lymphedema will involve psychosocial support, education, skin care, exercise/movement, elevation and management of any concomitant medical conditions, and management of pain or discomfort. (See *Initial management of lymphedema*, page 93.) Initial management also may include compression garments, modified MLLB, and intensive therapy.

Compression garments

Compression garments can be used as initial management in patients who have mild upper limb lymphedema (ISL stage I) with minimal subcutaneous tissue changes and shape distortion. Where there is considerable soft pitting edema, MLLB (inelastic bandaging) will be required to reduce and stabilize swelling before application of compression garments. In general, the level of compression used to treat lymphedema of the upper limb is lower than that used for the lower limbs. Lower-pressure compression garments also play a role in palliative symptoms management.

Management of patients treated initially with compression garments will include education about risk reduction and self-management, skin care, exercise/movement, elevation, simple lymphatic drainage, and psychosocial support.

Modified MLLB

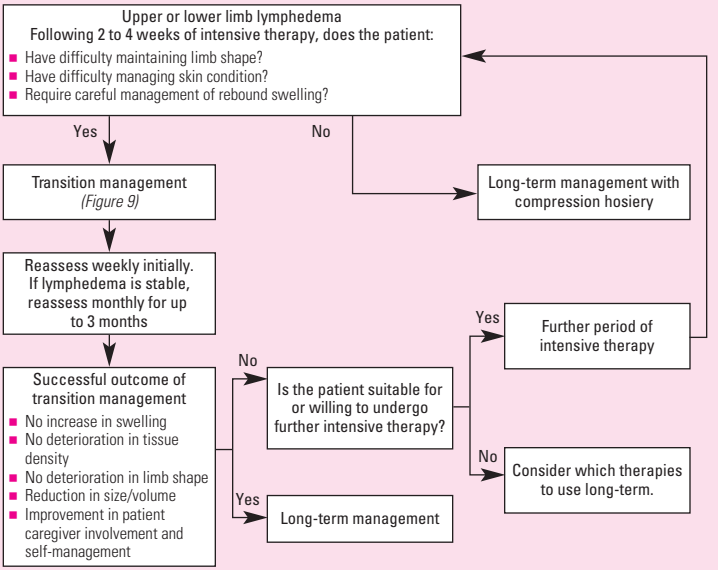
Initial management of upper limb lymphedema with MLLB will usually be part of an intensive therapy regimen (see below). Selected patients with ISL stage II or late stage II upper limb lymphedema who cannot wear compression garments may better tolerate adapted forms of MLLB. Initial and longer-term management of patients with palliative care needs may also involve modified MLLB.

Intensive therapy

Intensive therapy of upper limb lymphedema involves the use of MLLB to reduce edema and improve limb shape, subcutaneous tissue consistency, and skin condition. In the intensive phase of treatment, daily bandaging is undertaken for

Transition management

This flowchart describes transition management in upper limb and lower limb lymphedema.



2 to 4 weeks, and all aspects of standard intensive therapy are implemented (skin care, exercise/movement, elevation, and manual lymphatic drainage). In the palliative situation, where modified MLLB is used, it may be possible to reduce the frequency of bandaging after at least an initial week of daily treatment.

Transition management

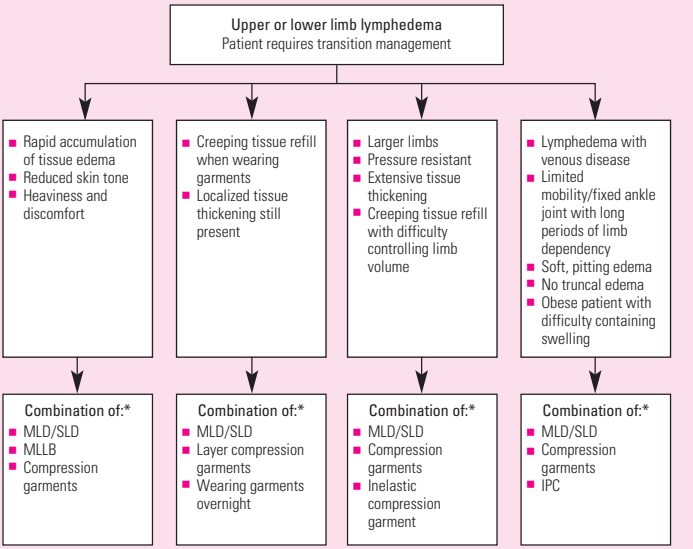
Following intensive therapy, some patients with either upper limb or lower limb lymphedema may benefit from a 1- to 3-month period of transition management before progressing to long-term therapy. The transition period may be helpful to:

- maximize the effects of intensive therapy and stabilize fluctuations in swelling to an individually acceptable level
- prevent rebound swelling on transfer to compression hose
- evaluate long-term maintenance strategies
- support and facilitate self-management
- reduce practitioner input.

An algorithm can be used as a guide in deciding which patients require transition therapy. (See *Transition management* above.)

Choosing compression

This flowchart shows compression choices available in transition management for upper limb and lower limb lymphedema.



* Includes skin care, exercise/movement, elevation, and breathing exercises.

Compression choices

Success and concordance demand that an individualized compression regimen is developed that is comfortable and acceptable to the patient. Treatment may include a combination of compression garments and MLLB, with or without manual lymphatic drainage or intermittent pneumatic compression. (See *Choosing compression* above.)

Promotion of self-management

An important aim of the transition phase is promotion of self-management and long-term control. Wherever possible, patients should be actively engaged in all stages of their treatment. Patient involvement during the transition phase, with education, training, and supervision, can include:

- skin care
- exercise/movement, elevation, and weight reduction
- use of an inelastic adjustable compression device
- simple lymphatic drainage

- compression garments with or without MLLB
- self -monitoring for complications
- treatment adjustment according to fluctuations.

Long-term management

The long-term management of upper limb and lower limb lymphedema focuses on enhancing the function of the lymphatics, limiting further deterioration of swelling, and gaining long-term control of the condition. Success relies on self-management by patients and caregivers, with appropriate and effective education, training, and medical and psychosocial support. It involves:

- daily skin care
- exercise/movement
- compression using compression garments, bandaging, or an inelastic adjustable compression device
- limb elevation
- simple lymphatic drainage performed by the patient or a trained caregiver or family member
- self-monitoring.

Long-term management of lymphedema usually involves compression garments. However, for some patients, the most appropriate form of compression in the long-term will be bandaging or a combination of compression garments and bandaging. (See *MLLB in long-term management*, page 101.)

Occasionally, patients with upper limb lymphedema and expertise in managing their condition will be able to manage their lymphedema mainly through exercise, using compression garments when needed.

UNDERSTANDING MULTI-LAYER INELASTIC LYMPHEDEMA BANDAGING

Multi-layer lymphedema bandaging (MLLB) is a key element of intensive therapy regimens. For some patients, it may form part of transitional, long-term, or palliative management.

MLLB uses inelastic bandages that have low extensibility and that produce high working pressures and lower resting pressures. (See *Understanding pressures in MLLB*, page 102.) In other words, they create peak pressures that produce a massaging effect and stimulate lymph flow. In certain situations, elastic bandages may be used instead. Elastic bandages produce sustained compression with smaller variations during movement.

Uses for MLLB

As well as reducing edema, MLLB:

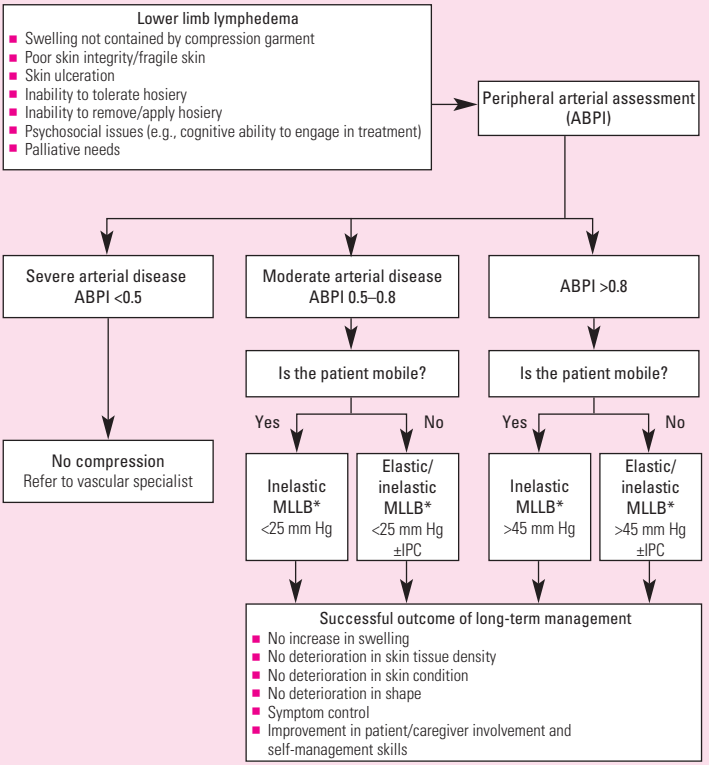
- restores shape to the limb/affected area
- reduces skin changes, such as hyperkeratosis and papillomatosis
- supports overstretched inelastic skin
- eliminates lymphorrhea
- softens subcutaneous tissues.

MLLB is indicated when skin changes are marked or limb distortion and skin folds preclude compression garments. Specifically, indications include:

- fragile, damaged, or ulcerated skin
- a distorted limb shape

MLLB in long-term management

This flowchart depicts long-term management of lower limb lymphedema with MLLB.



* Includes skin care, exercise/movement, elevation, and breathing exercises

- a limb too large to fit in compression garments
- areas of tissue thickening
- lymphorrhea
- lymphangiectasia
- pronounced skin folds.

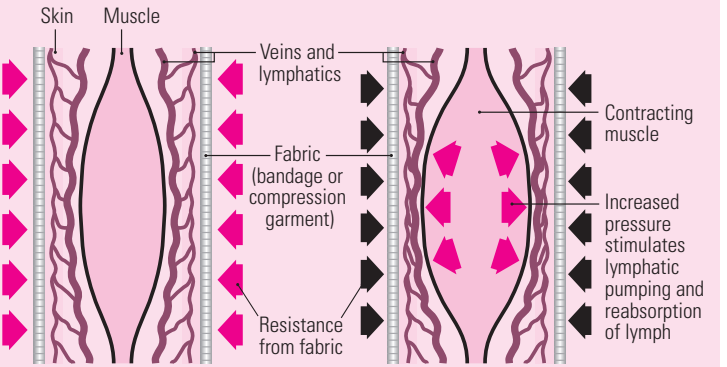
Patients with significant skin sacks or lobes or extensive tissue thickening should be referred to a lymphedema specialist.

Understanding pressures in MLLB

MLLB produces high working pressures and lower resting pressures, as described here.

Working pressure
When muscles contract and expand (as during exercise), they press against the inflexible bandage, causing a temporary increase in pressure inside the limb.

Resting pressure
The bandage or compression garment applies constant pressure to the skin when the limb is at rest.



Contraindications to MLLB include, among other things:

- severe arterial insufficiency (ABPI less than 0.5), although modified MLLB with reduced pressures can be used under close supervision
- uncontrolled heart failure
- severe peripheral neuropathy.

MLLB systems

The purpose and characteristics of the usual components of MLLB may vary their order of use. (See *Components of MLLB,* page 103.) MLLB regimens can be adapted to individual patient's needs by varying the:

- pressure produced by the bandages
- frequency of bandage change
- bandage bulk
- type of bandage, such as by using elastic bandages instead of inelastic bandages.

Components of MLLB

Component	Purpose	Characteristic	Notes
Skin care	To optimize skin health and treat skin conditions (e.g., hyperkeratosis or ulceration)	According to need	As a minimum, emollient should be applied to skin before bandaging.
Finger or toe bandaging (if indicated)	To reduce swelling of the digits	Comforting bandage	Bandaging should not impede function of digits.
Tubular bandage	To provide a protective, absorbent layer between the skin and other bandages	A light cotton or cotton-viscose bandage applied to the whole area to be bandaged	Does not contribute significantly to compression. Should be long enough to be folded back over the padding layer at either end to prevent fraying or chafing.
Soft synthetic wool ("subcompression waddling bandage") or foam roll or sheet	To protect the skin and subcutaneous tissues, to normalize shape*, to protect bony prominences and equalize the distribution of pressure produced by other bandage layers	Soft synthetic wool or polyurethane foam is available in different widths/thicknesses, and as bandages or sheets. Polyester undercast padding is available in sheets of various widths. Higher densities of foam are used with greater degrees of shape or tissue thickening.	Extra padding may be required on vulnerable pressure points (Achilles' tendon, dorsum of foot, tibialis, anterior tendon, malleoli, popliteal fossa, and elbow).
Dense foam	Applied locally to soften hard areas of tissue thickening* or areas particularly vulnerable to edema (e.g., the malleoli)	Polyurethane high-density foam is available in sheets or pads of different thicknesses that can be cut to shape.	Applied over soft synthetic wool or under foam. Edges should be beveled to prevent rubbing.
Inelastic bandages	To provide compression	Constructed of crimped cotton yarns. Available as nonadhesive, cohesive, or adhesive and in varying widths.	Cohesive and adhesive bandages can help prevent slippage and are used to prolong time the bandage is worn.

(continued)

Components of MLLB *(continued)*

Component	Purpose	Characteristic	Notes
Tape	To secure ends of bandages		The tape appropriate to the bandage being secured should be used.

*Foam chip bags contain low-density foam pieces in a tubular bandage and can be used to bulk out areas, such as the palm of hand or over areas of tissue thickening.

For a larger limb requiring high levels of compression, the desired pressure may be achieved by increasing the number of bandage layers applied and increasing the tension used during application.

Frequency of MLLB system change

As yet, there is no empirical evidence to indicate how frequency of bandage change affects speed of edema reduction or final outcome. Clinical experience suggests that MLLB systems should be changed daily for the first 7 days. This will minimize bandage slippage and ensure that sub-bandage pressure is maintained as swelling declines. According to therapy regimen and wound and skin care requirements, it may then be possible to reduce the frequency of change to two to three times weekly. Continence issues may also influence the frequency of change.

Commencement of bandaging and the timing of bandage change may need to be coordinated with the patient's orthotic or podiatric needs.

Use of elastic bandaging

In some situations, the inelastic bandages used in MLLB may be replaced with a multilayer elastic bandage regimen. The stiffness produced by the combination of layers and the inclusion of a cohesive elastic bandage produces high working pressures. However, the resting pressure is higher than with inelastic systems. The sustained resting pressure produced by high stiffness elastic bandage systems may be useful when:

- the patient is immobile
- the ankle joint is fixed (the calf muscle pump cannot be used)
- the patient has venous ulceration and lymphatic disease
- the patient has proven venous disease
- large volume loss is expected, to increase time worn.

Modifications for long-term or palliative use

MLLB can be modified to apply reduced pressure for long-term, palliative, or nighttime use. In most cases, bandages are applied only using a spiral technique. Materials include:

- cotton tubular bandage
- soft synthetic wool or foam padding
- cohesive or adhesive inelastic bandages using fewer layers.

Self/caregiver bandaging

For selected patients, self-bandaging or bandaging by a caregiver may be appropriate. The patient or caregiver needs good dexterity, a clear understanding of the technique involved, and demonstrated proficiency in application. The bandaging technique would be modified as described for long-term management.

Self/caregiver bandaging may be helpful to patients with:

- pressure-resistant lymphedema
- obesity or larger limbs
- experience in treatment
- a desire to be actively engaged in their management
- refill not controlled by hosiery alone.

Patients also may choose self/caregiver bandaging to enhance comfort or for use at night when they wear a compression garment during the day.

Allergy and MLLB

Where possible, tubular bandages with high cotton content should be used to avoid exposing the patient to potential allergens. Direct contact between skin and foams should be avoided.

Bandage care

Some components of the MLLB system can be washed and dried according to the manufacturer's instructions and reused. Over time, inelastic bandages will progressively lose their extensibility, which will increase their stiffness. Heavily soiled materials should be discarded. Cohesive and adhesive bandages should be discarded after use.

Principles of MLLB

Practical bandaging skills are important for the effective use of MLLB and require appropriate training. The use of tailored foam pads requires training at a specialist level. For further information and instructions for bandaging toes, feet, legs, and arms, see the chapter's source document.

COMPRESSION GARMENTS

The main use of compression garments is in the long-term management of lymphedema, usually following a period of intensive therapy. Compression garments are also used for prophylaxis or as part of initial treatment. They may provide the only form of compression used, or they may form part of a regimen that includes other types of compression. Some patients wear garments only during waking hours, only for exercise, or up to 24 hours per day.

A wide variety of factors must be taken into account when determining whether a patient is suitable for compression garments and which garments are best suited for helping specific problems. A decision tree and additional recommendations are available in the chapter's source document.

Construction

Compression garments can be categorized according to method of fabric manufacture. In circular knit garments, the material is continuously knit on a

cylinder. It has no seam and is used mainly to make ready-to-wear garments. These garments are shaped by varying stitch height and yarn tension. Circular knit garments may be thinner and more cosmetically acceptable than flat knit garments.

In flat knit garments, the material is firmer and thicker than that of circular knit. This garment is knit as a flat piece that is shaped by adding or removing needles. The flat piece is then joined by a seam to form the garment. Most custom-made garments are made from flat knit material.

Standards

National standards for compression garments are usually prerequisites for reimbursement and cover parameters such as testing methods, yarn specification, compression gradient, and durability. Existing standards do not cover compression garments other than hosiery (in other words, they don't cover arm sleeves), and differences in pressure ranges and testing equipment make comparisons between standards difficult. Furthermore, practitioners should be aware that some manufacturers' compression class pressure ranges for lower limb hosiery may be different from the compression class ranges used for upper limb garments. To assist comparison, therefore, garment packaging and studies involving compression garments should state the pressure ranges and the testing method used to determine the pressures.

Limb shape and garment

Limb shape plays an important role in choosing compression garments. Ready-to-wear compression garments are suitable where there is no or minimal limb distortion, but can be more difficult to fit precisely and, if circular knit, may roll at the top. Custom garments can be made to accommodate a wide range of anatomical distortion. Flat knit garments do not roll, curl, twist, or tourniquet; can achieve a better fit; and can be made with zippers to aid application.

EXERCISE, MOVEMENT, AND ELEVATION

Exercise and movement are common rehabilitative interventions used to reduce edema. At present, there is little evidence to indicate which types, intensities, and frequencies of exercise may be safely used in the management of lymphedema.

Effects of exercise and movement

Exercise improves muscle strength, cardiovascular function, psychological well-being, and functional capacity. Gentle resistance exercise stimulates muscle pumps and increases lymph flow; aerobic exercise increases intra-abdominal pressure, which facilitates pumping of the thoracic duct.

Tailored exercise and movement programs

Combinations of flexibility, resistance, and aerobic exercise may be beneficial in controlling lymphedema and should be tailored to the individual patient. (See *General guidelines on exercise,* page 107.) Physiotherapy referral is required for patients who have trouble with mobility, joint function, or joint movement.

General guidelines on exercise

- Patients should be encouraged to maintain normal functioning, mobility, and activity.
- Exercise and movement should be tailored to the patient's needs, ability, and disease status.
- Patients should be encouraged to include appropriate warm-up and cool-down phases as part of exercise to avoid worsening swelling.
- Compression should be worn during exercise.
- Expert patients can help to demonstrate, teach, and monitor exercise and provide information on access to local exercise programs.

Types of exercise

- Start with low to moderate intensity exercise.
- Paralyzed limbs can be moved passively.
- Walking, swimming, cycling, and low-impact aerobics are recommended.
- Heavy lifting and repetitive motion should be avoided.
- Flexibility exercises maintain range of movement.

Elevation

Elevation of the affected limb, ideally to just above the level of the heart, is often advised to reduce swelling. Elevation helps to maximize venous drainage and decrease capillary pressure and lymph production.

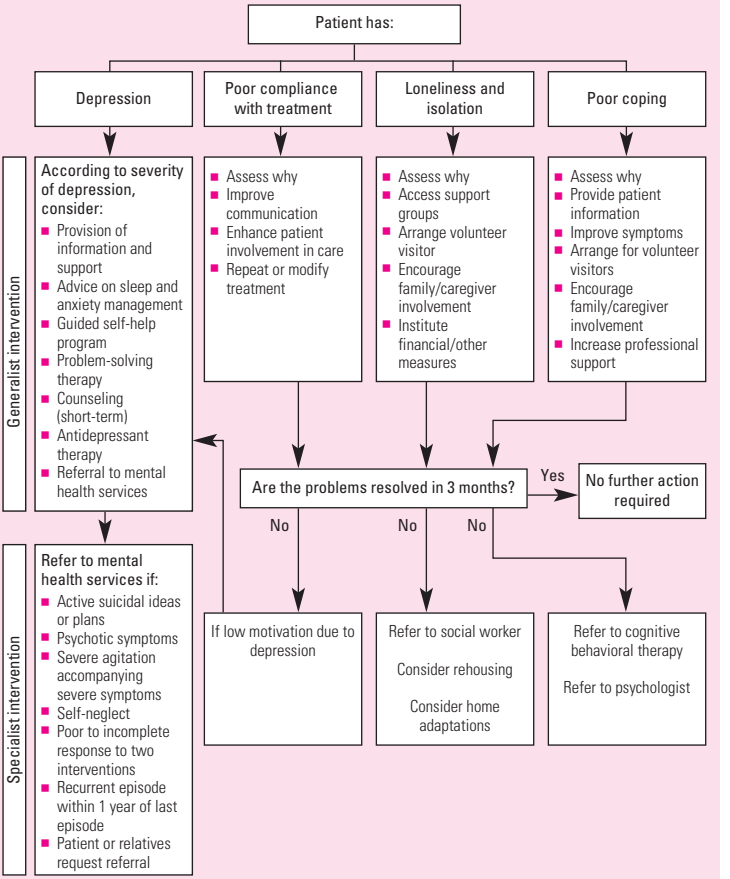
Anecdotal evidence suggests that limb elevation when the patient is sitting or in bed may be a useful adjunct to active treatment, but it should not be allowed to impede function or activity. Patients should be encouraged not to sleep in a chair and to go to bed at night to avoid developing "arm chair" legs or worsening lower limb lymphedema.

PSYCHOSOCIAL SUPPORT

Psychosocial support is an important element of the holistic treatment of lymphedema. It may have considerable influence on the patient's outcome by enhancing compliance, encouraging self-management, and maximizing quality of life.

Intervention involves planning and implementing psychosocial care strategies that help patients and their family members and caregivers take a positive role in the management of their lymphedema and to achieve as good a quality of life as possible. If psychosocial problems are not resolved within 3 months, the patient should be referred for specialist intervention. (See *Addressing psychosocial problems,* page 108.)

Addressing psychosocial problems



Laboratory values in chronic wound management

5

Wound healing is a complex process that uses specific cellular and biochemical actions to achieve wound closure. These processes—homeostasis, inflammation, proliferation, and maturation—occur over defined periods of time. They are often taken for granted as the wound innately granulates, contracts, and epithelializes under optimal conditions.

A wound begs the clinician's attention when the healing processes stall and the wound doesn't progress to closure. This type of wound is deemed chronic; it's defined as an insult or injury that has failed to proceed through an orderly and timely process to produce anatomic and functional integrity, or that has proceeded through the repair process without establishing a sustained anatomic and functional result.

Despite advances in wound care over the last few decades, many chronic wounds continue to be affected by local and systemic factors that impair the healing process. Local factors include bacterial load and infection, trauma, edema, pressure, and moisture. Systemic factors include age; chronic medical conditions, such as anemia, diabetes mellitus, and renal or hepatic dysfunction; stress; medications; tissue oxygenation; and nutritional status, such as vitamin, protein, or fluid deficiencies.

Clinicians commonly evaluate and manage the typical chronic wounds, such as pressure ulcers, vascular ulcers, and diabetic ulcers. However, many unusual wounds mimic these common chronic wounds. Because these unusual wounds are often incorrectly assessed, they're also misdiagnosed. Examples of conditions featuring unusual wounds include pyoderma gangrenosum, calciphylaxis, toxic epidermal necrolysis, epidermolysis bullosa, polyarteritis nodosa, antiphospholipid antibody syndrome, cryoglobulinemia, cholesterol emboli, disseminated intravascular coagulation/purpura fulminans, bullous pemphigoid, and necrotizing fasciitis.

MISDIAGNOSIS

Misdiagnosis of a wound prolongs the patient's suffering by delaying healing; increasing the emotional and financial toll on the patient, caregiver, and facility; and increasing medical liability. It also leads to improper medication delivery and improper topical treatments, which further exacerbates the patient's condition, covers up symptoms, prolongs the wrong diagnosis, and increases the patient's morbidity or mortality.

This point is well illustrated in an article by Weening and associates on skin ulcers misdiagnosed as pyoderma gangrenosum. The authors reviewed 8 years' worth of charts (240 from their facility and 157 from another one) in which wounds were diagnosed as pyoderma gangrenosum, but 10% of these were found

to be misdiagnosed for a median of 10 months. The authors concluded that misdiagnosis exposes patients to substantial risks associated with the wound's treatment, and a thorough workup is needed to rule out diagnoses that mimic pyoderma gangrenosum.

Tools to avoid misdiagnosis

Clinicians can reduce the chance of misdiagnosing a wound by using the following tools:

- the medical record, to accurately describe the wound's characteristics at each patient visit
- risk assessment tools, which ensure systematic evaluation of individual risk factors
- nutritional risk assessment tools
- manual screening tools, including the ankle-brachial index, lower leg and foot assessments, palpation of pulses and Doppler ultrasound, segmental blood pressures, Semmes-Weinstein monofilament testing, transcutaneous oxygen pressure ($TcPO_2$), and vibration perception threshold assessment
- other diagnostic tests, such as laboratory values, bacterial swab cultures, tissue cultures, skin biopsies, and radiologic and vascular studies.

TRACKING LABORATORY VALUES

Laboratory values can be used to evaluate and monitor chronic underlying medical conditions and to determine the patient's nutritional status. These values should be assessed on the first patient visit to establish a baseline for care. In addition, if healing hasn't occurred as expected, certain laboratory values can be monitored to ensure that local and systemic factors aren't contributing to poor healing. Important parameters to evaluate include protein levels, complete blood count, erythrocyte sedimentation rate, liver function tests, glucose and iron levels, total lymphocyte count, blood urea nitrogen and creatinine levels, lipoprotein levels, vitamin and mineral levels, and urinalysis. (See *Monitoring selected laboratory values,* page 111.) Even if only one deterrent is present, healing can't occur.

Pressure ulcers

Careful interpretation of a number of laboratory values can help the clinician accurately manage a patient with a pressure ulcer. Because the results of many laboratory assays, such as albumin, are affected by hydration status, tests should be repeated after a patient has been rehydrated. Current laboratory test data must be used to provide the most accurate information on the patient's condition.

Common laboratory tests to consider in patients diagnosed with pressure ulcers include albumin, prealbumin, hemoglobin A_{1C}, glucose, and complete blood count. Additional tests may be performed based on the patient's overall condition.

Albumin

Albumin is a protein that acts as a building block for cells and tissues. It's produced by the liver and, therefore, may be reduced in patients with liver disease. The albumin level is also diminished in patients with renal disease, malnutrition,

Monitoring selected laboratory values

Listed below are laboratory tests that can help assess the patient's condition during wound and skin therapy. Levels should be monitored, as appropriate, based on the care plan related to the clinical presentation for the patient and the wound.

Laboratory test	Normal range*
Alanine aminotransferase	10–40 units/L
Albumin	3.5–5.5 g/dL
Alkaline phosphatase	90–130 units/L
Aspartate aminotransferase	10–40 units/L
Blood urea nitrogen	8–25 mg/dL
Calcium	9–11 mg/dL
Cholesterol	100–200 mg/dL
Copper	70–140 mcg/dL
C-reactive protein	2.6–7.6 mcg/dL
Creatinine	0.6–1.4 mg/dL
Erythrocyte sedimentation rate	<10 mm/hr
Folate	3–16 ng/mL
Glucose	70–120 mg/dL
Hematocrit	42%–52% men; 37%–48% women
Hemoglobin	13–18 g/dL men; 12–16 g/dL women
Hemoglobin A_{1C}	<6%
Iron	50–150 mcg/dL
Magnesium	1.5–2.5 mEq/L
Prealbumin	16–40 mg/dL
Total protein	5–9 g/dL
Total lymphocyte count	2,000 cells/mm^3
Transferrin	200–400 mg/dL
Triglycerides	100–200 mg/dL
Vitamin A	30–95 mcg/dL
Vitamin B_1	10–60 ng/mL
Vitamin B_6	5–30 ng/mL
Vitamin B_{12}	200–900 pg/mL
Vitamin C	>2 mg/dL
Vitamin E	5–20 mcg/mL
Zinc	60–150 mcg/dL

*Values vary among laboratories.

severe burn wounds, and malabsorption syndromes. Adequate intake of protein and essential nutrients is necessary to ensure adequate production of albumin.

The albumin test is the basic screening tool for protein status and a gross indicator of nutritional status and fluid balance. Albumin has a half-life of 18 to 20 days, making it sensitive to long-term protein deficiencies. The lower the albumin level, the greater the risk of edema, because albumin accounts for a large portion of the oncotic pressure of blood plasma.

The albumin value is directly related to the severity of the protein deficiency. The extent to which albumin is decreased can help predict the risk of pressure ulcer formation. Albumin levels less than 3.2 g/dL have been shown to correlate with increased morbidity and mortality in patients admitted to the critical care unit. Elevated levels can be found in patients with dehydration, vomiting, diarrhea, and multiple myeloma.

Prealbumin

Prealbumin, or transthyretin, is another type of protein produced by the liver. It has a half-life of 2 to 3 days, making it a better indicator of acute nutritional status changes than albumin. The level can be diminished in patients with liver disease, widespread tissue damage, malnutrition, protein wasting, or inflammation, as well as in patients taking estrogen or a hormonal contraceptive.

The lower the prealbumin level, the greater the risk of mortality. Prealbumin carries thyroxine and vitamin A throughout the body; thus, lower prealbumin levels decrease transport of these substances. Elevated prealbumin levels have been found in patients with Hodgkin's disease and in those taking a steroid and a nonsteroidal anti-inflammatory drug.

Hemoglobin A_{1C}

Hemoglobin A_{1C} (A_{1C}) is composed of hemoglobin A with a glucose molecule, which is attached through a process called glycosylation. It's an indicator of long-term glucose control, and its value depends on the amount of serum glucose available. A_{1C} is mainly used as a measure of the efficacy of diabetic therapy. An elevated A_{1C} level carries the same implications as an elevated serum glucose level, including impaired wound healing and decreased ability to fight infection. A level above 8% increases the risk of long-term complications.

Glucose

Glucose is formed from dietary carbohydrates and is stored in the liver and muscles as glycogen. A fasting blood glucose level gives the best indication of overall glucose homeostasis. Insulin allows transport of glucose into the cells for storage as glycogen. Glucagon stimulates conversion of glycogen to glucose for use by the cells as energy. Hypoglycemia results from malnutrition, cirrhosis, alcoholism, and excess insulin. The serum glucose level is elevated in patients with diabetes mellitus, burns, crush injuries, or renal failure and in those using a steroid. A chronically elevated glucose level causes microvascular damage, which inhibits oxygen and nutrient perfusion and hampers wound healing. An elevated glucose level also affects polymorphonuclear lymphocytes, causing decreased chemotaxis, diapedesis, and phagocytosis, which in turn leads to a diminished ability to fight infection. Finally, an elevated glucose level is a risk factor for the development of arterial and neuropathic ulcers in patients with diabetes mellitus.

Complete blood count

A complete blood count (CBC) measures the number of red blood cells (RBCs), white blood cells (WBCs), total amount of hemoglobin in the blood, the fraction of the blood composed of RBCs (hematocrit), and the mean corpuscular volume (MCV). It also provides information about the mean corpuscular hemoglobin (MHC) and mean corpuscular hemoglobin concentration (MCHC), which are calculated from other measurements in the CBC. The platelet count is usually included in the CBC.

It's important to review these blood components because they map directly to the wound-healing process. For example, hemostasis occurs immediately after initial injury. The primary cell responsible for this function is the platelet, which causes the body to form a clot to prevent further bleeding. Platelets also release key cytokines, such as platelet-derived growth factor, that call in cells to participate in later phases of healing. Without the proper platelet count, wound healing is delayed.

These and other tests, such as renal and liver function tests and electrolyte levels, should be monitored based on the care plan related to the clinical presentation of the patient and the wound.

Venous ulcers

To accurately evaluate and manage a patient with a venous ulcer, the clinician should obtain a CBC plus laboratory values for various nutritional elements. Other tests to consider when evaluating a patient with venous insufficiency are venography, Doppler ultrasound, ankle-brachial index, plethysmography, and tissue biopsy.

Protein

Protein is responsible for the growth and maintenance of tissue, fluid balance, and antibody and T-cell formation, as well as for hormone and enzyme production. It can be influenced by various factors, such as diminished dietary intake, decreased protein production, increased metabolic rate, or excessive loss through the skin, kidney, or GI tract. The protein level also can be affected by stress, hormones, infection, and organ dysfunction, however, so it isn't a specific indicator of nutritional status. Total protein is primarily composed of albumin and globulin.

The presence of a wound and the body's attempt to heal it may increase the patient's basal metabolic rate. The liver catabolizes protein to support the wound's increased demands on the body. If the patient doesn't consume enough protein to compensate for the increased catabolism, protein deficiency results.

Protein deficiency impedes wound healing for various reasons, including a reduced ability to repair the wound and to fight infection. Reduced wound repair capability is caused by decreased DNA production, neovascularization, fibroblast proliferation, collagen synthesis, and wound remodeling that result from protein deficiency. Weakened resistance to infection is caused by decreased antibody and complement production, leukocyte phagocytosis and intracellular killing, and macrophage phagocytosis.

Protein deficiency also causes edema, which decreases oxygen and nutrient transport to the wound. In addition, decreased thymic hormone secretion causes thymic atrophy, which leads to decreased T-lymphocyte production.

Total lymphocyte count

Lymphocytes are part of the immune system. T-lymphocytes, which develop in the thymus, are involved in cell-mediated immunity, such as bacterial death and tumor immunity. B-lymphocytes develop in the bone marrow and are responsible for humoral immunity. They synthesize immunoglobulins, which react to specific antigens.

Measurement of lymphocytes aids in the diagnosis of immunosuppression and autoimmunity. A decrease in the total lymphocyte count (indicating impaired immunity) can result from decreased protein intake. The lower the count, the higher the risk of morbidity and mortality. A decreased total lymphocyte count has also been associated with surgery, lupus erythematosus, lymphoma, malnutrition, immunodeficiency, and the use of immunosuppressants. An increased total lymphocyte count has been associated with alcohol use, smoking, and autoimmune disorders.

Blood urea nitrogen

Urea, a byproduct of protein metabolism, is excreted by the kidneys. Blood urea nitrogen (BUN) is an indicator of renal function and fluid status. Men usually have a slightly higher BUN level than women.

Elevated urea levels (uremia) have been associated with delayed wound healing. Causes of uremia include GI bleeding, prerenal failure due to reduced blood flow to the kidneys or crush injuries, intrinsic renal failure due to glomerulonephritis or nephrotic syndrome, postrenal failure due to obstruction of the ureter or urethra by stones or tumor, and use of nephrotoxic drugs (such as cyclosporine), diuretics, certain antibiotics, or salicylates.

Concurrently elevated levels of BUN and creatinine suggest kidney disease, whereas an elevated BUN level alone may indicate dehydration or a breakdown of blood products in the GI tract, which may occur with intestinal bleeding. With declining renal function, doses of certain medications and antibiotics should be decreased to avoid toxic buildup. Electrolyte abnormalities can occur with worsening renal function. Decreased urea levels result from overhydration, liver damage, malnutrition, and phenothiazine use. Patients should ingest 30 to 35 mL/kg of fluids, preferably water, daily.

Liver function tests

Liver function tests measure the enzymes alanine aminotransferase (ALT), aspartate aminotransferase (AST), and alkaline phosphatase. These enzymes are produced by liver cells and are effective for diagnosing liver dysfunction. The transaminases, AST and ALT, catalyze the transfer of an amino group between an amino acid and an alpha-keto acid, which aids in the production of amino acids for protein synthesis in the liver. ALT is found almost exclusively in the liver, whereas AST can also be found in skeletal muscle, the kidneys, and the brain. Alkaline phosphatase is an enzyme produced in the liver and bones.

Extreme elevations in ALT and AST levels are characteristic of acute hepatitis; mild elevations are indicative of chronic liver disease, commonly caused by medications or chronic hepatitis. The longer the duration of liver disease, the more likely that liver failure or cirrhosis is imminent. If the ALT level is more elevated than the AST level, acute hepatitis or liver necrosis is likely. However, an AST level greater than the ALT level suggests chronic hepatitis, cirrhosis, or myocardial necrosis.

The alkaline phosphatase level is significantly elevated in acute hepatitis, with slightly elevated levels characterizing chronic hepatitis. Paget's disease, fractures, rheumatoid arthritis, and bone malignancy also lead to elevated levels. Malnutrition, hypothyroidism, and vitamin C deficiency can decrease the alkaline phosphatase level. The more severe and the longer the insult to the liver, the greater the decrease in alkaline phosphatase production. This liver dysfunction can also lead to toxic levels of certain antibiotics, which are metabolized through the liver.

Hemoglobin

Hemoglobin, a protein, gives blood its red color. It's composed of a protein globin envelope and heme, which uses iron to bind and transport oxygen. Any deficiency of vitamins, minerals, or amino acids can decrease hemoglobin production.

The lower the hemoglobin level, the less oxygen is carried to tissues and the less capacity wounds have to heal properly. Oxygen plays a role in enzymatic and cellular metabolic reactions needed for cell growth and proliferation. A low hemoglobin level can result from anemia, cirrhosis, hemorrhage, renal disease, volume overload, or use of medications such as penicillin, tetracycline, aspirin, sulfonamides, indomethacin, and vitamin A. An artificially low level of hemoglobin occurs when blood is drawn from the same arm through which intravenous (I.V.) fluids are being given. A truly decreased hemoglobin level is a risk factor for pressure ulcer formation. Hemoglobin level can increase from dehydration, polycythemia, severe burns, high altitudes, and use of gentamicin.

Hematocrit

Hematocrit is the volume of packed RBCs in 100 mL of blood. A low hematocrit has a direct effect on wound healing and is associated with blood loss, anemia, malignancies, protein malnutrition, liver and renal disease, lupus erythematosus, rheumatoid arthritis, and the use of antineoplastics and penicillin. An artificially low hematocrit can occur if blood is drawn from the same arm through which I.V. fluids are given. Hematocrit increases with dehydration, diarrhea, polycythemia, or burns.

Arterial ulcers

To accurately manage the patient with an arterial ulcer, the clinician should obtain laboratory values for glucose, lipoproteins, CBC, cryoglobulins, antiphospholipid antibodies, antinuclear antibodies, and rheumatoid factor. The laboratory tests, in tandem with diagnostic tests, help the clinician make a more accurate and specific arterial diagnosis.

Glucose

A chronically elevated glucose level causes microvascular damage, which inhibits oxygen and nutrient perfusion and hampers wound healing. An elevated glucose level also affects polymorphonuclear lymphocytes, causing decreased chemotaxis, diapedesis, and phagocytosis, which in turn leads to a decreased ability to fight infection. An elevated glucose level is a risk factor for arterial and neuropathic ulcers in patients with diabetes mellitus.

Lipoproteins

Lipoproteins, such as cholesterol and triglycerides, are lipids bound to protein, absorbed in the intestines. Cholesterol is an important component of cell membranes, bile acid, and steroid hormone synthesis. Triglycerides are manufactured

by the liver and provide energy to the heart and muscles. They are transported in blood as chylomicrons.

Hyperlipidemia is a risk factor for peripheral arterial disease and subsequent ischemic ulcer formation. Elevated cholesterol levels are associated with diabetes mellitus, hypothyroidism, atherosclerosis, excess dietary intake of cholesterol, renal failure, alcoholism, familial hyperlipidemia, and the use of aspirin, steroids, sulfonamides, vitamins A and D, and hormonal contraceptives. Artificially elevated levels can result from food consumption 12 hours before obtaining the blood specimen. Decreased levels can be found in the presence of malnutrition, infection, hyperthyroidism, malabsorption, anemia, inflammation, and the use of neomycin, hypoglycemics, estrogens, and tetracycline.

Decreased triglyceride levels are found in hyperthyroidism, protein malnutrition, vitamin C excess, and use of metformin. Increased levels occur in hypothyroidism, nephritic syndrome, atherosclerosis, cirrhosis, diabetes, hypertension, excess dietary intake of triglycerides, alcoholism, familial hyperlipidemia, and hormonal contraceptive use. Artificially elevated levels can occur if patients don't fast for 12 hours before having a blood specimen drawn.

Cryoglobulins

Cryoglobulins are abnormal immunoglobulins. At temperatures below normal body temperature (98.6°F [37°C]), cryoglobulins no longer stay suspended in the blood. They precipitate out, forming complexes that can block small blood vessels, especially in the face and hands. Although a positive cryoglobulin test result can confirm the diagnosis of cryoglobulinemia, it may also be caused by arterial disease. If arterial disease is suspected, a further workup may be indicated.

Antiphospholipid antibodies

Antiphospholipid antibody syndrome, or *Hughes-Stovin syndrome*, is characterized by the presence of multiple antibodies (systemic lupus erythematosus [SLE] and anticoagulant and anticardiolipin antibodies) associated with arterial and venous thrombosis (clotting). The two main classifications of antiphospholipid antibody syndrome are primary (in patients with no underlying autoimmune disorder) and secondary (in those with an underlying autoimmune disorder, such as SLE). Because ulcers in patients with antiphospholipid antibody syndrome can mimic ischemic arterial ulcers, a test for these antibodies should be ordered if this disorder is suspected.

Antinuclear antibody panel

This test looks for the presence of antibodies that target components of a cell nucleus. An antinuclear antibody (ANA) panel may be ordered to aid in the diagnosis of autoimmune conditions, such as SLE and drug-induced lupus, scleroderma, Sjögren's syndrome, Raynaud's disease, juvenile chronic arthritis, rheumatoid arthritis, antiphospholipid antibody syndrome, autoimmune hepatitis, and many other autoimmune and nonautoimmune diseases. ANA testing can help the clinician properly diagnose the patient's autoimmune disease.

Rheumatoid factor

Rheumatoid factor (RF) is an antibody that attaches to a substance in the body called immunoglobulin G (IgG), forming a molecule known as an immune complex. This immune complex can activate various inflammatory processes

in the body. RF test results can help the clinician determine the presence of an inflammatory process, such as rheumatoid arthritis. A positive result, however, doesn't definitively rule out arterial causes for an ulcer.

WOUND CULTURES AND LABORATORY VALUES

Patients with chronic wounds can experience significant medical, social, and economic hardships. These hardships also can affect society in general. The interplay of several different local and systemic factors can affect chronic wounds, making them difficult to heal. Local factors include bacterial load and infection, trauma, pressure, and moisture. Systemic factors include age; chronic medical conditions or comorbidities, such as anemia, diabetes mellitus, and renal or hepatic dysfunction; and nutritional status, such as vitamin, protein, or fluid deficiencies.

Laboratory values help assess and monitor chronic underlying medical conditions as well as the patient's nutritional status. These values should be evaluated when the patient is encountered for the first time. In addition, if healing isn't occurring as expected, these values can be tracked regularly to ensure that local and systemic factors aren't contributing to poor healing. Important parameters to evaluate include protein levels, CBC, erythrocyte sedimentation rate, liver function tests, glucose and iron levels, total lymphocyte count, blood urea nitrogen and creatinine levels, lipoprotein levels, vitamin and mineral levels, and urinalysis. Even if only one deterrent is present, healing can't occur.

Cultures

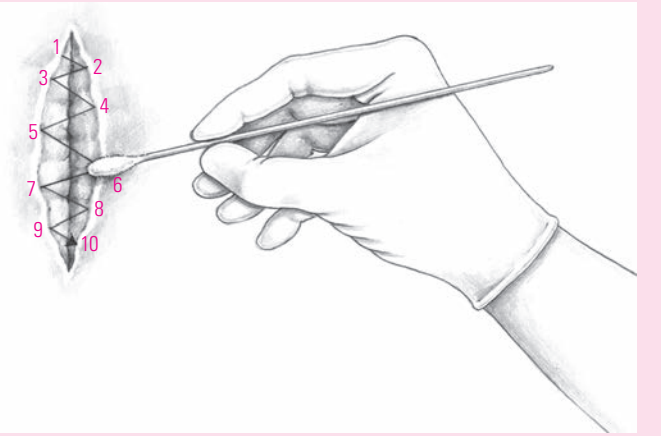
All wounds are contaminated with various organisms. Infection—as evidenced by purulent exudate, induration, erythema, edema, fever, or leukocytosis—may delay healing. Culturing the wound allows identification of infecting organisms. Culture methods include surface swab culturing (see *Swab-culturing technique,* page 118), fluid culturing (through needle aspiration), curettage of the wound base (after cleaning the surface of the wound), and deep-tissue biopsy. It's important to remember that swab cultures identify contamination only on the surface of the wound. The Centers for Disease Control and Prevention recommends either obtaining fluid from the wound through needle aspiration or obtaining tissue through a wound biopsy.

A wound that contains necrotic tissue or sinus tracts requires both an aerobic and an anaerobic culture. A wound that's open and viable needs only an aerobic culture. Bacteria levels above 100,000 organisms/mL or greater than 10^5 colony-forming units (CFUs) indicate that wound healing may be delayed. Notify the prescribing health care professional of the culture results so appropriate interventions can be ordered. If the wound doesn't respond to the prescribed antibiotic therapy after 2 to 4 weeks of optimal care, it should be reassessed, usually through tissue biopsy. If the wound is full thickness, evaluate for the presence of osteomyelitis.

Swab-culturing technique

Collect a wound culture when purulent or suspicious-looking drainage or signs of infection—induration, fever, erythema, or edema—are present. When collecting, don't use purulent matter to culture, and don't swab over hard eschar. Use a sterile calcium alginate or rayon swab, not a cotton-tipped swab. To obtain a wound culture with a swab, follow these steps:

- Thoroughly rinse the wound with sterile saline solution before culturing.
- Gently rotate the swab.
- Swab wound edges using 10-point coverage as shown in the illustration.
- Place the swab in the culture medium, and take it to the laboratory as soon as possible.



Harnessing technology: EMR checklists for clinical and operational compliance

6

In today's fast-paced world, we look for opportunities to stay abreast of clinical and operational information though social networking, internet searches, and print media, to name a few examples. Once information is obtained and the need to organize the information is determined, your work begins. Often we take notes when reviewing the information to assist in streamlining our thoughts. The real work begins when we need to organize these penned thoughts for dissemination. Consider the creation of a "checklist." Now merge checklists with documentation via the electronic medical records (EMRs).

Today's health care facilities are moving to EMRs. This electronic system has revolutionized the way data is collected, collated, and delivered at the press of a button. It links the clinical, functional, and financial information for the patient's visit and quickly shows the work performed. The EMR tracks not only the physician's work and assessment data, but also the work performed by all members of the wound care team. As you move forward with your EMR checklist to make sure your electronic documentation meets your clinical and operational needs, define your checklist for documentation success. It may include:

CHECKLIST

- ✔ scheduling module
- ✔ patient and physician portals
- ✔ secure email exchanges
- ✔ smart EMR to meet the needs of all practicing clinicians and physicians in your department, as well as patients, who may access their defined information
- ✔ clinical decision and practice management tools to alert users to medication errors and adverse drug interactions and to track test results and patient follow-up
- ✔ interfaces to pull data in and out of your system, and clinical and operational compliance and audit mechanisms to ensure success
- ✔ compliance with Meaningful Use and Accreditation and Certification Standards
- ✔ audit trail to identify work performed through documentation
- ✔ reporting for outcomes and benchmarking.

Our technology has come quite far, but documentation remains the weakest part of the chart for skin and wound care. Whether work is collected on paper or by a computer program, developing a consistent template or database for documentation is necessary to complete this process. Knowing the disease process and understanding the database are equal parts in making a whole medical record and are imperative to using the tools correctly.

"Meaningful Use" checklist

The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 provides billions of dollars in incentives for the adoption and use of Health Information Technology by Medicare and Medicaid providers over the next 10 years. Specifically, it authorizes grants and incentives totaling an estimated $14 to $27 billion to promote the meaningful use of EMRs by providers. For these eligible providers and hospitals to receive the financial incentives set forth, they must achieve meaningful use of an EMR. The meaningful use requirements are grouped into three stages:

- Stage 1 focuses on capturing data.
- Stage 2 focuses on reporting health information and tracking defined clinical datasets.
- Stage 3 focuses on improving performance and health outcomes.

This information is available at http://healthit.hhs.gov/portal/server.pt.

It is critical that health care providers develop the tools necessary to meet the regulatory criteria for their EMR. They also must understand the essential information and the measure of use that must be shown in Stage 1 in order to receive the incentive payments. For Stage 1, which began in 2011, the Centers for Medicare & Medicaid Services (CMS) propose 25 objectives/measures for eligible providers and 23 objectives/measures for eligible hospitals that must be met to be deemed a meaningful EMR user.

CHECKLIST

Stage 1 criteria

The following checklist can help you understand the Stage 1 criteria needed in your EMR. From this checklist, it becomes your responsibility to further understand the eligible provider's and the hospital's responsibility to be in compliance with these measures. The requirements for your checklist include:

- ✔ Use computerized physician order entry (CPOE) for all orders.
- ✔ Implement drug–drug, drug–allergy, and drug–formulary checks.
- ✔ Maintain an up-to-date problem list of current and active diagnoses based on the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) or Systematized Nomenclature of Medicine Clinical Terms.
- ✔ Generate and transmit permissible prescriptions electronically.
- ✔ Maintain an active medication list.
- ✔ Maintain an active medication allergy list.

- ✔ Record demographics, including preferred language, insurance type, gender, race, and ethnicity.
- ✔ Record advance directives.
- ✔ Record vital signs including height, weight, blood pressure, and body mass index.
- ✔ Record smoking status.
- ✔ Incorporate lab test results into EMR as structured data.
- ✔ Generate lists of patients with specific conditions to use for quality improvement, reduction of disparities, and outreach.
- ✔ Report quality measures to the CMS and state.
- ✔ Send reminders to patients for preventive and follow-up care.
- ✔ Implement clinical decision support rules related to clinical priority, and track compliance.
- ✔ Check insurance eligibility.
- ✔ Submit claims electronically.
- ✔ Provide patient with personal health information upon request, including lab results, problem list, medication lists, and allergies.
- ✔ Provide access to clinical summaries.
- ✔ Perform medication reconciliation.
- ✔ Provide summary records at transition of care.
- ✔ Submit electronic data to immunization registries when required.
- ✔ Submit reportable labs results.
- ✔ Submit electronic syndromic surveillance data.
- ✔ Comply with HIPAA privacy and security rules.

For a full explanation of the necessary criteria and components, see http://edocket.access.gpo.gov/2010/E9-31216.htm, specifically Table 1: Certification Criteria, beginning on page 2025.

Keeping your finger on the pulse of clinical and regulatory changes for documentation requirements can be a daunting task. However, this is one task that everyone needs to stay abreast of for the benefit of their facility. Designing a checklist to maintain compliance for this task may be one way to structure the oversight needed to meet expectations.

EMR wound care checklists

As detailed in the HITECH Act, the government's research concluded that using an EMR would serve to improve patient care, increase patient safety, and simplify compliance in the U.S. health care system, as well as reduce costs in the long term, minimize errors, and increase productivity and administrative efficiency.

As the government rolls out the plan, hospitals will need to have their EMR in place and be able to send "meaningful" data to CMS and measure the actual impact on patient care.

Providers should establish an electronic assessment, documentation, clinical, and financial outcome system to capture all work and outcomes in a database. This outcome data can then be used to improve critical pathways, product formularies, contract fees with payers, and patient satisfaction. Over time, the providers with the clinically best and most cost-effective skin and wound care outcomes, the best quality assurance results, and the highest level of patient satisfaction will have the most referrals and the most profitable business.

CHECKLIST

Achieving clinical and financial goals

The steps necessary for all providers to achieve both clinical and financial goals are as follows:

- ✔ Develop a clinically and operationally sound wound care department incorporating inpatient and outpatient work.
- ✔ Develop specific policies and procedures for skin and wound management services.
- ✔ Develop evidence-based prevention and intervention skin and wound care pathways.
- ✔ Use technology to monitor length of stay, number of dressing changes, number of professional visits, time to heal, and total cost of care.
- ✔ Design a skin and wound care formulary based on clinically proven efficacy and cost-effectiveness, availability, ease of use, function, and direct cost.
- ✔ Identify all ICD-9-CM, CPT, HCPCS, Pass-Through, New-Technology, and local codes that represent the diagnosis, evaluation and management service, procedures, and products that need to be included on payer claim forms.
- ✔ Integrate a photodocumentation process with your EMR.
- ✔ Utilize outcomes to improve efficiency in your department.
- ✔ Educate and validate competency of all levels of staff, including physicians, in how to assess, aggressively manage, and appropriately document skin and wound care.
- ✔ Design a supply management system that controls product utilization internally or externally, to control costs and waste.
- ✔ Obtain cost reductions based on volume purchases, due to standardization of products.
- ✔ Implement a delivery system that prevents delays in management and oversupplying products.
- ✔ Develop a multidisciplinary plan of care with clearly defined end points.

- ✔ Implement early, aggressive, state-of-the-art skin and wound management.
- ✔ Assess wounds accurately, and document them completely.
- ✔ Accurately select the primary diagnosis, and map to medical necessity.
- ✔ Order wound management modalities based on assessment, an outcome-oriented care plan, the skill of patient and caregiver, and payer guidelines.
- ✔ Be sure physician orders include all required components, and document medical necessity for modalities ordered.
- ✔ Incorporate macros or templates through a keystroke allowing the clinician or physician to quickly document text supporting regulatory and accreditation standards—avoiding the cost of transcription and/or the time of repetitive documentation.
- ✔ Provide patient and caregiver education regarding efficient use of appropriate dressings, drugs, and medical equipment.
- ✔ Reach achievable clinical and financial outcomes and patient satisfaction in the least amount of time, using the least amount of labor and material resources.
- ✔ Establish a method of transferring documentation about origin of wound, surgery date (if applicable), type of debridement (if applicable), original stage of wound, wound assessment, diagnoses, and physician orders.
- ✔ Initiate timely referral to the next logical level of care.
- ✔ Prepare a discharge summary that includes information required by the next provider to manage care and supplies in a cost-efficient manner.
- ✔ Obtain new referrals for well-managed wound care, which generates more revenue.

Much of what we do in the documentation process is based on the implementation of mental and written checklists—following a series of steps that lead to a desired outcome—such as clinical and operational algorithms and pathways. For example, one of the first checklists performed in medical settings is obtaining a patient's vital signs. Temperature, pulse, respirations, blood pressure, and now the fifth vital sign, pain (see Chapter 2), alert the clinical team if a patient is within normal limits or if an abnormal vital sign warrants additional interventions. Completing this vital sign checklist captures fundamental information used to manage the patient.

In wound care, clinical and operational rules help maintain compliance with standards, and checklists can provide an audit tool to ensure that requirements have been followed. One example of using a checklist to help maintain compliance in the hospital involves a time out, which is one of the Joint Commission's 2010 National Patient Safety Goals. Defined under UP.01.03.01, a time out is performed before a procedure to verify the procedure, patient, and site. To comply with this standard, one must customize the hospital's policy and procedure, create a checklist for team members to follow, and institute and verify the checklist according to facility requirements.

For example, when reviewing the *Elements of Performance for UP.01.03.01* as documented by the Joint Commission, the following checklist could be used to ensure clinical and operational accuracy in this standard. Note that the hospital determines the amount and type of documentation required.

CHECKLIST

"Time out" checklist

✔ Conduct a time out immediately before starting the invasive procedure or making the incision.

✔ The time out has the following characteristics:
- It is standardized, as defined by the hospital.
- It is initiated by a designated member of the team.
- It involves the immediate members of the procedure team, including the individual performing the procedure, the anesthesia providers, the circulating nurse, the operating room technician, and other active participants who will be participating in the procedure from the beginning.

✔ When two or more procedures are being performed on the same patient, and the person performing the procedure changes, perform a time out before each procedure begins.

✔ During the time out, the team members agree, at a minimum, on the following:
- Correct patient identity
- Correct site
- Procedure to be done

✔ Document the completion of the time out.

The time out is but one example. Many checklists can be created and used as written guides to help your team meet key steps in compliance. Designing a clinical pathway for skin and wound healing is another example. The pathway begins with a comprehensive patient assessment that details the patient's medical history, including wound status. Appropriate interventions are predicated upon the assessment and documentation outlining the findings.

CHECKLIST

Clinical pathway

Using a clinical checklist can help to better organize the clinician's time. The clinician's checklist might look like this:

✔ The policies and procedures written for skin and wound care should reflect current clinical and operational guidelines approved by the facility. These collective works should be reviewed and updated annually.

✔ To develop a skin and wound care modality formulary, consider clinically proven efficacy and cost-effectiveness, availability, ease of use, function, and direct cost. Design a supply management system that controls product use, internally or externally, to control costs and waste.

- ✔ Technological advancements should be used to reduce the length of stay, number of dressing changes, number of professional visits, time to heal, and total cost of care.
- ✔ Continuing education and validation of staff competency, including physicians, should be performed to ensure their ability to assess, aggressively manage, and appropriately document skin and wound care.
- ✔ Customized databases should identify and include all ICD-9-CM, CPT, HCPCS, Pass-Through, New Technology, and local codes representing the diagnosis, evaluation and management service, procedures, and products used by the facility.

Your EMR training checklist

Imagine that your EMR is approved by your administration, your launch date is determined, and you have customized your software solution. The key to your successful implementation will be training the staff through knowledge transfer of the EMR. Planning for system-wide training is crucial. It is critical that all department personnel—from administrative staff to clinicians, including physicians—be trained efficiently, effectively, and in a timely manner on the new system. Lack of appropriate and effective training can cause your EMR to fail.

CHECKLIST

EMR Go-Live

Consider the following checklist as your plan your for your EMR Go-Live experience:

- ✔ Partner with an EMR vendor that listens and understands your clinical and operational needs.
- ✔ Define your pre-training, Go-Live training, and post-training goals.
- ✔ Customize your EMR and allow your staff to review the software to become familiar with the menus and workflow.
- ✔ Customize the templates and working documents (e.g., patient education tools) used in the EMR.
- ✔ Map your clinical and payment rules into your templates to ensure your documentation meets your facility requirements.
- ✔ Identify your department's super-users, and pre-train them for speed and efficiency.
- ✔ Recognize that your staff's learning needs are unique and your implementation program should be tailored to your staff's needs.
- ✔ Define your vision for your software training.
- ✔ Determine each staff member's role-specific documentation process (e.g., office administrator, program director, clinician, physician, technician).

- ✔ Define "successful training" for each staff member's role (e.g., scheduling a patient, uploading a photo, amending a record).
- ✔ Work with the EMR provider to determine the best strategies for training your staff.
- ✔ Create a training plan with the EMR vendor and identify the space for training.
- ✔ Carve out classroom time for the training process.
- ✔ Identify the training strategy for your department, including presentation methods, classroom schedules/location, and staffing.
- ✔ Allow your staff to use a pre-training system/EMR playground before the EMR Go-Live.
- ✔ Plan the training for a successful learning experience (e.g., adjust patient visits and workflow).
- ✔ Review the training products and tools used to implement your EMR.
- ✔ Determine what training products can be revisited in consideration of any new leadership and resources available post Go-Live.
- ✔ Encourage staff feedback of the EMR process during training time, and adjust workflow accordingly.
- ✔ Define the processes and timelines for adjustments of the staff's workflow as the EMR is integrated in the department.
- ✔ Refine the training program based on the staff's feedback during the training period.
- ✔ Ensure that vendor support is available following your Go-Live training.
- ✔ Schedule your post-training objectives early in the process.

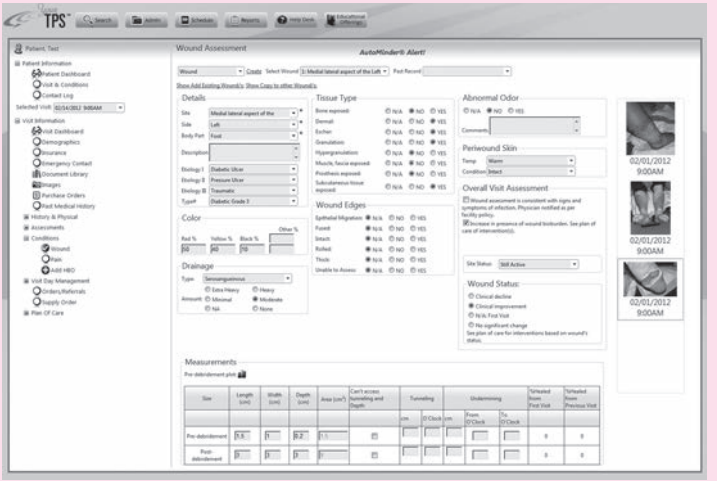
Planning is the key to successful EMR implementation. Ensure that your training plan has realistic timeframes for pre-training, Go-Live training, and post-training. Understand the structure of your EMR, and create roles and responsibilities for each user. Remember that training, whether online or in person, is not optional but required for successful learning. Lastly, in order for your EMR to be successfully integrated in your department, you need commitment from your staff and physicians.

Documentation checklist

Developing documentation guidelines is a critical building block for evaluating the clinical efficiency and cost-effectiveness of care. Proper documentation provides guidance for appropriate management decisions, evaluation of the healing process, support for reimbursement claims, and defense for litigation. Once established, the documentation system should become the framework of clinical practice for all members of the wound care team. The documented details become the facts in a medical record. For an example, see *EMR documentation system*, page 127.

EMR documentation system

Shown below is a screenshot of an electronic medical record (EMR), which captures the patient's condition by disease type, in this case by wound.



Source: TPS™ EMR © Wound Care Strategies, Inc. 2012. www.wellcarestrategies.com

Patient assessment checklist

Initiation and coordination of a skin and wound care plan begins with a comprehensive patient assessment. The assessment is set into motion with one-on-one discussions with the patient or caregiver and clinicians who have cared for the wound. Reviewing the patient's medical history may provide important insight into the cause of the wound. Understanding the patient's past and current family, social, and medical details may provide important insight into why the wound is not healing.

CHECKLIST

Patient assessment

Here are some of the steps a clinician might take as part of the patient assessment:

- ✔ Obtain a detailed assessment of the patient's past and current family, social, and medical characteristics.
- ✔ Obtain a list of current and past medications and dressings that have failed.
- ✔ Review all laboratory, radiology, and vascular studies that have been obtained.
- ✔ Review the patient's nutritional status and supportive therapies.

- ✔ Review all support surfaces and positioning devices used to manage the patient's tissue load.
- ✔ Address all underlying pathologies compromising the wound healing process (neuropathic, pressure, vascular, venous hypertension).
- ✔ Review all physician and non-physician consults related to specialty management programs for skin and wound care.
- ✔ Correct all underlying pathologies compromising the wound healing process.
- ✔ Assess the patient's knowledge level relative to the disease process, and document any and all factors that affect learning needs.

Competency

Competency is the common thread in the art and science of skin and wound care that directly impacts overall patient care. The Joint Commission defines competency as a determination of an individual's capability to perform according to expectations. The Joint Commission further recommends:

- developing a competencies program in your facility
- choosing your annual competencies for validation
- scheduling and assigning annual competencies assessments
- using preceptors and peer review for competency validation
- complying with regulatory and accreditation bodies, such as CMS and Joint Commission standards.

Competency affects all health care professionals across the continuum. Providers need to be competent in delivering care, and payers need to be competent in understanding the clinical practices for which they are paying on the patient's behalf.

Skin and wound care competency is mandatory for all professionals delivering care in this disease management approach. These programs need to be monitored, evaluated, and modified as the facility deems appropriate.

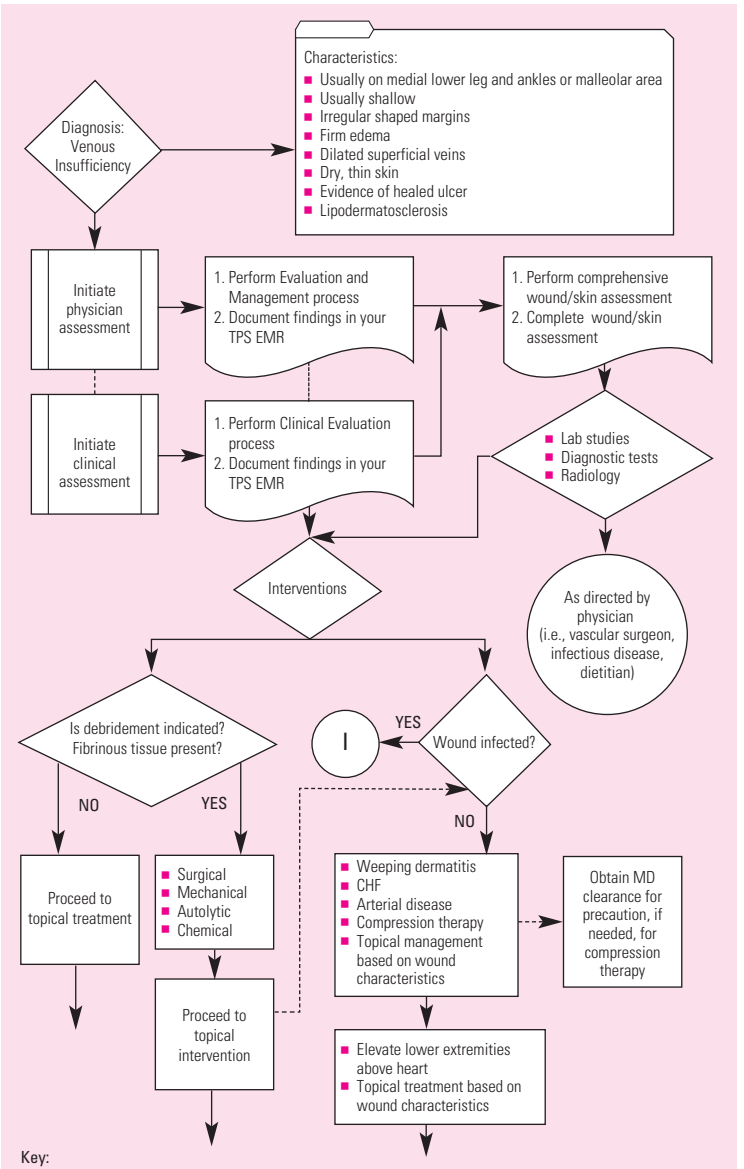
One way to improve skin and wound care competency is to structure ongoing education and training so it will maintain and improve the clinician's knowledge level. Then, the facility has the responsibility to perform ongoing competency assessment through a defined, continuous process. This ongoing monitoring will identify those professionals who are experts in the art and science of wound care. All facilities benefit greatly from competency testing. It increases patient satisfaction.

Managing outcomes

The art and science of skin and wound care management directly impacts the patient's clinical and financial outcomes. An outcome is the overall patient condition that results from all health care processes performed on or for that patient. It refers not only to the patient's medical condition but also to the resulting quality of life the patient experiences. To achieve the best possible wound care outcomes while controlling costs, a comprehensive wound management system should be established based on published evidence, validated protocols, and competency programs for staff members.

An effective tool for managing outcomes is the clinical pathway. (See *Venous insufficiency algorithm*, page 129.) Such a pathway can serve as a guideline for the health care team to follow for a specific diagnosis. A wound-healing pathway designed

Venous insufficiency algorithm



for a specific diagnosis should include accurate assessment, documentation, and intervention processes, and the expected outcome, as outlined below.

- Assessment, both initial and ongoing, describes the overall condition of the patient, including wound status.
- Documentation, either hand-written or electronic and photographic, lays the foundation for management decisions, evaluation of the wound-healing process, and reimbursement decisions. It also serves as a defense in litigation.
- Interventions, guided by the multidisciplinary wound care team, include topical treatments, use of support surfaces, use of adjunctive therapies and products, and nutritional supplements.
- Expected outcome describes the overall condition of the patient that should result from all the processes performed on or for that patient.
- Monitoring the competency of staff members and patients, evaluating the clinical research for each product used, and assessing outcomes through utilization management tools can help ensure positive outcomes, despite the many variables that can affect wound care outcomes.

Validating competency

Skin and wound care competency is mandatory for all professionals delivering care in your facility. These programs need to be monitored, evaluated, and modified as the facility deems appropriate. Structured ongoing education and training will maintain and improve the clinician's knowledge level, benefiting the clinician, facility, and patient. Some wound competency validation tools that may be appropriate to introduce in your facility are wound assessment and measurement, dressing change, and photographic assessment. (See *Competency validation form,* page 131.)

CHECKLIST

Competency validation

As a review, consider using the following competency checklist to improve your clinical outcome:

- ✔ Incorporate accurate assessment, documentation, and intervention processes based on validated guidelines.
- ✔ Review all relevant guidelines at least annually and update your policies, procedures, and facility practices.
- ✔ Provide competency validation testing for your staff at least annually to ensure that proper practices support your policies.

Wound care compliance

We are all aware of increasing health care expenditures. These expenses will most likely be covered by some form of health insurance, which requires providers to file some form of health insurance claim. The accuracy of this claim reporting, as well as supporting medical record documentation, will be imperative in recovering all potential revenues and offer substantiation for the payment received. There are many issues to be addressed to bring the practice of wound care into compliance with regulations and guidelines set forth by health insurance providers. These will include development of a compliance program, knowledge of specific health insurance regulations, and education and training.

Competency validation form

COMPETENCY VALIDATION:
Wound Assessment for the Licensed Clinician

Directions:
Assess the clinician's skills for wound assessment. Place a "4" in the appropriate block if the objective is "MET" or "NOT MET." If the objective is "NOT MET," briefly explain why under "COMMENTS." Review this form with the clinician. Upon successfully completing all teaching objectives, both the clinician and the clinical observer must sign this form.

CLINICIAN OBSERVED (please print):			
COMPETENCIES:	**MET**	**NOT MET**	**COMMENTS**
1 Classifies wound types appropriately:			
◆ Arterial			
◆ Diabetic			
◆ Full-thickness wound (FTW)			
◆ Partial-thickness wound (PTW)			
◆ Pressure			
◆ Venous			
2 Classifies pressure ulcers appropriately:			
◆ Deep Tissue Injury			
◆ Stage I			
◆ Stage II			
◆ Stage III			
◆ Stage IV			
◆ Un-stageable			
3 Describes and identifies the following terms appropriately:			
◆ Epithelialization			
◆ Erythema			
◆ Eschar			
◆ Wound Edges			
◆ Granulation Tissue			
◆ Non-fused Wound Edges			
◆ Peri-wound Skin			
◆ Slough			
◆ Undermining/Tunneling			
4 Differentiates the following terms appropriately:			
◆ Clean Wounds			
◆ Contaminated Wounds			
◆ Infected Wounds			
5 Explains the goals of wound healing for:			
◆ Clean, Granulating Wounds			
◆ Necrotic, Infected Wounds			
6 Demonstrates proper technique for:			
◆ Cleansing Wounds			
◆ Irrigating Wounds			

The development of a compliance program provides a structure within an organization or facility to know, monitor, and comply with laws, regulations, policies, and procedures related to the performance of each person's job. There are many benefits to the establishment of a compliance program as defined by the Office of Inspector General (OIG), including these:

- compliance with regulations, payment policies, and coding rules through effective internal procedures

- improved medical record documentation
- improved education for all personnel
- reduction in denials of submitted claims
- better communication and more comprehensive policies
- avoidance of potential liability arising from noncompliance
- reduced exposure to penalties.

With the initiation of a compliance program, the practice should be committed to address the applicable elements set forth in the Federal Sentencing Guidelines and defined by the OIG in their publications addressing these seven basic compliance elements. Checklists have been created for select standards to assist you in your process.

CHECKLIST

Establishing compliance standards

Establish compliance standards through the development of a code of conduct and written policies and procedures. These written standards communicate departmental values and expectations regarding employee behaviors and establish standards for compliance with laws and regulations.

- ✔ Develop relevant policies and procedures.
- ✔ Orient staff members to new and revised policies.
- ✔ Periodically review policies and procedures and update to reflect changes in laws, regulations, or processes.
- ✔ Monitor departmental adherence to policies and procedures.
- ✔ Develop a disciplinary plan regarding nonadherence to policies and procedures.
- ✔ Provide appropriate resources and educational opportunities to staff members.

CHECKLIST

Assigning compliance monitoring

Assign compliance monitoring efforts to a designated compliance officer or contact. Proactive monitoring and auditing are designed to test and confirm compliance with legal requirements.

- ✔ Define risk areas and establish need for self-audit.
- ✔ Consider your departmental resources for practicable auditing.
- ✔ Determine subject, method, and frequency of audits.
- ✔ Review records—such as medical and financial records—that support claims for reimbursement.
- ✔ Prepare the internal audit report.
- ✔ Present findings to applicable parties.
- ✔ Develop corrective action plan.
- ✔ Continue ongoing monitoring.

CHECKLIST

Training and educating staff

Conduct comprehensive training and education on practice ethics and policies and procedures. Training should be designed to promote the understanding of internal standards and the requirements of external laws and regulations.

- ✔ Develop departmental-specific educational sessions. These could include admitting/registration requirements, documentation requirements, privacy/confidentiality issues, coverage and billing rules, medical necessity, charge entry risks, coding requirements. This is not an exhaustive list and issues specific to the department should be addressed.
- ✔ Provide sufficient time and resource to staff to attend educational sessions.
- ✔ Document that training and education of staff has occurred.

CHECKLIST

Internal and external auditing

Conduct internal and external monitoring and auditing focusing on high-risk billing and coding issues through performance of periodic audits. The auditing function is the check and balance for your documentation.

Use the following *internal* auditing checklist:

- Establish and identify the need for an internal audit.
- Define the specific issues of the audit.
- Determine an appropriate sample size.
- Establish an audit schedule.
- Perform the audit.
- Prepare concise audit report.
- Present audit results to applicable personnel.
- Develop action plan.
- Perform ongoing monitoring.

Use the following *external* auditing checklist:

- Conduct periodic external audits as part of your organizational compliance auditing.
- Confirm your internal audit findings, and provide your establishment with any needed corrective actions should inaccuracies be found.
- Choose an outside auditor or consultant.
- Report the audit results in a professional report.
- Summarize the activities, findings, and recommendations and include concise information to support the determinations made during the audit.
- Identify the regulation or guideline from which the plan was created.

CHECKLIST

Maintaining communication with staff

Develop accessible lines of communication, such as discussions at educational staff meetings regarding fraudulent or erroneous conduct issues and community bulletin boards, to keep employees updated regarding compliance activities.

Training should be designed to promote the understanding of internal standards and the requirements of external laws and regulations.

✔ Educate your staff on the standards of care approved by your organization. Not all clinicians are able to learn in the same way.

✔ Investigate the best method of teaching your staff, just as you would your patient. For example, some physicians and clinicians are visual learners, as opposed to listening to a presentation.

✔ Provide the targeted learning experience in creative ways. There are many educational tools that exist, including videotapes, cassette tapes, reading material, verbal presentations and World Wide Web-architected learning products.

✔ Mentor your staff. Discuss realistic goals to achieve after the educational process is complete.

✔ Educate, re-educate, and support the staff of the facility.

The final two basic compliance elements include these:

- Enforce disciplinary standards by making clear or ensuring employees are aware that compliance is treated seriously and that violations will be dealt with consistently and uniformly.
- Respond appropriately to detected violations through the investigation of allegations and the disclosure of incidents to appropriate Government entities.

Additional information for the establishment of a Compliance Program can be found on the OIG Web site: www.oig.hhs.gov

Audit checklist for medical necessity

As health care providers, we believe the most critical function of the medical record's multiple purposes is to plan and provide continuity of care for a patient's medical treatment. The documentation in the medical record does provide for this function but in many instances we, as health care providers, forget that the additional function of the medical record includes:

- providing information for the financial reimbursement to hospitals, health care providers, skilled nursing facilities, and patients
- providing legal documentation in cases of injury or other legal proceedings
- providing information for quality assurance and peer review committees, state licensing agencies, and state regulatory agencies when assessing the quality of care provided
- providing the critical information in an accreditation process such as The Joint Commission, CMS, and UHMS.

The wound care space can promote concerns related to compliance, reimbursement, guidelines, and regulations. These elements can only be met through the appropriate documentation in the medical record. No matter the health care setting in which one provides care for wound and skin issues, the critical element becomes the documentation in the medical record.

In the hospital outpatient wound care setting, both the facility and the professional receive payment from Medicare for the services rendered. Each entity must maintain their documentation standards to allow for payment of their services. This checklist is provided as the first step in the review audit process to identify obvious discrepancies and prompt a more intense compliance review.

CHECKLIST

Facility review audit checklist

- ✔ Has your facility developed a requirement crosswalk between the E/M level and the APC level?
- ✔ Does the medical record documentation support the requirements from the facility-developed crosswalk?
- ✔ Does the departmental staff understand the requirements for medical record documentation to support the facility-developed crosswalk?
- ✔ Has the department staff received the appropriate education and training in the utilization of the crosswalk?
- ✔ Are the appropriate modifiers being utilized in the department?
- ✔ Has the departmental staff been trained in the use of modifiers?
- ✔ Does the medical record documentation support the utilization of a modifier?
- ✔ Does the wound care department have a tool which provides the facility billing entity with a listing of the services rendered?
- ✔ Is there appropriate communication between the departmental staff and the billing entity of the facility (i.e., coding/billing updates, revisions to facility crosswalk, etc.)?
- ✔ Does the facility billing entity audit the wound care department's documentation in order to support the APC levels billed?

CHECKLIST

Professional review audit checklist

- ✔ Is there an appropriate tool to correspond the services rendered to the professional billing entity?
- ✔ Does the professional billing entity audit the medical record documentation to assure that the appropriate E/M level has been billed?
- ✔ Does the professional billing entity provide the practicing professional with necessary updates to determine service codes?
- ✔ When modifiers are appended, is there supporting medical record documentation?
- ✔ Does the practicing professional provide supporting medical record documentation to correspond with the level of E/M billed for his/her professional service?
- ✔ If templates are used, does the practicing professional document using the guidelines for the template?
- ✔ Does the documentation require the date and the signature of the practicing professional providing the service?

- ✔ Has the practicing professional identified the appropriate diagnosis code for the services rendered?
- ✔ Has the practicing professional identified the appropriate diagnosis coding for ancillary services ordered?
- ✔ Does the medical record documentation for the wound assessment and description support the dressing ordered (following appropriate Medicare Part B Surgical Dressing Policy for specific region)?
- ✔ Are procedures appropriately documented in the medical record to support the service code identified and billed?
- ✔ Are the services being rendered by the professional appropriate for the Wound Care Department setting?

In any health care setting, wound care requires concise assessments, documentation, and specialized care. Proactive monitoring and auditing are essential to test and confirm compliance with legal requirements. Auditing is done to assess the completeness of a medical record, determine the accuracy of documentation, and discover lost revenue. The auditing function is the check and balance for your documentation.

PART

II

Skin and wound care products

Overview

Clinical Guide to Skin and Wound Care can help you, the practitioner, choose the proper skin and wound care products to facilitate skin health and wound healing based on the classification of the wound and skin condition. To use this tool properly, remember that the composition of a product is often key to its success and may be kept a trade secret. However, for fundamental safety reasons, the U.S. Food and Drug Administration requires a basic level of disclosure about the ingredients in products. Some products may contain ingredients that cause an allergic reaction in certain people or ingredients that shouldn't be mixed with certain other ingredients. For example, many people are allergic to latex and need to know if it's a component of a certain product. Labels of most food and household products contain information about their ingredients, which are listed in order of abundance in the mixture. In addition to the label, a Material Safety Data Sheet (MSDS) is available upon request from any manufacturer for any of its products. An MSDS contains health and safety information on the product and its ingredients. Practitioners should be careful when mixing products and should always read the product label and package insert before use.

Part II provides quick-reference descriptions of skin and wound care products grouped under generic categories. The skin care product categories include antifungals and antimicrobials, liquid skin protectants, moisture barriers, skin cleansers, therapeutic moisturizers, and other skin care products. Included in the wound care product section are alginates, antimicrobials, collagens, composites, contact layers, drugs, foams, hydrocolloids, hydrogels, negative pressure wound therapy, specialty absorptives, surgical dressings, transparent films, wound fillers, and other devices and products. For specific packaging information, you may want to contact the manufacturer. (See *Manufacturer resource guide*, page 592.)

No single skin or wound care product provides an optimum environment for skin health or healing of all wounds. It's your responsibility to understand the characteristics, function, and appropriateness for each patient of the skin care products, dressings, drugs, and devices.

Skin care products

OVERVIEW

The fundamental building blocks addressing prevention of skin breakdown are generally overshadowed by the deluge of intervention strategies touted for patients with chronic wounds. It's paramount that providers take these proactive steps in clinical practice to develop sound skin care prevention and intervention pathways. To that end, the clinician must understand the anatomy and physiology of the skin, current practice guidelines, and indications and contraindications of skin care products used in clinical practice.

Use the skin care products section to help you develop a skin care formulary for your facility. When creating the skin care formulary, be sure to include products under categories such as:

- Antifungals and antimicrobials (topical): products that inhibit the growth of organisms that cause superficial skin infections, such as yeast
- Liquid skin protectants (also called skin sealants): products that protect the skin by forming a transparent protective barrier
- Moisture barriers (also called skin protectants): ointments, creams, or pastes that protect the skin from urinary and fecal incontinence by shielding the skin from irritants or moisture (e.g., dimethicone, petrolatum, and zinc oxide).
- Skin cleansers: pH-balanced products used to provide moisture and to effectively remove urine, feces, or both without patient discomfort
- Therapeutic moisturizing products: lotions and creams used to replace lost lipids in skin

HCPCS code overview

Health Care Financing Administration Common Procedure Coding System (HCPCS) is a standardized coding system that is used for describing and identifying health care equipment and supplies in health care transactions not included in the current procedural terminology (CPT) codes. Because Medicare and other insurers cover a variety of services, supplies, and equipment that aren't identified by CPT codes, the level II HCPCS codes were established for submitting claims for these items.

The Statistical Analysis Durable Medical Equipment Regional Carrier (SADMERC) is responsible for providing suppliers and manufacturers with assistance in determining which HCPCS code should be used to describe health care equipment and supplies for the purpose of billing Medicare. This standardized process to request a code for a particular supply or a request for a modification to the alphanumeric coding system for a particular product has been defined and is accessible to all suppliers and manufacturers.

You may find that many skin care products are considered routine supply items and are included in the general cost of an inpatient stay, whether the stay is for acute or long-term care. It's the clinician's responsibility to verify whether a product has been assigned a HCPCS code. The ultimate responsibility for correct HCPCS coding lies with the provider or supplier who is submitting a claim to a third-party payer.

ANTIFUNGALS AND ANTIMICROBIALS

The pH of the skin is in the acidic range but varies in different areas of the body. The pH is important because it regulates some of the functions of the stratum corneum, including its permeability function; the integrity and cohesion of skin cells, or what holds the cells together; and the defense against bacteria and fungi. Skin flora, or the microorganisms that live on or infect the skin, grow differently based on the skin pH. Antifungal and antimicrobial products inhibit the growth of organisms that cause superficial skin infections, such as yeast. These products are formulated as creams, ointments, lotions, or powders and may be found in select moisture barriers.

Because of the variation in coding for antifungals and antimicrobials, it's the clinician's responsibility to verify coding and payment of each product with the manufacturer.

Product Name	Manufacturer/Distributor
Aloe Vesta Antifungal Ointment	ConvaTec
✪Antifungal Cream	Covidien
✪Antimicrobial Cleanser	Covidien
Baza Antifungal	Coloplast Cororation
Carrington Antifungal Cream	Medline Industries, Inc.
✪DermaFungal	DermaRite Industries, LLC
✪Elta Trivase	SteadMed Medical
Micro-Guard Powder	Coloplast Corporation
Remedy Antifungal Powder & Cream	Medline Industries, Inc.
SECURA Antifungal Extra Thick	Smith & Nephew, Inc. Wound Management
SECURA Antifungal Greaseless	Smith & Nephew, Inc. Wound Management
✪3M Cavilon Antifungal Cream	3M Health Care

✪ = New Product

LIQUID SKIN PROTECTANTS

Liquid skin protectants, or skin sealants, are formulated with a polymer and solvent. When the product is applied to the skin, the solvent evaporates, and the polymer dries to form a transparent, protective barrier. Select liquid skin protectants may irritate denuded or compromised skin. The clinician should be aware that liquid skin protectants can be formulated with or without alcohol. Liquid skin protectants are manufactured in wipes, swabs, sprays, and foam applicators.

Because of the variation in coding for liquid skin protectants, it's the clinician's responsibility to verify coding and payment of each product with the manufacturer.

Product Name	Manufacturer/Distributor
Aloe Vesta Protective Barrier Spray	ConvaTec
Coloplast PREP	Coloplast Corp.
✪Marathon Liquid Skin Protectant	Medline Industries, Inc.
✪No-Sting Skin Prep Spray	Smith & Nephew, Inc. Wound Management
No-Sting Skin Prep Swabs	Smith & Nephew, Inc. Wound Management
No-Sting Skin Prep Wipes	Smith & Nephew, Inc. Wound Management
✪Stingfree	DermaRite Industries, LLC
Sureprep No-Sting Skin Prep Wipes	Medline Industries, Inc.
Sureprep No-Sting Spray	Medline Industries, Inc.
Sureprep No-Sting Wand	Medline Industries, Inc.
Sureprep Skin Protective Wipe	Medline Industries, Inc.
✪3M Cavilon No Sting Barrier Film	3M Health Care
✪Webcol Skin Barrier Wipe	Covidien

✪ = New Product

MOISTURE BARRIERS

Moisture barriers, sometimes called skin protectants, are ointments, creams, or pastes that shield the skin from exposure to irritants or moisture from sources such as incontinence, perspiration, and enzymatic and wound drainage. Three common ingredients found in moisture barriers include dimethicone, petrolatum, and zinc oxide or a combination thereof. Some products are formulated with additional properties such as antibacterial, antiyeast, or antifungal ingredients. A moisture barrier may be formulated with a skin cleanser or as a stand-alone paste, cream, powder, or ointment. Once the moisture barrier is applied to the skin, it may appear clear, translucent, or opaque depending on the formulation.

Because of the variation in coding for moisture barriers, it's the clinician's responsibility to verify coding and payment of each product with the manufacturer.

Product Name	Manufacturer/Distributor
Aloe Vesta Protective Barrier Spray	ConvaTec
Aloe Vesta Protective Ointment	ConvaTec
Amerigel Barrier Lotion	Amerx Health Care Corporation
CalmoDerm	DermaRite Industries, LLC
Carrington Moisture Barrier Cream and Moisture Barrier with Zinc	Carrington Laboratories, Inc.
Critic-Aid Clear	Coloplast Corp.
Critic-Aid Clear AF	Coloplast Corp.
Critic-Aid Skin Paste	Coloplast Corp.
DermaMed	DermaRite Industries, LLC

Product Name	Manufacturer/Distributor
✪Elta Dermavase	SteadMed Medical
✪Elta Seal	SteadMed Medical
4 in 1	DermaRite Industries, LLC
PeriGuard	DermaRite Industries, LLC
✪PeriShield	AMERIDERM LABORATORIES LTD
Remedy Calazime Protectant Paste	Medline Industries, Inc.
✪Remedy Clear-Aid Skin Protectant	Medline Industries, Inc.
Remedy Dimethicone Moisture Barrier	Medline Industries, Inc.
Remedy Nutrashield	Medline Industries, Inc.
✪Remedy with Phytoplex Hydraguard	Medline Industries, Inc.
✪Remedy with Phytoplex Z-Guard	Medline Industries, Inc.
✪Restore Dimethicreme	Hollister Wound Care
SECURA Dimethicone Protectant	Smith & Nephew, Inc. Wound Management
SECURA Extra Protective Cream	Smith & Nephew, Inc. Wound Management
SECURA Protective Cream	Smith & Nephew, Inc. Wound Management
SECURA Protective Ointment	Smith & Nephew, Inc. Wound Management
Sensi-Care Protective Barrier	ConvaTec
Soothe & Cool Cornstarch Body Powder	Medline Industries, Inc.
Soothe & Cool INZO Invisible Zinc Oxide Barrier Cream	Medline Industries, Inc.
Soothe & Cool Moisture Barrier Ointment	Medline Industries, Inc.
Soothe & Cool Skin Paste	Medline Industries, Inc.
✪3M Cavilon Durable Barrier Cream	3M Health Care
✪3M Cavilon 3-in-1 Incontinence Care Lotion	3M Health Care

✪ = New Product

SKIN CLEANSERS

Skin cleansing removes unwanted microorganisms while maintaining the skin's barrier function. The characteristics of skin cleansers vary according to the needs of those using the product. For example, skin cleansers are available as a rinse or no-rinse formulation, an all-in-one product that cleanses, moisturizes, and protects or a variation thereof. Additionally, some products are manufactured for cleansing the entire body or only the perineal area. Therefore, when choosing a skin cleanser, it's important to understand the ingredients and total formulation and match the product to the patient's clinical goals.

Because of the variation in coding for skin cleansers, it's the clinician's responsibility to verify coding and payment of each product with the manufacturer.

Product Name	Manufacturer/Distributor
Aloe Vesta Bathing Cloths	ConvaTec
Aloe Vesta Body Wash & Shampoo	ConvaTec
Aloe Vesta Cleansing Foam	ConvaTec
⚙Alpha Bath	DermaRite Industries, LLC
Baza Cleanse & Protect Lotion	Coloplast Corp.
Bedside-Care EasiCleanse Bath	Coloplast Corp.
Bedside-Care Foam No-Rinse Foaming Body Wash, Shampoo and Incontinent Cleanser	Coloplast Corp.
Bedside-Care No-Rinse All Body Wash and Incontinent Cleanser	Coloplast Corp.
Bedside-Care Perineal Wash No-Rinse Incontinent Cleanser	Coloplast Corp.
⚙Body Wash and Shampoo	Covidien
CarraFoam Skin & Perineal Cleanser	Medline Industries, Inc.
CarraWash Skin & Perineal No-Rinse Cleanser	Medline Industries, Inc.
Clean and Free	DermaRite Industries, LLC
⚙DermaRain	DermaRite Industries, LLC
⚙DermaVera	DermaRite Industries, LLC
⚙Elta Cleanse Shampoo & Body Wash	SteadMed Medical
⚙Elta Cleansing Foam	SteadMed Medical
⚙Elta Perineal Wash	SteadMed Medical
Gentle Rain Antibacterial Moisturizing Body Wash, Shampoo & Hand Wash	Coloplast Corp.
Gentle Rain Extra Mild Sensitive Skin Moisturizing Body Wash, Shampoo & Hand Wash	Coloplast Corp.
Gentle Rain Moisturizing Body Wash, Shampoo & Hand Wash	Coloplast Corp.
⚙PeriFresh	DermaRite Industries, LLC
⚙Perigiene	DermaRite Industries, LLC
Remedy Antimicrobial Cleanser	Medline Industries, Inc.
Remedy Cleansing Body Lotion	Medline Industries, Inc.
Remedy Foaming Body Cleanser	Medline Industries, Inc.
⚙Remedy with Phytoplex Hydrating Cleansing Foam	Medline Industries, Inc.
⚙Remedy with Phytoplex Hydrating Cleansing Gel	Medline Industries, Inc.

Product Name	Manufacturer/Distributor
✪Remedy with Phytoplex Hydrating Spray Cleanser	Medline Industries, Inc.
✪Remedy with Phytoplex Nourishing Skin Cream	Medline Industries, Inc.
✪Restore Cleanser & Moisturizer	Hollister Wound Care
✪Restore Skin Cleanser	Hollister Wound Care
SECURA Moisturizing Cleanser	Smith & Nephew, Inc. Wound Management
SECURA Personal Cleanser	Smith & Nephew, Inc. Wound Management
SECURA Total Body Foam Cleanser	Smith & Nephew, Inc. Wound Management
Sensi-Care Septi-Soft Concentrate	ConvaTec
Soothe & Cool Cleansing Bath Oil	Medline Industries, Inc.
Soothe & Cool Foaming No-Rinse Perineal Wash	Medline Industries, Inc.
✪Soothe & Cool Herbal Moisturizing Shampoo & Body Wash	Medline Industries, Inc.
Soothe & Cool No-Rinse Perineal Wash	Medline Industries, Inc.
Soothe & Cool No-Rinse Shampoo & Body Wash	Medline Industries, Inc.
Soothe & Cool Perineal Wash	Medline Industries, Inc.
Soothe & Cool Shampoo & Body Wash	Medline Industries, Inc.
✪3 in 1 Cleansing Foam	DermaRite Industries, LLC
✪3M Cavilon No-Rinse Skin Cleanser	3M Health Care
✪3M Cavilon 3-in-1 Incontinence Care Lotion	3M Health Care
✪Total Bath	DermaRite Industries, LLC
✪Total Foam	DermaRite Industries, LLC
✪2-in-1 Cleanser	Covidien

✪ = New Product

THERAPEUTIC MOISTURIZERS

One of the skin's main functions is to hold in moisture. The epidermis produces lipids, oily substances that limit the passage of water into or out of the skin. If the skin is deficient in lipids, moisture can escape. The loss of moisture causes dry, flaky, itchy skin. Therapeutic moisturizers replace skin lipids and maintain skin hydration. These products can be found as creams, lotions, or ointments with or without an antimicrobial ingredient. Common ingredients found in therapeutic moisturizers include emollients and humectants. Some products are applied daily while other products are indicated to be applied more frequently.

Because of the variation in coding for therapeutic moisturizers, it's the clinician's responsibility to verify coding and payment of each product with the manufacturer.

Product Name	Manufacturer/Distributor
Aloe Vesta Skin Conditioner	ConvaTec
Amerigel Care Lotion	Amerx Health Care Corporation
Atrac-Tain Cream	Coloplast Corp.
Atrac-Tain Lotion	Coloplast Corp.
⚙DermaCerin	DermaRite Industries, LLC
⚙DermaDaily	DermaRite Industries, LLC
⚙DermaPhor	DermaRite Industries, LLC
⚙DermaSarra	DermaRite Industries, LLC
⚙DermaVantage	DermaRite Industries, LLC
⚙Elta Crème Moisturizer	SteadMed Medical
⚙Elta Nuvase	SteadMed Medical
⚙Elta Provase	SteadMed Medical
⚙Elta Tar	SteadMed Medical
⚙LubriSilk	DermRite Industries, LLC
⚙Moisture Barrier Cream	Covidien
⚙Moisturizing Lotion	Covidien
Remedy Skin Repair Cream	Remedy Skin Repair Cream
⚙Remedy with Phytoplex Nourishing Skin Cream	Medline Industries, Inc.
⚙Restore Cleanser & Moisturizer	Hollister Wound Care
SECURA Moisturizing Cream	Smith & Nephew, Inc. Wound Management
SECURA Moisturizing Lotion	Smith & Nephew, Inc. Wound Management
Sensi-Care Moisturizing Body Cream	ConvaTec
Soothe & Cool Extra-Thick Moisturizing Cream	Medline Industries, Inc.
⚙Soothe & Cool Herbal Moisturizing Body Lotion	Medline Industries, Inc.
Soothe & Cool Moisturizing Body Lotion	Medline Industries, Inc.
Soothe & Cool Skin Cream	Medline Industries, Inc.
⚙Soothing Ointment	Covidien
Sween Cream	Coloplast Corp.
Sween 24 Cream	Coloplast Corp.
⚙3M Cavilon Extra Dry Skin Cream	3M Health Care

Product Name	Manufacturer/Distributor
✪3M Cavilon Moisturizing Body Cream	3M Health Care
✪3M Cavilon Moisturizing Hand Lotion	3M Health Care
✪3M Cavilon 3-in-1 Incontinence Care Lotion	3M Health Care
UNICARE Moisturizing Lotion	Smith & Nephew, Inc. Wound Management
UNIDERM Moisturizing Cream	Smith & Nephew, Inc. Wound Management

Dressings and devices

OVERVIEW

With more than 2,000 wound care products on the market, choosing the correct dressing or device may be difficult. In developing a management pathway and planning wound care, the health care professional must consider:

- wound- and skin-related factors, such as cause, severity, environment, condition of periwound skin, size and depth, anatomic location, volume of exudate, and the risk or presence of infection
- patient-related factors, such as vascular, nutritional, and medical status; odor-control requirements; comfort and preferences; and cost-benefit ratio
- dressing-related factors, such as availability, durability, adaptability, and uses.

Familiarizing yourself with the major categories of wound care products and their actions, indications, contraindications, advantages, and disadvantages will help you choose the most appropriate dressing. Also consider the product's availability and its application and removal procedures. In many cases, one product can help you meet more than one therapeutic goal.

The wound care products in this section include alginates, antimicrobials, collagens, composites, contact layers, drugs, foams, hydrocolloids, hydrogels, specialty absorptives, surgical dressings, transparent films, and more. For each product, you'll find the size and configuration of the product, the action, indications, contraindications, and instructions for application and removal, as well as the product's code, as assigned by the Health Care Financing Administration Common Procedure Coding System (HCPCS). Product names may be copyrighted or trademarked even when unaccompanied by copyright or trademark characters.

HCPCS code overview

To ensure uniform Medicare claim coding by all suppliers of wound care dressings, the Statistical Analysis Durable Medical Equipment Regional Carrier (SADMERC) performs a coding verification review. If manufacturers wish to have an HCPCS code assigned to their products, they must submit a formal application to SADMERC.

SADMERC and the four Durable Medical Equipment Regional Carriers conduct reviews of products to determine the correct HCPCS codes for Medicare billing. These reviews result in a consensus coding decision. The assignment of a HCPCS code to a product shouldn't be construed as an approval or endorsement of the product by SADMERC or Medicare and doesn't imply or guarantee reimbursement or coverage. Many other payers also require the assigned HCPCS codes on their claim forms.

If a manufacturer has provided the SADMERC-assigned HCPCS codes for its products, the five-digit alphanumeric code is listed beside the size of each product. Conversely, if a manufacturer hasn't provided an HCPCS code for a particular product, it's the provider's responsibility to verify proper coding. The provider and supplier are ultimately responsible for verifying the correct HCPCS codes before submitting claims to a payer.

ALGINATES

Action

Alginates are derived from brown seaweed. The products are composed of soft, nonwoven fibers shaped as ropes (twisted fibers) or pads (fibrous mats). Alginates are absorbent and conform to the shape of a wound. When packed, an alginate interacts with wound exudate to form a soft gel that maintains a moist healing environment. An alginate can absorb up to 20 times its weight.

Indications

To manage partial- and full-thickness, draining wounds; wounds with moderate to heavy exudate; tunneling wounds; infected and noninfected wounds; and "moist" red and yellow wounds

Advantages

- Absorb up to 20 times their weight
- Form a gel within the wound to maintain a moist healing environment
- Facilitate autolytic debridement
- Fill in dead space
- Are easy to apply and remove

Disadvantages

- Are not recommended for wounds with light exudate or dry eschar
- Can dehydrate the wound bed
- Require a secondary dressing

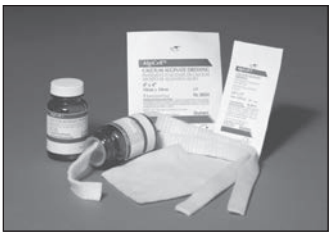
HCPCS code overview

The HCPCS codes normally assigned to alginate wound covers or other gelling fiber dressings are:
A6196—pad size <16 in^2
A6197—pad size >16 in^2 but <48 in^2
A6198—pad size >48 in^2

The HCPCS code normally assigned to alginate wound fillers or other gelling fiber dressings is:
A6199—wound filler, per 6″ (15 cm).

ALGICELL Calcium Alginate

Derma Sciences, Inc.



How supplied

Pad: 2″ × 2″, 4″ × 4″, 4″ × 8″
Rope: 3/4″ × 12″, 3/4″ × 36″

Action

ALGICELL Calcium Alginate dressings are highly absorptive, soft, white, and sterile. They form a soft gel in contact with wound fluids to maintain a moist healing environment.

Indications

To manage moderately to highly exuding partial- and full-thickness wounds; may be used for smaller wounds or to pack deep wounds (rope)

Contraindications

- Contraindicated for third-degree burns
- Contraindicated for surgical implantation

Application

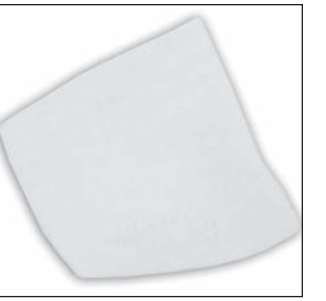
- Clean wound with PrimaDerm Dermal Cleanser or saline solution, according to facility policy.
- Apply ALGICELL to the wound bed.
- Loosely pack deeper wounds.
- Cover the dressing with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- Gently rinse the affected area to remove remaining gel.
- Reapply a new dressing daily or as indicated by amount of exudate and facility policy.

AlgiSite M Calcium Alginate Dressing

Smith & Nephew, Inc.
Wound Management



How supplied

Pad: 2″ × 2″, 4″ × 4″; A6196
6″ × 8″; A6197
Rope: 3/4″ × 12″; A6199

Action

AlgiSite M is a calcium-alginate dressing that forms a soft gel that absorbs wound exudate. AlgiSite M uses the proven benefits of moist wound management. The exudate produces a gel upon contact with the alginate fibers to create a moist wound surface environment. This helps prevent eschar formation and promotes an optimal moist wound environment. The dressing allows wound contraction to occur, which may help reduce scarring, and also allows the gaseous exchange necessary for a healthy wound bed.

Indications

Under the care of a health care professional, to manage full- and partial-thickness leg ulcers, pressure ulcers, diabetic foot ulcers, and surgical wounds; for over-the-counter applications, to manage lacerations, abrasions, skin tears, and minor burns

Contraindications

- Not for use until the packing in cavities and sinuses has been removed
- Not for use on very lightly exuding wounds
- Not for use on patients allergic to alginates

Application

- Cleanse the wound in accordance with normal procedures.
- Choose a dressing that's slightly larger than the wound and place it in intimate contact with the wound base, making sure that the entire surface is covered. It may be best to use the alginate strip if the wound is deep or undermined. To avoid maceration of the surrounding skin, cut the AlgiSite M to the size of the wound, or fold any dressing material overlying the wound into the wound.
- Apply using an appropriate dressing technique.
- Cover with an appropriate retention dressing. Wound exudate will evaporate from the gel surface; the secondary dressing shouldn't hinder this evaporative process where exudate is heavy.

Removal

- Generally, dressings should be changed daily in heavily draining wounds, reducing to twice weekly (or weekly) as healing proceeds.
- If the dressing isn't easily removed, moisten it with saline, then remove.
- To remove AlgiSite M, use tweezers, forceps, or a gloved hand to gently lift the dressing away—the high wet strength generally allows it to remain in one piece. The dressing may adhere if used on a very lightly exuding wound. Removal of the dressing is facilitated by saturating the wound with saline.

AQUACEL Ag Hydrofiber Dressing with Silver*

ConvaTec

How supplied

Dressing: 2″ × 2″; A6196
4″ × 5″, 6″ × 6″; A6197
8″ × 12″; A6198
Ribbon with Strengthening Fibers: 0.39″ × 18″; A6199

Action

AQUACEL Ag Hydrofiber Dressing with silver is an advanced technology, sterile, single use wound dressing comprised of sodium carboxymethylcellulose and ionic silver (Ag+). It is a soft and conformable dressing that remains integral when wet or dry. This highly absorbent dressing interacts with wound exudate and forms a soft gel that maintains a moist environment for optimal wound healing and easy removal with little or no damage to healing wounds. The ionic silver gives AQUACEL Ag dressing its silver-gray appearance and broad-spectrum antimicrobial properties.

Indications

To manage wounds at risk of infection; partial-thickness (second-degree) burns; diabetic foot ulcers; venous stasis ulcers, arterial ulcers, and other leg ulcers; pressure ulcers (partial- and full-thickness); surgical wounds left to heal by secondary intent; traumatic wounds prone to bleeding, such as those that have been mechanically or surgically debrided; oncology wounds with exudate, such as fungoides-cutaneous tumors, fungating carcinoma, cutaneous metastasis, Kaposi's sarcoma, and angiosarcoma.

Contraindications

- Not for use on patients who are sensitive to or who have had an allergic reaction to the dressing or its components.

Application

- Clean the wound with water or saline. Apply the dressing to shallow wounds with an adequate overlap (at least 3/8″ [1 cm]) overlap of the wound edges. For deep wounds, loosely pack ribbon or sheet into wound to about 80% of the depth of the wound to accommodate swelling of the dressing, leaving a small overhang (at least 1″ [2.5 cm]) to facilitate removal.
- For dry wounds, place the AQUACEL Ag dressing in the wound and then wet with sterile saline over the wound area only. The vertical absorption properties of the dressing will help to maintain the moist area over the wound only and reduce the risk of maceration. Cover the dressing with a moisture-retentive dressing to avoid drying out the dressing and subsequent dressing adherence to the wound.
- Cover and secure with an appropriate dressing.

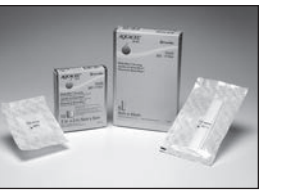
Removal

- AQUACEL Ag dressing is designed to be easy to remove without leaving residue or causing trauma to the wound bed. In the unlikely event of adhesion to the wound bed, the dressing can be easily removed by soaking.

*See package insert for complete instructions for use.

AQUACEL Hydrofiber Wound Dressing*

ConvaTec



How supplied

Dressing: 2″ × 2″, 4″ × 4″; A6196
6″ × 6″; A6197

Ribbon with strengthening fibers: 0.39″ × 18″, 0.75″ × 18″; A6199

Action

AQUACEL Hydrofiber Wound Dressing is a soft, sterile, nonwoven pad or ribbon dressing made from sodium carboxymethylcellulose fibers. This conformable and absorbent dressing forms a soft gel that creates a moist wound environment that supports the healing process and autolytic debridement and allows for nontraumatic removal.

Indications

To manage exuding wounds, pressure ulcers, leg ulcers, abrasions, lacerations, incisions, donor sites, oncology wounds, first- and second-degree burns, and surgical or traumatic wounds that have been left to heal by secondary intent; may be used for wounds that are prone to bleeding, such as mechanically or surgically debrided wounds, donor sites, and traumatic wounds; may also be used to facilitate the control of minor bleeding.

Contraindications

- Contraindicated for use in patients with sensitivity to this dressing or its components.
- Not intended for use as a surgical sponge.

Application

- AQUACEL Hydrofiber Wound Dressings are sterile and should be handled appropriately.
- If necessary, debride the wound prior to application, then cleanse it with an effective cleansing agent such as SAF-Clens AF dermal wound cleanser or normal saline solution.
- Apply AQUACEL Hydrofiber Wound Dressing to the wound site, and cover with an appropriate secondary dressing, such as a moisture-retentive dressing.
- Change the dressing when it becomes saturated with exudate or when good clinical practice dictates.
- Dressing may remain in place for up to 7 days.

Removal

- Remove the secondary dressing gently, according to the product's package insert.
- Remove the AQUACEL Hydrofiber Wound Dressing and discard.
- Without disrupting the delicate granulation tissue, irrigate the wound with SAF-Clens AF dermal wound cleanser or normal saline solution to remove any residual gel.
- Redress the wound with a new dressing, and cover with a secondary dressing as previously described.

*See package insert for complete instructions for use.

CarboFLEX Odor Control Dressing*

ConvaTec

How supplied

Pad: 4″ × 4″; A6196
3″ × 6″ oval, 6″ × 8″; A6197

Action

CarboFLEX is a sterile nonadhesive dressing with an absorbent wound-contact layer (containing alginate and hydrocolloid), an activated charcoal central pad, and a smooth, water-resistant top layer.

Indications

To manage acute and chronic wounds; may be used as a primary dressing for shallow wounds or as a secondary dressing over wound fillers for deeper wounds; may also be used on infected malodorous wounds along with appropriate therapy and frequent monitoring of the wound

Contraindications

- Contraindicated in patients with a sensitivity to the dressing or its components

Application

- If required, debride the wound and remove necrotic tissue. Cleanse the wound site, rinse well, and dry the surrounding skin.
- Don't cut the dressing.
- Choose a dressing that is larger than the wound area to ensure that the dressing overlaps the wound edge by at least $1\frac{1}{4}$″ (3 cm). For shallow wounds, the dressing may be placed directly onto the wound as a primary dressing; for cavity wounds, CarboFLEX can be laid over a wound filler or gel as a secondary dressing.
- Place the fibrous (nonshiny) surface on the wound or cavity filler.
- Secure CarboFLEX in place with tape or other appropriate material. The wound contact layer absorbs exudate and forms a soft gel.

Removal

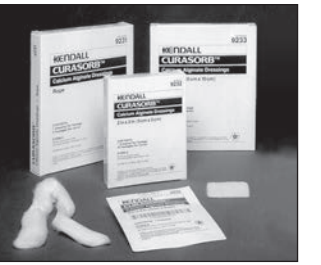
- Change the dressing when clinically indicated, when exudate strike-through to the top layer occurs, or when the odor is no longer being absorbed. With noninfected malodorous wounds, CarboFLEX may be left undisturbed for up to 3 days. If the wound is infected, CarboFLEX should be changed more frequently.
- Carefully lift the dressing away from the wound by grasping it at one corner.

*See package insert for complete instructions for use.

Curasorb* Calcium Alginate Dressings

Curasorb Zinc* Calcium Alginate Dressings

Covidien



How supplied

Pad: 2″ × 2″, 4″ × 4″, 4″ × 4″ plus (extra absorptive), 2″ × 2″ with zinc, 4″ × 4″ with zinc; A6196
4″ × 5 1/2″, 4″ × 8″, 4″ × 8″ with zinc; A6197
6″ × 10″, 12″ × 24″; A6198

Rope: 12″, 24″, 36″, 12″ with zinc; A6199

Action

Curasorb Calcium Alginate Dressings and Curasorb Zinc Calcium Alginate Dressings absorb large volumes of exudate and maintain a moist healing environment.

Indications

To manage wounds with moderate to large amounts of exudates, including: pressure ulcers (stages 2 to 4), tunneling wounds, infected and noninfected wounds, partial and full-thickness wounds, and red or yellow wounds

Contraindications

- Contraindicated for wounds with dry eschar

Application

- Apply the dressing dry.
- Cover the dressing with a secondary dressing.

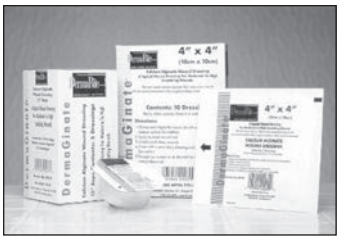
Removal

- Remove the dressing when strike-through to the secondary dressing occurs or as needed.

*Curasorb is a trademark of Beiersdorf AG, used under license

DermaGinate

DermaRite Industries, LLC



How supplied

Pad: 2″ × 2″; 4″ × 4″; A6196, 4″ × 8″
Rope: 12″; A6199

Action

DermaGinate is a sterile, nonwoven dressing of calcium-sodium alginate fiber designed to promote and maintain a moist healing environment. The fibers absorb wound exudate to form a firm, viscous gel-fiber material.

Indications

To manage infected and noninfected wounds, pressure ulcers, venous ulcers, and diabetic ulcers; may be used for partial- and full-thickness wounds, dermal lesions, tunneling wounds, and wounds with moderate to heavy drainage

Contraindications

- Contraindicated for dry to lightly exuding wounds
- Contraindicated for third-degree burns
- Contraindicated in patients with sensitivity to calcium alginate materials

Application

- Clean the wound by irrigating with DermaKlenz solution or Safe Wash saline.
- Pat dry surrounding areas.
- Apply dressing to the wound surface or wound bed; if wound is deep, pack DermaGinate rope gently at site.
- Cover the dressing with a secondary dressing, and secure it.

Removal

- Remove the secondary dressing.
- For wounds with minimal exudate, dampen the dressing with normal saline solution to loosen, then lift.
- If necessary, gently rinse away the remaining gel or dressing fibers.

KALGINATE Calcium Alginate Wound Dressing

DeRoyal

How supplied

Pad: 2″ × 2″, 4″ × 4″; A6196
4″ × 8″; A6197

Action

KALGINATE is a sterile, nonwoven, calcium alginate dressing of heavy fiber. Thick and substantial, it provides maximum absorption of exudate with minimal dressing changes. It allows for gaseous exchange, can be layered or packed for absorbency, and maintains its shape and integrity during removal.

Indications

To manage pressure ulcers (stages 3 and 4); full-thickness wounds; tunneling, infected, and draining wounds; and wounds with moderate to heavy exudate

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound area with normal saline solution.
- Place KALGINATE pad or rope into the wound, packing deep wounds loosely.
- Cover the dressing with an absorptive cover dressing, and secure in place.

Removal

- Change the dressing when the outer dressing is saturated with drainage.
- Remove the outer dressing.
- Irrigate the wound with normal saline solution, and lift the dressing from the wound bed.

KALTOSTAT Wound Dressing*

ConvaTec

How supplied

Dressing: 2″ × 2″, 3″ × 4 3/4″; A6196
4″ × 8″; A6197
6″ × 9 1/2″, 12″ × 24″; A6198

Rope: 2 g; A6199

Action

KALTOSTAT Wound Dressing is a soft, sterile, nonwoven dressing of calcium-sodium alginate fiber. The alginate fibers absorb wound exudate or normal saline solution and form a firm gel-fiber mat. The mat maintains a moist, warm environment at the wound-dressing interface and allows removal of the dressing with little or no damage to newly formed tissue.

Indications

To manage pressure ulcers, venous stasis ulcers, arterial ulcers, diabetic ulcers, donor sites, abrasions, lacerations, superficial burns, postoperative incisions, and other external wounds inflicted by trauma. Controls minor bleeding. May also be used as a nasal packing for nosebleeds, dental extraction sites, and postoperative wound debridement

Contraindications

- Contraindicated for third-degree burns
- Not intended to control heavy bleeding
- Not intended for use as a surgical sponge

Application

- Debride the wound of excessive necrotic tissue and eschar, and irrigate with an appropriate nontoxic cleansing solution.
- Trim the dressing to the exact size of the wound.
- For heavily exuding wounds, apply the dry dressing to the wound.
- For lightly exuding wounds or nonexuding wounds, place the dressing on the wound, and moisten it with normal saline solution. Reapply normal saline solution, as necessary, to maintain the gel.
- Apply an appropriate secondary dressing to secure the dressing.
- To effect hemostasis on bleeding wounds, apply the dressing to the bleeding area. Remove the dressing after bleeding has stopped, and then apply a new dressing.

Removal

- To remove a dressing from a nonexuding or lightly exuding wound, saturate the dressing with normal saline solution. If the gel has dried, rehydrate it by saturating it with normal saline solution; softening may take several hours if severe drying has occurred.
- Change the dressing on heavily exuding wounds when strike-through to the secondary dressing occurs, or whenever clinical practice dictates. Removal is easy because the dressing forms a gel at the wound-dressing interface.
- Leave the dressing in place for up to 7 days, depending on the wound.
- Cleanse the wound site before applying a new dressing.

*See package insert for complete instructions for use.

Maxorb Extra CMC/Alginate Dressing

Medline Industries, Inc.

How supplied

Pad: 1″ × 12″, 2″ × 2″, 4″ × 4″; A6196
4″ × 8″; A6197
Rope: 12″ (2 g); A6199

Dressings are supplied in sterile form in single pouches or a lidded tray. The lidded tray package on the rope is important because it keeps the fibers from compressing. As a result, fluid-handling capacity is increased.

Action

Maxorb Extra CMC/Alginate Dressing's nonwoven alginate and carboxymethylcellulose fiber combination reacts with wound exudate to form a gel, providing a moist healing environment. The added presence of carboxymethylcellulose in Maxorb improves the wicking and fluid-handling ability of this dressing and increases wet strength. Because the product doesn't wick exudate laterally, it reduces the potential for damage to delicate periwound tissue. New "Extra" formulation has more loft and alginate fibers to provide 25% greater fluid handling.

Indications

To manage partial- and full-thickness wounds with moderate to heavy exudate, including venous stasis ulcers, pressure ulcers (stages 2, 3, and 4), arterial ulcers, diabetic ulcers, donor sites, lacerations, abrasions, postsurgical incisions, and second-degree burns; may also be used for infected and noninfected wounds, tunneling wounds, and wounds with serosanguineous or purulent drainage

Contraindications

- Contraindicated for third-degree burns
- Not intended for use as a surgical sponge

Application

- Clean the wound with normal saline solution or an appropriate wound cleanser, such as Skintegrity Wound Cleanser.
- Apply the dressing to a moist wound bed. The dressing doesn't need to be trimmed to fit the wound bed because it won't wick fluid laterally. Loosely pack deep or tunneling wounds.
- Cover the dressing with an appropriate secondary dressing, such as Stratasorb Composite Dressing.

Removal

- Change the dressing when strike-through to the secondary dressing occurs, every 2 to 5 days or as directed by the physician.
- The gelatinous pad may be easily lifted away in one piece from the wound bed, making dressing changes easier.
- Remove the secondary dressing as well as gelled and nongelled Maxorb dressing.

- Irrigate the wound with normal saline solution or another appropriate solution, such as Skintegrity Wound Cleanser, to remove any remaining gel.
- If the dressing is dry at the time of removal, moisten it with saline or wound cleanser before removing it. This may indicate the need to consider replacing this type of dressing with a moistening, hydrogel product instead.

NEW PRODUCT

MEDIHONEY Calcium Alginate

Derma Sciences, Inc.

How supplied

Pad: 2″ × 2″; A6196
4″ × 5″; A6197
Rope: 3/4″ × 12″; A6199

Action

Medihoney is a special type of honey indigenous to New Zealand, called active *Leptospermum* (or Manuka) honey. Active *Leptospermum* Honey has been shown to have several properties that assist in promoting an optimal healing environment. It has a low pH that has been shown to help lower the overall pH of the wound environment, which is beneficial to chronic wounds. The honey is also highly osmotic, which assists in debridement and keeping the wound bed clean.

Indications

MEDIHONEY Dressing with Active *Leptospermum* Honey provides a moist environment conducive to wound healing and is indicated for lightly to moderately exuding wounds such as diabetic foot ulcers, leg ulcers (venous stasis ulcers, arterial ulcers and leg ulcers of mixed etiology), pressure ulcers/sores (partial and full thickness), first- and second-degree partial thickness burns, donor sites, and traumatic and surgical wounds

Contraindications

- Contraindicated for third-degree burns
- Contraindicated for patients with a known sensitivity to alginates or honey
- Contraindicated for controlling heavy bleeding

Application

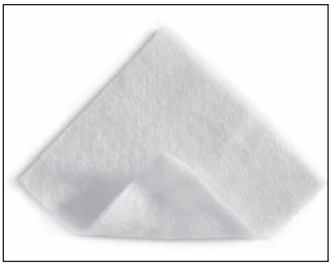
- Prior to application, cleanse the wound area as necessary.
- Use an appropriately sized dressing.
- For shallow wounds, slightly overlap the wound area by 1/2″ (1 cm).
- For deep or heavily exuding wounds, loosely pack and ensure that the dressing does not overlap the wound margins.

Removal

- Dressing change frequency will depend on the condition of the patient as well as the level of wound exudate.
- Reapply when MEDIHONEY Calcium Alginate Dressing with Active *Leptospermum* Honey or the secondary dressing has reached its absorbent capacity or as directed by a wound care professional.
- Moisten with sterile saline if the wound bed appears dry before removal of the dressing.
- Remove the dressing from the wound bed gently.
- Cleanse the wound bed prior to application of new dressing.

Melgisorb Alginate Dressing

Mölnlycke Health Care



How supplied

Pad: 2″ × 2″, 4″ × 4″; A6196
4″ × 8″; A6197
Rope: 12.5″; A6199

Action

Melgisorb is a hydrophilic calcium alginate dressing that absorbs wound exudate. As the alginate fibers absorb exudate, they form a moist gel that provides a moist environment conducive to wound healing.

Indications

To manage infected and noninfected wounds with moderate to heavy exudate, such as pressure ulcers, venous ulcers, arterial ulcers, diabetic ulcers, donor sites, postoperative wounds, and dermal lesions

Contraindications

- Contraindicated for dry wounds
- Contraindicated on third-degree burns
- Not recommended for surgical implantation

Application

- Clean and flush the wound with normal saline solution, then dry the healthy surrounding skin.
- Apply Melgisorb dry to a moist wound bed. For shallow wounds, choose the correct size of the flat dressing to cover the entire wound. For deep or tunneling wounds, choose and cut an appropriate length of rope and pack loosely.
- Cover the dressing with an appropriate secondary dressing.

Removal

- Gently flush the wound with normal saline solution or another appropriate solution. Any nongelled Melgisorb can be moistened with saline and removed.

Restore Calcium Alginate Dressing

Hollister Wound Care

How supplied

Pad: 2″ × 2″, 4″ × 4″; A6196
4″ × 8″; A6197
Rope: 12″ (2 g); A6199

Action

Restore Calcium Alginate Dressings are absorptive and made from calcium and sodium alginate. They conform to the wound and form a gel when in contact with exudate, creating a moist interface with the wound, which provides a moist healing environment.

Indications

To manage partial- and full-thickness wounds with moderate to heavy exudate, including pressure ulcers (stages 1 to 4), arterial and venous stasis ulcers, postsurgical incisions, donor sites, trauma wounds, diabetic ulcers, and dermal lesions

Contraindications

- Contraindicated for dry to lightly exuding wounds
- Contraindicated in patients with known sensitivity to calcium alginate or with other known allergic conditions

Application

- Prepare the wound according to facility policy, or as directed. Make sure the skin is clean and dry.
- Measure the wound with a wound-measuring guide.
- Apply the dressing to the wound surface. Loosely pack deep wounds with rope dressing.
- Cover the dressing with a secondary dressing, and secure it.

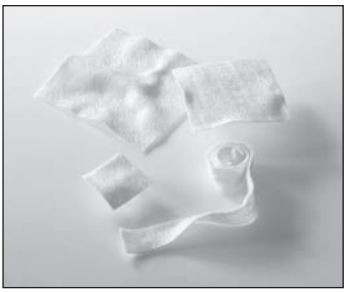
Removal

- Remove the secondary dressing according to facility policy.
- Remove the Restore Calcium Alginate dressing.
- If necessary, gently rinse away the remaining gel or dressing fibers, using Restore Wound Cleanser or normal saline solution.

SeaSorb Soft Alginate Dressing

SeaSorb Soft Alginate Filler

Coloplast Corp.



How supplied

Dressing: 2″ × 2″; A6196
4″ × 4″; A6196
6″ × 6″; A6197
Rope: 1″ × 17 1/2″; A6199

Action

SeaSorb is a sterile, fiber-free, highly absorbent dressing composed of a unique combination of calcium alginate and carboxymethylcellulose. On contact with wound exudate, the dressing forms a moist gel through ion exchange. SeaSorb Soft dressing is easy to apply and remains intact after absorbing exudate, allowing one-piece removal.

Indications

To manage wounds with heavy exudate, such as leg ulcers and pressure ulcers; may also be used in clinically infected wounds, for which concurrent systemic antibiotic therapy may be given if indicated

Contraindications

- Contraindicated for dry wounds and third-degree burns
- Contraindicated for deep, undermined ulcers in which wound edges are at risk for collapsing
- Contraindicated in patients allergic to one or more of the components
- Physician consultation needed before use of this product on wounds with a high risk of infection or on lesions caused by syphilis, tuberculosis, leprosy, or cancer
- Must be removed before the start of long-term radiation treatment (with X-rays, ultrasound, diathermy, or microwaves)

Application

- Choose a dressing large enough to allow an overlap of 3/4″ (2 cm) onto the surrounding skin. SeaSorb Soft dressing may be cut to size if necessary.
- Use a secondary dressing, such as Comfeel Plus Clear Dressing or Biatain Foam Dressing.

Removal

- Change the dressing when it's saturated with exudate and has reached maximum absorption capacity.
- Change the dressing every 7 days or more often if necessary (may be required for the first few days). As granulation occurs, however, exudation decreases, and fewer changes are needed.

3M Tegaderm High Integrity Alginate Dressing

3M Tegaderm High Gelling Alginate Dressing

3M Health Care

How supplied

High Integrity
Pad: 4″ × 4″; A6196
Rope: 12″; A6199
High Gelling
Pad: 4″ × 4″; A6196
Rope: 12″; A6199

Action

3M Tegaderm Alginate Dressings are gel-forming, absorbent, versatile alginates, which provide for optimum wound healing. 3M Tegaderm High Integrity Alginate Dressing offers high integrity for quick dressing changes. 3M Tegaderm High Gelling Alginate Dressing offers high-gelling properties, which may be preferable for gentle removal of the dressing from fragile tissue.

Indications

To manage wounds with moderate to heavy exudate, pressure ulcers, arterial ulcers, venous ulcers, diabetic ulcers, trauma wounds, and other dermal lesions

Contraindications

- Contraindicated for surgical implantation
- Contraindicated for third-degree burns

Application

Pad

- Moisten the wound site with normal saline solution or other sterile irrigation solution, according to facility policy. Dry the periwound skin.
- If the patient's skin is fragile or wound drainage may contact the periwound skin, apply 3M Cavilon No Sting Barrier Film around the wound.
- Select the appropriate dressing size for the wound. Tegaderm High Gelling and High Integrity Alginate dressings may be trimmed to fit the wound site.
- Apply the dressing to the wound bed with minimal overlap to the periwound skin.
- Loosely pack deep wounds.
- Cover the dressing with an appropriate secondary dressing.

Rope

- Fluff the rope dressing as needed for light packing.
- Make sure the dressing lightly contacts all wound surfaces, including areas of undermining.
- Loosely pack deep wounds by fluffing and layering the dressing back and forth into the wound.

- Cover the rope dressing with an appropriate secondary dressing.
- Extend the cover dressing at least 1″ (2.5 cm) beyond the edge of the wound.

Removal

- Remove secondary dressing and nongelled alginate dressing. Rinse away remaining gel with gentle irrigation.
- If the dressing appears dry, saturate it with sterile saline solution to help remove it.
- Dressing may be removed using sterile forceps or gentle irrigation.

ANTIMICROBIALS

Action

Antimicrobial dressings are topical wound care products derived from agents such as silver, iodine, and polyhexethylene biguanide. These products combine active ingredients with a dressing to deliver an antimicrobial or antibacterial action to the wound. Silver dressings come in various delivery systems as well as shapes and sizes. The silver is activated from the dressing to the wound's surface based on the amount of exudate and bacteria in the wound. Silver dressings are available in foams, hydrocolloids, alginates, barriers layers, charcoal cloth dressings, or a combination of different forms. Silver dressings may be used with select topical and adjunctive therapies to, among other things, decrease the bacterial load and manage exudate, and as a result, optimize the appearance of the wound's granulation tissue.

Gauze products containing antibacterial properties have been designed to provide a barrier to specific organisms but also inhibit the growth of bacteria within the dressing, thus protecting the wound and potential spread of bacteria from the dressed site.

Indications

Antimicrobial dressings are intended for use in draining, exuding, and nonhealing wounds where protection from bacterial contamination is desired. These dressings may be used as primary or secondary dressings to manage various amounts of exudate (minimal, moderate, or heavy) for both acute and chronic wounds, including burns, surgical wounds, diabetic foot ulcers, pressure ulcers, and leg ulcers. Select dressings may also be used under compression.

Advantages

- Provides a broad range of antimicrobial or antibacterial activity
- Reduces infection
- Prevents infection
- May alter metalloproteinases within wounds with select dressings

Disadvantages

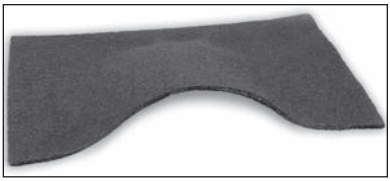
- May cause staining on wound and intact skin with silver dressings
- May cause stinging or sensitization
- Development of resistant organisms not yet known

HCPCS code overview

Each product under this category description has been assigned a different code based on its physical size and characteristics; or the manufacturer hasn't yet received or applied for a code. Please refer to individual product listings for further information about each product.

ACTICOAT Absorbent Antimicrobial Alginate Dressing

Smith & Nephew, Inc.
Wound Management



How supplied

Pad: 4″ × 5″; A6197
Rope: 3/4″ × 12″; A6199

Action

ACTICOAT Absorbent absorbs excess wound fluid to form a gel that maintains a moist environment for optimal wound healing. The sustained release of broad-spectrum ionic silver actively protects the dressing from bacterial contamination. ACTICOAT Absorbent delivers 3 days of uninterrupted antimicrobial activity

Indications

To protect wounds from bacterial penetration; the barrier function of the dressing may help reduce infection in partial- and full-thickness wounds with moderate to heavy exudate, including decubitus, venous, and diabetic ulcers, and surgical and traumatic wounds

Contraindications

- Contraindicated in patients with sensitivity to silver
- Not for use on third-degree burns
- Incompatible with oil-based products such as petroleum jelly

Application

- Cleanse the wound using conventional, non-oil-based techniques, and leave the wound moist.
- Apply the dressing to the wound, either side down, and secure with an appropriate secondary dressing that will maintain a moist environment.
- Keep the dressing moist but not so wet that tissue maceration occurs.

Removal

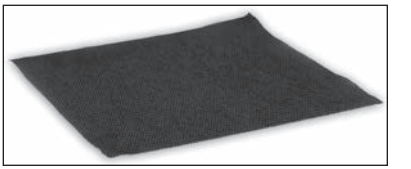
- Change the dressing depending on the amount of exudate present and the condition of the wound. Avoid using oil-based cleansing agents. The dressing may be worn for up to 3 days.
- Remove the secondary dressing, then remove ACTICOAT Absorbent from the wound bed. Make sure the dressing is moist before removing it.
- If the dressing dries and adheres to the wound, moisten or soak the dressing before removing it.
- Avoid forceful removal of the dressing and disruption of the healing wound.
- Remember that the dressing may cause transient discoloration.

NEW PRODUCT

ACTICOAT Flex 3

ACTICOAT Flex 7

Smith & Nephew, Inc.
Wound Management



How supplied

Flex 3
Dressing: 2″ × 2″, 4″ × 4″; A6206
4″ × 8″; A6207
8″ × 16″, 16″ × 16″, 4″ × 48″; A6208
Flex 7
Dressing: 2″ × 2″; A6206
4″ × 5″, 6″ × 6″; A6207
8″ × 16″, 16″ × 16″; A6208
1″ × 24″; A6207

Action

ACTICOAT Flex 3 and ACTICOAT Flex 7 are made of highly conformable, silver-coated low-adherent polyester that allows the passage of exudate. These dressings consist of a single layer of polyester, which is designed to remain in intimate contact with the wound bed, stretch as the patient moves, and be easy to apply and remove. ACTICOAT Flex 3 can be worn for up to 3 days while ACTICOAT Flex 7 can be used for up to 7 days. ACTICOAT Flex has been shown to be compatible with negative-pressure wound therapy. Polyester substrate helps manage moisture level and control silver release. The Nanocrystalline coating of pure silver delivers antimicrobial barrier activity within 30 minutes—faster than other forms of silver, an effective barrier that may assist in preventing contamination of the wound. Laboratory studies show that the ACTICOAT dressing kills microorganisms faster than conventional products, such as silver sulfadiazine (1% cream) or silver nitrate (0.5%) solution. It has also been shown *in vitro* to provide protection against more than 150 pathogens. The pathogens tested in the lab include very resistant strains of bacteria, such as antibiotic-resistant strains of *Pseudomonas*, methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus*, and fungi.

Indications

For use in partial- and full-thickness wounds, including first- and second-degree burns, covering of graft sites, pressure ulcers, venous stasis ulcers, diabetic ulcers, and surgical sites

Contraindications

- Not for use on patients with a known sensitivity to silver
- Not for use on patients during magnetic resonance imaging (MRI) examination
- Must be removed during radiation therapy; a new dressing may be applied following each treatment

Application

- Cleanse the wound using conventional, non-oil-based techniques and leave wound moist.
- Remove the dressing from the package and cut to shape as necessary.
- Moisten ACTICOAT Flex 3 or ACTICOAT Flex 7 Antimicrobial Dressing with sterile water or tap water. Do not use saline.
- Apply the dressing to the wound surface (either side down), and secure with an appropriate secondary dressing that will maintain a moist environment.
- Keep the dressing moist, but not so wet that tissue maceration occurs.
- Examine the dressing to ensure a moist environment is being maintained.
- Change the dressing depending on the amount of exudate and the condition of the wound.
- If the dressing dries and adheres to the wound, moisten or soak the dressing prior to removal.

Removal

- Avoid forceful removal and disruption of the healing wound.

ACTICOAT Moisture Control Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

Pad: 2″ × 2″; 4″ × 4″ A6209
4″ × 8″; A6210

Action

Acticoat Moisture Control (with SILCRYST Nanocrystals) is an absorbent three-layer dressing providing an effective barrier to bacterial penetration. Consisting of a nanocrystalline silver-coated wound contact layer, a white polyurethane foam layer, and a blue waterproof top film layer, the dressing will help maintain a moist wound environment in the presence of exudate. The dressing may be left in place over a wound for up to 7 days.

Indications

For use in light to moderately exuding partial- and full-thickness wounds, including pressure ulcers, diabetic ulcers, partial-thickness burns, and donor sites; may be used over debrided and partial-thickness wounds

Contraindications

- Not for use on patients with a sensitivity to silver
- Not for use on patients during magnetic resonance imaging
- For external use only
- Incompatible with oil-based products, such as petroleum jelly
- May not be compatible with topical antimicrobials
- Incompatible with oxidizing agents (e.g., Eusol) because these can break down the absorbent polyurethane component of the dressing
- Not for contact with electrodes or conductive gels during electronic measurements, for example, electroencephalography and electrocardiography
- Not for use if reddening or sensitization occurs
- Not intended to provide treatment for infected wounds; may be used on infected wounds that are being managed in accordance with institutional clinical protocols for infection abatement as an adjunct to the standard treatment regimen to provide a barrier to bacterial penetration

Application

- Where required, wound cleansing should be performed according to local clinical protocol using sterile water only.
- Choose a dressing that is larger than the wound.
- Remove the ACTICOAT Moisture Control Dressing from the pack using aseptic technique.
- Cut to shape as necessary for awkward areas.
- The dressing shouldn't be moistened before use because it's indicated for use on exuding wounds.
- Place the silver layer in intimate contact with the wound bed, ensuring the entire surface is covered.

- Secure with an appropriate secondary retention dressing.
- ACTICOAT Moisture Control may be used under compression bandages. Cut dressing to the size of the wound, check regularly and change as needed.

Removal

- The dressing may be left in place up to 7 days, but will require earlier changing if a strikethrough of exudate occurs.
- The dressing may adhere if used on lightly exuding wounds. If the dressing isn't easily removed, moisten or soak to assist removal and avoid disruption of the wound.

NEW PRODUCT

ACTICOAT Post-Op

Smith & Nephew, Inc.

How supplied

Pad: 4″ × 4.75″, 4″ × 8″, 4″ × 10″, 4″ × 13.75″

Action

ACTICOAT Post-Op is an absorbent postoperative dressing consisting of a nanocrystalline silver-coated polyurethane layer, a white polyurethane foam pad, and an adhesive coated waterproof polyurethane film layer. ACTICOAT Post-Op provides an effective barrier to bacterial penetration. ACTICOAT Post-Op may be left in place over a wound for up to 7 days. ACTICOAT Post-Op wicks away excess fluid. The sustained release of broad-spectrum ionic silver actively protects the dressing from bacterial contamination. ACTICOAT Post-Op Absorbent delivers 7 days of uninterrupted antimicrobial activity.

Indications

ACTICOAT Post-Op Dressing is indicated for use in light to moderately exuding partial and full thickness wounds, including decubitus ulcers, diabetic ulcers, surgical wounds, first- and second-degree burns, and donor sites. ACTICOAT Post-Op dressing may be used over debrided and partial thickness wounds.

Contraindications

- For external use only
- Not compatible with oil-base products such as petrolatum
- May not be compatible with topical antimicrobials
- Not for use with saline
- Not compatible with oxidizing agents (e.g., EUSOL), as these can break down the absorbent polyurethane component of the dressing
- Avoid contact with electrodes or conductive gels during electronic measurements, for example, EEG and ECG
- Not intended to provide treatment for infected wounds

Precautions

- ACTICOAT Post-Op Dressings may be used on infected wounds that are being managed in accordance with institutional clinical protocols for infection abatement as an adjunct to the standard treatment regimen to provide a barrier to bacterial infection. As with all adhesive products, it should be noted that inappropriate use or too frequent dressing changes, particularly on patients with fragile skin, can result in skin stripping. If reddening or sensitization occurs, discontinue use. ACTICOAT Post-Op should only be used in premature infants (<37 weeks gestation) when clinical benefit outweighs any potential patient risks.

Application

- Where required, wound cleansing should be performed according to local clinical protocol using sterile water only.

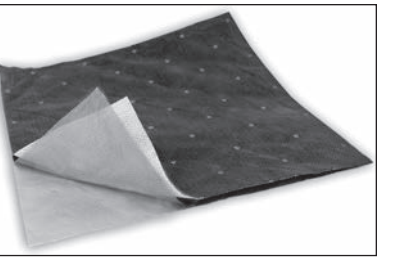
- Choose a dressing where the pad is larger than the wound.
- Remove the dressing from the pack using an aseptic technique.
- It is unnecessary to moisten the dressing prior to use.
- Remove the first release paper. Place the silver layer in intimate contact with the wound bed, ensuring the entire surface is covered.
- Remove the second release paper and smooth the dressing down trying to avoid ridging of the film.
- Remove the top printed carrier marked : "2".
- The dressing should be changed at least every 7 days, but will require earlier changing if a strike-through of exudate occurs.

Removal

- To remove the dressing, lift one corner and slowly stretch the film in a motion that is parallel to the skin.

ACTICOAT 7

Smith & Nephew, Inc.
Wound Management



How supplied

Dressing: 4″ × 5″, 6″ × 6″, 2″ × 2″; A9270

Action

ACTICOAT 7 (with Nanocrystals) consists of two layers of an absorbent, rayon/polyester inner core sandwiched between three layers of silver-coated, polyethylene netting. The sustained release of broad-spectrum ionic silver actively protects the dressing from bacterial contamination, whereas the inner core maintains the moist environment needed for wound healing. ACTICOAT 7 delivers 7 days of uninterrupted antimicrobial activity.

Indications

An effective barrier to bacterial penetration; may help reduce infection in partial- and full-thickness wounds, including decubitus ulcers, venous stasis ulcers, diabetic ulcers, first- and second-degree burns, and donor sites; may be used over debrided and grafted partial thickness wounds

Contraindications

- Not for use on patients with a sensitivity to silver
- Not for use on patients during magnetic resonance imaging (MRI) examination
- For external use only
- Avoid contact with electrodes or conductive gels during electronic measurements, for example, EEG and ECG
- Avoid exposure to temperatures above 50°C; protect from light
- Not for use if product color isn't uniform
- Not for use if pack is opened or damaged

Application

- Follow standard protocol to cleanse wound; don't use oil-based cleansing agents. Where required, wound cleansing should be performed according to local clinical protocol using sterile water only.

For heavily exudative wounds

- Remove the ACTICOAT 7 dressing from the package and cut to size.
- Apply the dry ACTICOAT 7 dressing to the wound, either side down, as the exudate will be sufficient to activate the dressing.
- Cover the ACTICOAT 7 dressing with an absorbent secondary dressing.
- Complete the dressing with appropriate gauze wrappings if necessary.

For all other wounds

- Remove the ACTICOAT 7 dressing from the package and cut to shape.
- Moisten the dressing with sterile water (don't use saline).
- Allow the dressing to drain on an absorbent surface in a sterile field for at least 2 minutes.
- Apply the ACTICOAT 7 dressing to the wound surface, either side down.

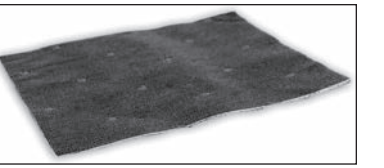
- Cover the dressing with a moist absorbent secondary dressing that may be prepared by saturating gauze with sterile water and wringing out the excess water.
- Complete the dressing with appropriate gauze wrappings if necessary.

Removal

- If the dressing dries and adheres to the wound, moisten or soak the dressing prior to removal.
- Change the dressing depending on the amount of exudate present and the condition of the wound. Avoid using oil-based cleansing agents. The dressing may be worn for up to 7 days.
- Remove the secondary dressing, and then remove ACTICOAT 7 from the wound bed. Make sure the dressing is moist before removing it.
- Avoid forceful removal of the dressing and disruption of the healing wound.
- Keep in mind that the dressing may cause transient discoloration.

ACTICOAT 3

Smith & Nephew, Inc.
Wound Management



How supplied

Dressing: 2″ × 2″, 4″ × 4″, 5″ × 5″, 4″ × 8″, 8″ × 16″, 16″ × 16″, 4″ × 48″; A9270

Action

ACTICOAT 3 (with Nanocrystals) consists of a rayon/polyester core that helps manage moisture level. The sustained release of broad-spectrum ionic silver actively protects the dressing from bacterial contamination, whereas the inner core maintains the moist environment needed for wound healing. ACTICOAT 3 delivers 3 days of uninterrupted antimicrobial activity.

Indications

An effective barrier to bacterial penetration; may help reduce infection in partial- and full-thickness wounds, including decubitus ulcers, venous stasis ulcers, diabetic ulcers, first- and second-degree burns, and donor sites; may be used over debrided and grafted partial-thickness wounds

Contraindications

- Not for use on patients with sensitivity to silver
- Not for use on patients during magnetic resonance imaging (MRI) examination
- For external use only
- Avoid contact with electrodes or conductive gels during electronic measurements; for example, EEG and ECG
- Not for exposure to temperatures above 50°C; protect from light
- Not for use if product color isn't uniform
- Not for use if pack is opened or damaged

Application

- Follow standard protocol to cleanse wound; don't use oil-based cleansing agents. Where required, wound cleansing should be performed according to local clinical protocol using sterile water only.

For heavily exudative wounds

- Remove the ACTICOAT 3 dressing from the package and cut to size.
- Apply the dry ACTICOAT 3 dressing to the wound, either side down, as the exudate will be sufficient to activate the dressing.
- Cover the ACTICOAT 3 dressing with an absorbent secondary dressing.
- Complete the dressing with appropriate gauze wrappings if necessary.

For all other wounds

- Remove the ACTICOAT 3 dressing from the package and cut to shape.
- Moisten the dressing with sterile water (don't use saline).
- Allow the dressing to drain on an absorbent surface in a sterile field for at least 2 minutes.
- Apply the ACTICOAT 3 dressing to the wound surface, either side down.

- Cover the dressing with a moist absorbent secondary dressing that may be prepared by saturating gauze with sterile water and wringing out the excess water.
- Complete the dressing with appropriate gauze wrappings if necessary.

Removal

- Change the dressing depending on the amount of exudate present and the condition of the wound. Avoid using oil-based cleansing agents. The dressing may be worn for up to 3 days.
- Remove the secondary dressing, and then remove ACTICOAT 3 from the wound bed. Make sure the dressing is moist before removing it.
- Avoid forceful removal of the dressing and disruption of the healing wound.
- Keep in mind that the dressing may cause transient discoloration.

Algidex Ag

DeRoyal

How supplied

Foam Back: 2″ × 2″, 4″ × 4″; A6209
4″ × 5″, 6″ × 6″; A6210
8″ × 8″; A6211
Thin Sheet: 2″ × 2″, 4″ × 4″; A6196
4″ × 8″, 6″ × 6″; A6197
8″ × 8″, 8″ × 16″, 16″ × 16″; A6198
Paste: 10 cc; A6261

Action

Algidex Ag provides slow, extended release of active ionic silver for broad antimicrobial effectiveness. The unique matrix formulation of silver, alginate, and maltodextrin allows Algidex Ag to absorb wound exudates, decrease surface wound contaminates, decrease wound odor, and create a moist environment conducive to healing. The maltodextrin creates an environment that helps the body's own cells to carry out the task of granulation tissue formation while eliminating wound odor. Algidex Ag isn't absorbed systemically.

Indications

For use in infected and noninfected wounds of all types; dermal ulcers (leg ulcers, pressure ulcers); diabetic ulcers; abdominal wounds; superficial wounds; lacerations, cuts, and abrasions; donor sites; second-degree burns; and dry, moist, or wet wounds

Contraindications

- Not for use on third-degree burns
- Not for use on ulcers resulting from infections
- Contraindicated for lesions associated with active vasculitis
- Contraindicated for patients with sensitivity to alginates

Application

For Algidex Ag Foam

- Thoroughly cleanse wound with normal saline.
- Apply Algidex Ag with silver matrix touching the wound.
- Secure dressing in place with retention dressing such as gauze, transparent film, or tape.
- Algidex Ag is antimicrobial for up to 7 days and may be worn until dressing has reached saturation.

For Algidex Ag Thin Sheet

- Thoroughly cleanse wound with normal saline.
- Remove backing from Algidex Ag Thin Sheet.
- Place Algidex Ag Thin Sheet over shallow wounds, or pack into deep wounds.
- Cover with appropriate secondary dressing based on wound drainage.
- Algidex Ag Thin Sheet is antimicrobial for up to 7 days and may be worn until secondary dressing requires changing.

For Algidex Ag Paste

- Thoroughly cleanse wound with normal saline.
- Apply 1/4″ thickness of paste to shallow wounds, or completely fill deep wounds.
- Cover with appropriate secondary dressing based on wound drainage.
- Algidex Ag Paste is antimicrobial for up to 7 days and may be worn until secondary dressing requires changing.

Removal

For Algidex Ag Foam

- Remove retention dressing, if applicable.
- Gently lift Algidex Ag from the wound. If dressing adheres to wound, gently irrigate with saline to help loosen dressing.
- Discard according to institutional policy.
- Once dressing is removed, thoroughly cleanse wound with normal saline to remove any residue or debris from the wound.

For Algidex Ag Thin Sheet or Paste

- Remove secondary dressing.
- Gently irrigate wound with saline to help loosen Algidex Ag.
- Continue to thoroughly cleanse wound to remove wound drainage or any residue left from Algidex Ag.

NEW PRODUCT

Algidex Ag I.V. Patch

DeRoyal

How supplied

I.V. patch: 3/4″ disc w/2 mm opening; A6209
1″ disc w/4 mm opening; A6209
1″ disc w/7 mm opening; A6209
1″ disc w/4 mm opening (with insert); A6209
1 1/2″ disc w/7 mm opening; A6209

Action

Algidex Ag I.V. patch is an effective bacterial barrier that helps to prevent catheter-related infections. It is an ideal dressing for intravenous catheters, tube sites, or external fixator pin sites. With a unique combination of silver, alginate, and maltodextrin, Algidex Ag I.V. patch provides immediate and sustained antimicrobial activity against a broad spectrum of pathogens without inducing bacterial resistance. The antimicrobial activity remains effective for up to 7 days.

Indications

Algidex Ag I.V. patch is indicated for dialysis catheters, central venous lines, arterial catheters, external fixator pins, epidural catheters, peripheral I.V. catheters, gastrostomy feeding tubes, and nonvascular percutaneous devices.

Contraindications

- Not for use on third-degree burns
- Contraindicated for patients with sensitivity to alginates

Application

- May be applied immediately following initial catheter placement or during routine catheter dressing change.
- Apply Algidex Ag I.V. Patch with dark side touching the catheter and skin.
- Secure patch in place with retention dressing such as gauze, transparent film, or tape.
- Patch may be worn up to 7 days.

Removal

- Remove retention dressing, if applicable.
- Lift Algidex Ag I.V. Patch from the catheter and gently wipe any Algidex matrix residue during routine dressing change, using saline or antiseptic skin prep as stated in the institutional procedural guidelines.
- Discard according to institutional policy.

NEW PRODUCT

Algidex Ag Packing Gauze

DeRoyal

How supplied

Algidex Ag Packing Gauze: $^1/_2$″ × 5 yd; A6407
Algidex Ag Packing Gauze: $^1/_4$″ × 5 yd; A6407

Action

Algidex Ag provides slow, extended release of active ionic silver for broad antimicrobial effectiveness. The unique matrix formulation of silver, alginate, and maltodextrin allows Algidex Ag to absorb wound exudates, decrease surface wound contaminates, decrease wound odor, and create a moist environment conducive to healing. The maltodextrin creates an environment that helps the body's own cells to carry out the task of granulation tissue formation while eliminating wound odor. Algidex Ag isn't absorbed systemically. The gauze strips are perfect for packing deeper wounds.

Indications

Algidex Ag Packing Gauze is used for the management of "deeper" wounds that require packing such as tunneling or undermining wounds (pressure ulcers, venous ulcers, diabetic ulcers, and surgical wounds).

Contraindications

None provided by the manufacturer

Application

- Thoroughly cleanse wound with normal saline.
- Remove appropriate amount of packing gauze from bottle.
- Completely fill wound with packing gauze (lightly packing).
- Cover with appropriate secondary dressing such as gauze, hydrocolloid, foam, or film dressing. Secondary dressing selection should be based on the amount of wound drainage.
- Dressing may be worn up to 5 days or until cover dressing reaches saturation.

Removal

- Remove secondary dressing.
- Gently remove packing gauze.
- Thoroughly cleanse wound to remove wound drainage or residue from Algidex Ag.
- Reapply as necessary following directions above.

NEW PRODUCT

Algidex Ag Tracheostomy Dressing

DeRoyal

How supplied

Dressing: 2″× 2″, pre-cut; A6209
4″× 4″, pre-cut; A6209

Action

Algidex Ag provides slow, extended release of active ionic silver for broad antimicrobial effectiveness. The unique matrix formulation of silver, alginate, and maltodextrin allows Algidex Ag to absorb wound exudates, decrease surface wound contaminants, decrease wound odor, and create a moist environment conducive to healing. The maltodextrin creates an environment that helps the body's own cells to carry out the task of granulation tissue formation while eliminating wound odor. Algidex Ag isn't absorbed systemically.

Indications

Algidex Ag Tracheostomy Dressings are for use in the treatment of wounds associated with tracheostomy, other intubation, and cannula sites. Additional uses may include nonvascular percutaneous devices such as external fixator pins, peritoneal dialysis catheters, and other tube sites.

Contraindications

- Not for use on third-degree burns
- Contraindicated for patients with sensitivity to alginates

Application

- Clean the site according to institutional policy and procedures. Prepare and clean the skin surrounding the tracheostomy tube to remove excess moisture.
- Remove the Algidex Ag Tracheostomy Dressing, locate the pre-cut opening and position it around the stoma or tracheostomy tube. Apply with the silver side (dark side) toward the patient.
- If needed, the dressing may be cut to shape or size.
- If additional fixation is required, transparent film dressings or tape may be used to help secure the dressing.
- The tracheostomy site should be inspected frequently during the early stages of treatment to ensure skin integrity and clear airway. The dressing can be left in place undisturbed for up to 7 days, or until the foam pad becomes saturated with exudates.

Removal

- Remove retention dressing, if applicable.
- Lift the Algidex Ag Tracheostomy Dressing from around the tube and discard according to institutional policy.

NEW PRODUCT

ALLEVYN Ag

ALLEVYN Ag Adhesive

ALLEVYN Ag Gentle

ALLEVYN Ag Gentle Border

Smith & Nephew

How supplied

Non-Adhesive:	4″ × 4″; A6209
	6″ × 6″; A6210
Adhesive:	3″ × 3″; A6212
	5″ × 5″; A6212
Gentle:	4″ × 4″; A6209
	6″ × 6″; A6210
Gentle Border:	3″ × 3″; A6212
	5″ × 5″; A6212

Action

ALLEVYN Ag dressings have a unique tri-laminate structure made up from a non-adherent perforated polyurethane wound contact layer, a soft and highly absorbent central hydrocellular layer, and an outer film layer that is both bacteria-proof and waterproof. ALLEVYN Ag dressings employ all the proven benefits of moist wound healing, without any breakdown of the dressing caused by contact with exudate. These dressings absorb and retain exudate and cellular debris, ensuring minimal mess at dressing changes. ALLEVYN Ag dressings have been engineered to release bactericidal levels of silver sulfadiazine (SSD) for up to 7 days that may help prevent and protect wounds from bacteria penetration. The perforated wound contact layer allows even viscous exudate to pass into the dressing. The hydrocellular core of the dressing absorbs and retains liquid in its microscopic structure. The breathable outer surface of the dressing allows excess moisture to evaporate away from the dressing. Safe, but effective bactericidal amounts of SSD are released as bacteria and exudate are absorbed, providing a sustained antibacterial protection against a broad range of bacteria.

Indications

ALLEVYN Ag, ALLEVYN Ag Adhesive, ALLEVYN Ag Gentle, and ALLEVYN Ag Gentle Border are indicated for chronic and acute, full-thickness or partial-thickness or granulating, exuding wounds, including leg ulcers, pressure ulcers, diabetic foot ulcers, donor sites, surgical wounds, infected wounds, malignant wounds, first- and second-degree burns

Contraindications

- Not for use on patients known to be hypersensitive to silver sulfadiazine, silver or sulfonamides
- Not for use on females who are at or near term pregnancy or lactating, on premature infants, or on newborn infants during the first months of life, as sulfonamides are known to cause kernicterus

- Not for use with oxidizing agents such as hypochlorite solutions (e.g., Dakin's) or hydrogen peroxide, as these can break down the absorbent hydrocellular component of the dressing

Application

ALLEVYN Ag Adhesive or Non-Adhesive

- Select a dressing size that will cover the wound and leave approximately a 1/2" margin around the wound.
- Cleanse the wound and the periwound skin with Dermal Wound Cleanser or normal saline.
- Apply SKIN-PREP or NO-STING SKIN-PREP and allow it to dry.
- Peel back the protector papers and anchor the dressing over the wound.
- Smooth the dressing into place, ensuring that the edges of the dressing are not wrinkled.
- Position dressing over the wound and secure it with tape or a bandage.

ALLEVN Ag Gentle or ALLEVYN Ag Gentle Border

- Cleanse the wound and surrounding skin with DERMAL Wound Cleanser or normal saline.
- Prepare and cleanse the periwound area removing excess moisture. A skin protectant may not be necessary with the ALLEVYN Gentle dressings.
- Select a dressing that allows at least a 1/2" margin onto the skin around the wound.
- Remove the protector material from and apply the white, adherent side to the wound, ensuring good contact.
- Secure ALLEVYN Gentle with a secondary dressing.

Removal

- To remove, gently lift the dressing away from the wound.

Arglaes Antimicrobial Barrier

Medline Industries, Inc.

How supplied

Film dressing: 2 3/8″ × 3 1/8″
4″ × 4 3/4″
3″ × 14″ (postop)

Film with Alginate pad: 2 3/8″ × 3 1/8″ (1″ × 2″ pad)
4″ × 4 3/4″ (2″ × 2″ pad)
4 3/4″ × 10″ (2 3/4″ × 8″ pad)

Action

Arglaes Antimicrobial Barrier applies the principle of moist wound healing and also serves as a potent antimicrobial barrier that remains effective for 7 days. Arglaes technology uses sustained release of ionic silver that's antibacterial and antifungal but remains completely noncytotoxic. Arglaes Antimicrobial Barrier has a high moisture vapor transfer rate and is available as a transparent film dressing, with or without an alginate pad.

Indications

To manage superficial wounds, lacerations, cuts, and abrasions, leg ulcers, pressure ulcers (stages 2, 3, and 4), donor sites, partial- and full-thickness wounds, infected and noninfected wounds, wounds with light to heavy drainage, and wounds with serosanguineous or purulent drainage

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with hypersensitivity to silver

Application

- Clean the application site with normal saline solution or another appropriate cleanser, such as Skintegrity Wound Cleanser. Dry the surrounding skin to ensure it's free from any greasy substance. Allow any skin preparation to dry completely.
- Select an appropriate-sized dressing that allows 1 1/4″ to 1 1/2″ (3 to 4 cm) of attachment to healthy periwound skin.
- With one hand, hold the dressing's white tab with the printed side facing up. With the other hand, take hold of the loose film flap, and gently peel off the release sheet.
- Hold the dressing on both ends, then turn it over so the adhesive surface is facing the wound. Ensure that both edges of the white tab are held together.
- Apply the dressing, pressing firmly and smoothing down. Make sure the edges of the dressing are firmly fixed in place.
- Take hold of the second release sheet at the end of the dressing opposite the white tab, and gently peel away and discard.
- For moderately to heavily draining wounds, use the O-Technique. It involves cutting small openings into the dressing before removing the carrier sheet.

Excess drainage is allowed to pass through the dressing onto an absorbent secondary dressing. The technique is also helpful when using Arglaes under a compression dressing.

Removal

- Gently lift up one corner of the dressing, and begin stretching it horizontally along the skin surface to break the adhesive bond.
- When two sides of the dressing are partially removed, grasp both sides and stretch the dressing horizontally, parallel to the skin.

Arglaes Antimicrobial Barrier Powder Dressing

Medline Industries, Inc.

How supplied

Bottle: 2 g, 5 g, 10 g, in sterile packaging; A6262

Action

Arglaes Antimicrobial Barrier Powder Dressing is a sterile, single-use alginate powder containing ionic silver, making it ideal for difficult to dress, highly exuding wounds. Using controlled-release polymers that are activated by moisture, Arglaes Powder delivers a constant stream of antimicrobial silver ions. Continuous delivery, at a constant rate, means that only minute quantities of silver ions are required to maintain a continuous antimicrobial barrier without cytotoxicity. The sustained-release effect remains constant until Arglaes Powder is removed from the wound site (up to 5 days). In addition, Arglaes Powder contains alginate to aid in fluid handling. As the powder mixes with wound exudate, it turns into a gel that adheres to the wound bed and is easily removed during wound irrigation. Arglaes Powder has been shown to be effective against a broad range of fungi, gram-positive, and gram-negative bacteria, including *S. aureus, Pseudomonas aeruginosa, Escherichia coli, Candida albicans, Aspergillus niger*, methicillin-resistant *S. aureus,* and vancomycin-resistant *Enterococcus*.

Indications

To manage infected or noninfected wounds, such as pressure ulcers, arterial ulcers, venous ulcers, diabetic ulcers, donor sites and other bleeding surface wounds, dermal lesions, trauma injuries or incisions, and minor burns

Contraindications

- Not intended for surgical implantation
- Not intended for use on third-degree burns
- Not intended for use on patients with sensitivity to silver
- Not for use with topical antibiotics or antiseptics

Application

- Clean the wound site with sterile saline or appropriate wound cleanser such as Skintegrity Wound Cleanser.
- One 10-g bottle of Arglaes Powder is sufficient to dress a wound area of up to 4″ × 4″ (10 cm × 10 cm).
- Gently dry the surrounding area.
- Shake bottle thoroughly, then open Arglaes Powder by removing the tamper-evident collar and screw cap.
- Apply the dressing by squeezing the bottle (gently tap bottle if flow is blocked) and "puffing" the powder into the wound bed. Apply until wound surfaces are completely covered to a depth of not less than 1 mm.
- Cover site with an appropriate secondary dressing. Heavily exuding wounds may require a more absorbent secondary dressing, such as Maxorb Alginate covered with a Stratasorb Composite Island Dressing.

- Arglaes Powder should be changed when the secondary dressing is wet or if there is any sign of leakage. Heavily draining wounds may require more than one change per day. Dressing may remain in place up to 5 days.

Removal

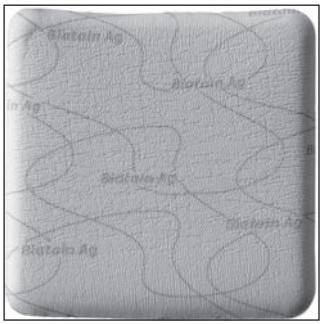
- To remove Arglaes Powder, gently lift and discard the secondary dressing. Irrigate the wound thoroughly with normal saline or appropriate wound cleanser, such as Skintegrity Wound Cleanser. Continue irrigating until all gelled or ungelled powder is removed.
- Redress the wound as appropriate.

NEW PRODUCT

Biatain Ag Adhesive Foam Dressing

Biatain Ag Non-Adhesive Foam Dressing

Coloplast Corp.



How supplied

Adhesive foam dressing:	5″ × 5″; A6212
	7″ × 7″; A6213
Sacral dressing:	9″ × 9″; A6213
Heel dressing:	7 1/2″ × 8″; A6212
Non-Adhesive foam dressing:	4″ × 4″; A6209
	6″ × 6″; A6210

Action

Biatain Foam combines an effective, sustained silver-release technology with moist wound healing to effectively prepare problem wounds for healing. Biatain Foam Non-Adhesive and Adhesive Dressings are antibacterial wound dressings with ionic silver as the active component homogeneously dispersed throughout the foam. Silver is released from the dressing into the wound bed when in contact with wound exudate. Depending on the amount of exudate, the release will continue for up to 7 days.

Indications

To manage wounds with moderate to high amounts of exudate or with a risk for infection; to progress wounds that exhibit delayed healing due to bacteria

Contraindications

- Contraindicated in patients with sensitivity to silver
- Must be removed before radiation treatment or examinations that include X-rays, ultrasonic treatment, diathermy, or microwaves

Application

- Rinse the wound with physiologic saline or Sea-Clens Wound Cleanser. Gently dry the skin surrounding the wound.
- Select a dressing that overlaps the wound edge by a minimum of 1″ (2.5 cm).
- Remove the paper carrier from the dressing, center the dressing over the site, and apply to skin.
- Use tape or appropriate secondary dressing to hold in place.

Removal

- Dressing should be changed when clinically indicated or when visible signs of transparency approach 3/4″ (2 cm) from the edge of the dressing.
- Dressing may be left in place for up to 7 days, depending on the condition of the wound.

NEW PRODUCT

DermaGinate Ag

DermaRite Industries

How supplied

Dressings: 2″ × 2″, 4.25″ × 4.25″
Rope: 12″

Action

DermaGinate Ag is a sterile nonwoven dressing of calcium-sodium alginate fiber mixed with ionic silver, which is designed to promote and maintain a moist wound healing environment. The fibers absorb up to 17 times their weight in fluid to form a firm viscous gel-fiber material, while the ionic silver prevents microbial growth at the surface level.

Indications

To manage infected and noninfected wounds, pressure ulcers, venous ulcers, and diabetic ulcers as well as partial- and full-thickness wounds, dermal lesions, tunneling wounds, painful wounds, and wounds with moderate to heavy exudate

Contraindications

- Contraindicated for nonexuding and lightly exuding wounds
- Not for use on third-degree burns
- Contraindicated for those individuals with known sensitivity to silver and/or calcium alginate materials

Application

- Cleanse the wound with sterile water only! No saline or wound cleansers are to be used.
- Pat dry surrounding area.
- Apply dressing to the wound surface or, if the wound is deep and/or tunneled, gently and lightly pack the wound with the DermaGinate.
- Cover with secondary absorbent dressing of choice.

Removal

- Gently remove secondary dressing.
- If fibers are sticking to wound base, irrigate with sterile water to loosen fibers, then lift the dressing.
- Irrigate the wound liberally to ensure all fibers are removed.

NEW PRODUCT

Dermanet Ag+

DeRoyal

How supplied

Dressing: 2″ × 2″, 4″ × 4″; A6206
4″× 8″, 6″ × 6″; A6207
8″ × 8″, 8″ × 16″; A6208

Action

Dermanet Ag+ is a combination of Dermanet wound contact layer and Algidex Ag Silver Technology. Dermanet is an inert, nonadherent material that helps to shield and protect fragile granulation tissue. It helps to reduce trauma and pain that can be caused during dressing changes. Algidex Ag technology is a unique formulation of ionic silver combined in an alginate and maltodextrin matrix. Algidex Ag provides immediate and extended release of active ionic silver for broad antimicrobial effectiveness and helps to prevent contamination from external bacteria. Algidex Ag decreases surface wound contaminates, decreases wound odor, and creates a moist environment conducive to healing. The maltodextrin creates an environment that helps the body's own cells to carry out the tasks of granulation tissue formation while eliminating wound odor.

Indications

Dermanet Ag+ can be used on infected and non-infected wounds, including dermal ulcers (e.g., leg ulcers, pressure ulcers), diabetic ulcers, abdominal wounds, superficial wounds, lacerations, cuts, abrasions, donor sites, and burn wounds. The unique formulation can be used on dry, moist, or wet wounds.

Contraindications

- Not for use on third-degree burns
- Not for use on ulcers resulting from infections
- Contraindicated for lesions associated with active vasculitis
- Contraindicated for patients with sensitivity to alginates

Application

- Thoroughly cleanse wound.
- Remove Dermanet Ag+ from the backing material.
- Place Dermanet Ag+ over shallow wounds or pack into deep wounds.
- Cover with appropriate secondary dressing based on wound drainage.
- Dermanet Ag+ can be worn up to 5 days or until the secondary dressing is saturated and requires changing.

Removal

- Remove secondary cover dressing.
- Gently remove Dermanet Ag+ from wound.
- Irrigate wound with saline as needed to help loosen dressing.
- Continue to thoroughly cleanse wound to remove wound drainage or any residue left by the Dermanet Ag+.

NEW PRODUCT

Dermanet Ag+ Border

DeRoyal

How supplied

Dressing: 4″ × 4″; 46-DB44
4″ × 6″; 46-DB46
4″ × 8″; 46-DB48
4″ × 10″; 46-DB410
4″ × 14″; 46-DB14

Action

Dermanet Ag+ Border is a combination of Dermanet Ag and Transeal polyurethane dressing. The Dermanet Ag+ is "Island Placed" in the center of Transeal and is the perfect dressing for surgical incisions, lacerations, and vascular access sites. The Dermanet Ag+ "Island" creates an antimicrobial, nonadherent surface that will not adhere to sutures or staples while the Transeal holds the dressing securely in place and provides a breathable barrier to external contaminants. Additionally, the dressing is transparent, which provides for easy inspection of the wound, surgical site, or vascular access site.

Indications

For the management of surgical site incisions, lacerations, and vascular access sites

Contraindications

- Not for use on third-degree burns
- Not for use on ulcers resulting from infections
- Contraindicated for lesions associated with active vasculitis
- Contraindicated for patients with sensitivity to alginates

Application

- Thoroughly cleanse wound.
- Peel release liner from center of dressing while aligning the Dermanet Ag+ center over the site.
- Press dressing into place.
- Remove the "Top Clear Carrier Film" by lifting away at the tab.

Removal

- Gently grasp a corner on the edge of the dressing and slowly pull the dressing from the skin in the direction of hair growth.

NEW PRODUCT

DermaSyn Ag

DermaRite Industries, LLC

How supplied

42 g (1.5 oz) tube

Action

DermaSyn Ag is a hydrogel wound filler with ionic silver that promotes a moist wound healing environment and to manage microbial load at the surface level.

Indications

To manage partial- and full-thickness wounds; skin tears; venous ulcers; arterial ulcers; diabetic ulcers; surgical wounds; first- and second-degree burns; pressure ulcers stages 2, 3, and 4; and infected, noninfected, and painful wounds

Contraindications

- Not for use on third-degree burns
- Not for use on heavily draining wounds

Application

- Cleanse the wound with sterile water—no saline or wound cleansers!
- Apply a thin layer of the DermaSyn Ag directly on the wound bed and cover with a moisture sparing secondary dressing of choice.

Removal

- Gently remove the secondary dressing. Irrigate the wound with sterile water and reapply the dressing as ordered.

NEW PRODUCT

Elta SilverGel

Elta SilverGel Impregnated Gauze Dressing

SteadMed Medical

How supplied

Gel: 1 oz bellows, 1.5 oz tube, 8 oz jar, 16 oz jar; A6248
Impregnated Gauze Dressing: 2″ × 2″, 4″ × 4″; A6248

Action

Elta SilverGel, Elta's Clear Antimicrobial Skin and Wound Gel, releases silver as demanded by the bioburden of the wound. Tested to kill for at least 3 days, Elta's SilverGel is completely clear, allowing clinical observation of the wound bed. Elta SilverGel can be safely used with all standard forms of wound cleansers, including saline-based products.

Indications

For OTC use on minor burns, superficial cuts, lacerations, abrasions and minor irritations of the skin. Under the supervision of a healthcare professional, it is indicated for pressure ulcers, venous stasis ulcers, diabetic ulcers, first- and second-degree burns, skin tears, grafted wounds, donor sites, and surgical wounds where infection exists or threatens.

Contraindications

- Not for use on patients with known sensitivity to silver or on wounds with high amount of exudate

Application

For Gel

- Cleanse wound with wound cleanser.
- Evenly apply approximately $^1/_8$″ to $^1/_4$″ thick to wound area.
- Cover with appropriate dressing.
- Repeat as necessary to keep the wound moist and to deter/prevent infection.

For Impregnated Gauze

- Apply dressing appropriate to the size of the wound bed.
- Cover with an appropriate dressing.

Removal

For Gel

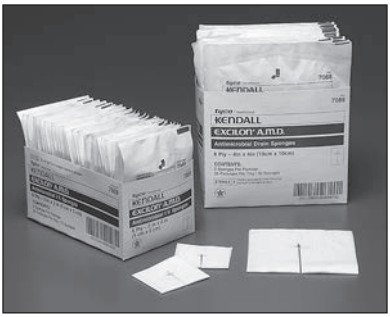
- Spray the wound with wound cleanser to cleanse the wound.

For Impregnated Gauze

- Gently lift the dressing away from the wound. Clean the wound with saline solution or wound cleanser.

Excilon AMD Sponges

Covidien



How supplied

Drain sponge: 4″ × 4″; A6222
I.V. sponge: 2″ × 2″; A6222

Action

Excilon AMD resists bacterial colonization within the dressing and reduces bacterial penetration through the dressing. The broad-spectrum effectiveness of PHMB protects against gram-positive and -negative microorganisms, including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), as well as yeast and fungi. Superior absorbency and fast wicking action help to lead to fewer dressing changes. The unique precut T-Slit conforms snugly.

Indications

To protect against bacteria, yeast, and fungi while managing drains, catheters, chest tubes, I.V. sites, and tracheotomies

Contraindications

- A known sensitivity to PHMB
- Dakin's solution

Application

- Apply Excilon AMD Sponges as a primary dressing.

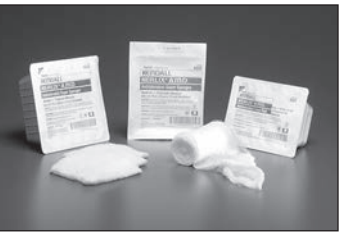
Removal

- Gently remove dressing.

Kerlix AMD Rolls

Kerlix AMD Super Sponges

Covidien



How supplied

Bandage roll: 4.50 × 4.1 yards (1 per tray)
Super sponge: Medium (2, 5, or 10 per tray)

Action

Help protect against methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus* (VRE) infections, and other wound infections with no change to protocol. Kerlix AMD bandage rolls and super sponges resist bacterial colonization within the dressing and help prevent bacterial penetration through the dressing. Broad-spectrum effectiveness of PHMB provides protection against gram-positive and -negative microorganisms, including fungi and yeast. Kerlix AMD rolls also help to limit cross-contamination from patient to patient, patient to clinician, and patient to the environment.

Indications

As a primary or secondary dressing to manage pressure ulcers (stages 2 to 4); partial- and full-thickness wounds; tunneling wounds; infected and noninfected wounds; draining wounds; and red, yellow, or black wounds

Contraindications

- A known sensitivity to PHMB
- Dakin's solution

Application

- Apply Kerlix AMD rolls as a primary or secondary dressing: if used as a primary dressing keep moist.

Removal

- Gently remove the dressing.

NEW PRODUCT

Maxorb Extra Ag Antimicrobial Silver CMC/Alginate Dressing

Medline Industries, Inc.

How supplied

Pad: 2″ × 2″; A6196
4″ × 8″; 4″ × 4.75″, 6″ × 6″; A6197
8″ × 12″; A6198
Rope: 1″ × 12″ (2 g); A6199

Action

Maxorb Extra Ag CMC/Alginate Dressing's nonwoven alginate and carboxymethylcellulose fiber combination reacts with wound exudate to form a gel, providing a moist healing environment. The added presence of carboxymethylcellulose in Maxorb improves the wicking and fluid-handling ability of this dressing and increases wet strength. Because the product doesn't wick exudate laterally, it reduces the potential for damage to delicate periwound tissue. Exposure to wound exudate dissolves the silver and stimulates the release of silver ions. As more fluid is absorbed over time, more silver ions are released, creating a controlled-release antimicrobial effect. Maxorb Extra Ag is biocompatible, nonirritating, nonsensitizing, nonstaining, and will not harm new granulation tissue.

Indications

To manage partial- and full-thickness wounds with moderate to heavy exudate, including venous stasis ulcers, pressure ulcers (stages 2 to 4), arterial ulcers, diabetic ulcers, donor sites, lacerations, abrasions, postsurgical incisions, and second-degree burns; may also be used for infected and noninfected wounds, tunneling wounds, and wounds with serosanguineous or purulent drainage

Contraindications

- Contraindicated for third-degree burns
- Not intended for use as a surgical sponge

Application

- Clean the wound with normal saline solution or an appropriate wound cleanser, such as Skintegrity Wound Cleanser.
- Apply the dressing to a moist wound bed. The dressing doesn't need to be trimmed to fit the wound bed because it won't wick fluid laterally. Loosely pack deep or tunneling wounds.
- Cover the dressing with an appropriate secondary dressing, such as Stratasorb Composite Dressing.

Removal

- Change the dressing when strike-through to the secondary dressing occurs. Maxorb may be left in place up to 21 days.
- The gelatinous pad may be easily lifted away in one piece from the wound bed, making dressing changes easier.

- Remove the secondary dressing as well as gelled and nongelled Maxorb dressing.
- Irrigate the wound with normal saline solution or another appropriate solution, such as Skintegrity Wound Cleanser, to remove any remaining gel.
- If the dressing is dry at the time of removal, moisten it with saline or wound cleanser before removing it. This may indicate the need to consider replacing this type dressing with a moistening, hydrogel product instead.

NEW PRODUCT

Melgisorb Ag Antimicrobial Alginate Dressing

Mölnlycke Health Care

How supplied

Pad: 2″ × 2″, 4″ × 4″; A6196
6″ × 6″; A6197
8″ × 12″; A6198

Rope: 1.2″ × 18″; A6199

Action

Melgisorb is a highly absorbent antimicrobial alginate dressing containing an ionic silver complex that releases silver ions in the presence of wound fluid. As wound fluid is absorbed, the alginate forms a gel, which assists in maintaining a moist environment for optimal wound healing. The silver ions protect the dressing from a broad spectrum of microorganisms over a period of up to 14 days.

Indications

To manage wounds with moderate to heavy exudate, surgical wounds, trauma injuries, leg ulcers, pressure ulcers, diabetic and neuropathic ulcers, graft and donor sites, critically colonized wounds, and partial thickness burns. Melgisorb Ag may also be used under compression bandages.

Contraindications

- Contraindicated for dry wounds
- Do not use on individuals known to have sensitivity to silver or alginates
- Not recommended for surgical implantation

Application

- Debride when necessary and irrigate the wound site in accordance with standard protocols. Dry the surrounding skin.
- Apply Melgisorb Ag dry to a moist wound bed. For shallow wounds, choose the correct size of the flat dressing to cover the entire wound. For deep or tunneling wounds, choose and cut an appropriate length of rope and pack loosely.
- Cover and secure Melgisorb Ag with a nonocclusive secondary dressing.

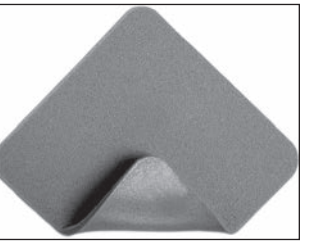
Removal

- Gently flush the wound with normal saline solution or another appropriate solution. Any non-gelled Melgisorb Ag can be moistened with saline and removed.

NEW PRODUCT

Mepilex Ag Antimicrobial Foam Dressing

Mölnlycke Health Care



How supplied

Dressing: 4″ × 4″; A6209
4″ × 8″, 6″ × 6″; A6210
8″ × 8″, 8″ × 20″; A6211

Action

Mepilex Ag consists of a Safetac (soft silicone) technology wound layer, a grey absorbent polyurethane foam pad containing a silver compound, activated carbon, and a vapor permeable and waterproof film. It effectively absorbs wound exudate, maintains a moist wound healing environment, and releases silver ions to inactivate a wide range of wound-related pathogens within 30 minutes. The Safetac technology layer minimizes the risk of periwound maceration and allows for atraumatic dressing changes. Mepilex Ag may be used under compression bandages and may also be cut to size.

Indications

For the management of moderately exuding wounds such as leg and foot ulcers, pressure ulcers, partial thickness burns, and graft and donor sites. The silver sulfate in the dressing helps reduce microbial colonization on the dressing.

Contraindications

- Not for use on patients with known sensitivity to silver
- Not for use during radiation treatments or examinations
- Avoid contact with electrodes or conductive gels during electronic measurements
- Do not use with oxidizing agents

Application

- Cleanse or flush the wound with normal saline solution or water, then dry the surrounding skin thoroughly.
- Remove the release films and apply the adherent side to the wound. Do not stretch.
- For best results, Mepilex Ag should overlap dry surrounding skin by at least 2 cm.
- Secure Mepilex Ag with a bandage or other fixation, as needed.

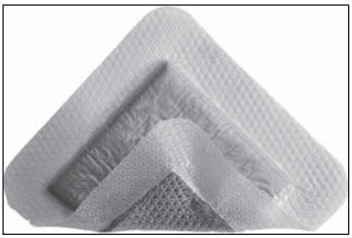
Removal

- Leave Mepilex Ag in place for several days, depending on the condition of the wound and the surrounding skin or facility policy.

NEW PRODUCT

Mepilex Border Ag Antimicrobial Bordered Foam Dressing

Mölnlycke Health Care



How supplied

Dressing: 3″ × 3″, 4″ × 4″; A6212
6″ × 6″; 6″ × 8″; A6213
Post-Op: 4″ × 8″, 4″ × 10″, 4″ × 12″; A6213
Sacrum: 7.2″ × 7.2″, 9.2″ × 9.2″; A6213

Action

Mepilex Border Ag is a self-adhesive antimicrobial foam dressing consisting of a Safetac (soft silicone) technology wound contact layer, an absorbent polyurethane foam pad containing a silver compound and activated carbon, a layer with super absorbent polyacrylate fibers, and a nonwoven and vapor permeable waterproof film. It effectively absorbs wound exudate, maintains a moist wound healing environment, and has antimicrobial properties known to inactivate wound related pathogens for up to 7 days. The Safetac technology layer minimizes the risk of periwound maceration and allows for pain and trauma free dressing changes. Mepilex Border Ag may also be used under compression.

Indications

For the management of exuding wounds such as leg and foot ulcers, pressure ulcers, traumatic and surgical wounds, and superficial and partial thickness burns. The silver sulfate in the dressing helps reduce microbial colonization on the dressing.

Contraindications

- Not for use on patients with known sensitivity to silver
- Not for use during radiation treatments or examinations
- Avoid contact with electrodes or conductive gels during electronic measurements
- Not for use with oxidizing agents

Application

- Cleanse or flush the wound with normal saline solution or water, then dry the surrounding skin thoroughly.
- Remove the release films and apply the adherent side to the wound. Do not stretch.
- For best results, Mepilex Border Ag's wound pad should overlap the wound edges by at least 2 cm.

Removal

- Leave Mepilex Border Ag in place for several days, depending on the condition of the wound and the surrounding skin, or facility policy.

MPM Silvermed Antimicrobial Hydrogel

MPM Medical, Inc.

How supplied

Amorphous Hydrogel tube: 1.5 oz, 3 oz; A6248

Action

MPM Silvermed Hydrogel is an amorphous gel wound dressing designed for use in moist wound care management. Stabilized silver microparticles are immediately activated on contact with wounds to continuously release ionic silver to help reduce infection by bacteriostatic and bacteriocidal action on clinically relevant pathogens. Bioavailable silver binds to and reduces the activity of matrix metalloproteinase (MMPs).

Indications

Under the care of health care professional, appropriate for use in the management of partial- to full-thickness wounds with light to moderate exudate, such as pressure ulcers, diabetic and leg ulcers, skin abrasions, lacerations and tears, first- and second-degree burns, surgical wounds, and grafted wound and donor sites

Contraindications

- Contraindicated in patients who are sensitive to components of the gel

Application

- Cleanse wound with MPM Silvermed Wound Cleanser.
- Spread MPM Silvermed Hydrogel throughout the wound to about ¼″ thickness.
- Cover with nonadherent dressing, preferably waterproof with good vapor transmission rate.

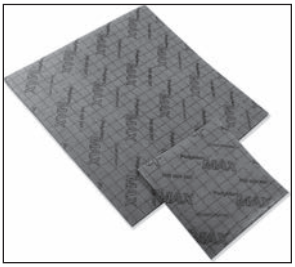
Removal

- Carefully remove secondary dressing.
- Moisten dressing for removal if necessary.
- Cleanse wound with MPM Silvermed Wound Cleanser, and reapply MPM Silvermed Hydrogel according to your facility's protocol.

NEW PRODUCT

PolyMem Max Silver Non-Adhesive Wound Dressings*

Ferris Mfg. Corp



How supplied

Non-Adhesive Silver Dressing pad: 4″ × 4″; A6209
8″ × 8″; A6211

Action

Multifunctional PolyMem Max Silver dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues. PolyMem Silver dressings are recommended when a wound displays delayed healing, signs of infection, increased bioburden, or the patient has infection risk factors (such as contaminated wound, poor nutrition, diabetes, history of infection, etc.).

PolyMem Silver Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix. The membrane pad is covered with a semipermeable continuous thin film backing, which is optimized for oxygen and moisture vapor permeability and is a barrier to liquids. The PolyMem silver formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); absorbing agents; and silver (207 μg/cm^2 minimum), all in the polymeric membrane pad matrix. The silver protects the dressing from microbial contamination. Both the wound cleanser and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 through 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; PolyMem formulation dressings are suitable for use when visible signs of infection are present if proper medical treatment that addresses the cause of the infection has been implemented

Contraindications

- Not for use on patients with demonstrated sensitivity to the dressing

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.

- Select a PolyMem Silver dressing of appropriate size. The silver membrane should be ¼″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem Silver dressings.

Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry when bathing the patient. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exuding wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem Silver dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem Silver dressing.

*See package insert for complete information.

NEW PRODUCT

PolyMem Silver Finger/Toe Dressing*

Ferris Mfg. Corp.

How supplied

#1 Finger Dressing: Ring Size 4-8
#2 Finger Dressing: Ring Size 8-12
#3 Finger Dressing: Ring Size 12-16

Action

Multifunctional PolyMem Silver dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure-related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues. PolyMem Silver dressings are recommended when a wound displays delayed healing, signs of infection, increased bioburden, or the patient has infection risk factors (such as contaminated wound, poor nutrition, diabetes, history of infection, etc.).

PolyMem Silver Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix. The membrane pad is covered with a semi-permeable continuous thin film backing, which is optimized for oxygen and moisture vapor permeability, protects the wound and serves as a barrier to liquids. The PolyMem silver formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); absorbing agents, and silver (124 $\mu g/cm^2$ minimum), all in the polymeric membrane pad matrix. The silver protects the dressing from microbial contamination. Both the wound cleanser and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 through 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; PolyMem formulation dressings are suitable for use when visible signs of infection are present if proper medical treatment that addresses the cause of the infection has been implemented

Contraindications

- Do not use on patients with demonstrated sensitivity to the dressing.

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.

- Select a PolyMem Silver dressing of appropriate size
- Roll onto the finger or toe, with the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem Silver dressings.

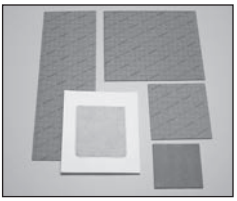
Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry, this may require affixing with a water resistant tape. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exuding wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem Silver dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem Silver dressing.

*See package insert for complete information.

PolyMem Silver Non-Adhesive Wound Dressings*
PolyMem Silver Adhesive Cloth Wound Dressings*

Ferris Mfg. Corp.



How supplied

Non-Adhesive Silver Dressing pad:	4.25″ × 4.25″; A6209 6.5″ × 7.5″ and 4.25″ × 12.5″; A6210
Cloth Adhesive Bordered Silver Dressing:	6″ × 6″ island dressing with 3.5″ × 3.5″ pad; A6212

Action

Multifunctional PolyMem Silver dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure-related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues. PolyMem Silver dressings are recommended when a wound displays delayed healing, signs of infection, increased bioburden, or the patient has infection risk factors (such as contaminated wound, poor nutrition, diabetes, history of infection, etc).

PolyMem Silver Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix. The membrane pad is covered with a semipermeable continuous thin film backing, which is optimized for oxygen and moisture vapor permeability, protects the wound and serves as a barrier to liquids. The PolyMem silver formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); absorbing agents, and silver (124 μg/cm^2 minimum), all in the polymeric membrane pad matrix. The silver protects the dressing from microbial contamination. Both the wound cleanser and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 through 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; PolyMem formulation dressings are suitable for use when visible signs of infection are present if proper medical treatment that addresses the cause of the infection has been implemented

Contraindications

- Do not use on patients with demonstrated sensitivity to the dressing.

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a PolyMem Silver dressing of appropriate size. The silver membrane should be ¼″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem Silver dressings.

Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry when bathing the patient. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exuding wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem Silver dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem Silver dressing.

*See package insert for complete information.

NEW PRODUCT

PolyMem Wic Silver Cavity Wound Filler Dressing*

Ferris Mfg. Corp.

How supplied

Cavity filler pad:	3″ × 3″; A6215
Tunneling and cavity filler rope:	0.4″ × 14″; A6215

Action

Multifunctional PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues. PolyMem Silver dressings are recommended when a wound displays delayed healing, signs of infection, increased bioburden, or the patient has infection risk factors (such as contaminated wound, poor nutrition, diabetes, history of infection, etc.).

PolyMem Wic Silver cavity filler is composed of a hydrophilic polyurethane membrane, which may be placed into open wounds to eliminate dead space, absorb exudate, and maintain a moist wound surface. PolyMem Wic Silver Filler minimizes the need to disturb the wound bed. PolyMem Wic Silver Fillers are the only dressings that contain a nontoxic, nonionic, tissue friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); absorbing agents; and silver (186 μg/cm^2 minimum), all in the polymeric membrane matrix. Both the wound cleanser and glycerin are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site. Silver protects the dressing from microbial contamination. PolyMem Wic Silver is placed in the wound bed; it provides fast wicking and absorbent capacity to accommodate large amounts of exudate. PolyMem Wic Silver Filler expands to fill dead space and allows extended times between dressing changes. PolyMem Wic Silver Filler is perforated so that 1″-wide strips can be detached or easily folded, or it can be placed directly into a cavity. PolyMem Wic Silver Cavity Filler is to be covered with a secondary PolyMem formulation dressing or another suitable secondary dressing.

The Rope is reinforced so that nothing is left behind in the wound. The rope width can be cut in half for use in wounds narrower than 0.4.

Indications

To manage moderately to heavily exuding wounds associated with pressure ulcers (stages 3 and 4), vascular ulcers, acute wounds, diabetic ulcers; suitable for use when visible signs of infection are present if proper medical treatment that addresses the cause of the infection has been implemented

Contraindications

- Not for use on patients with demonstrated sensitivity to the dressing

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Ensure that PolyMem Wic Silver is about 30% smaller than the open cavity or tunnel. PolyMem Wic Silver will expand as it wicks and absorbs fluid. Avoid overfilling the wound, because overfilling may increase pressure on the tissue in the wound bed, potentially causing additional damage.
- Lightly place the wound filler in the middle of the wound, either side up. PolyMem Wic Silver is perforated so that 1″-wide strips can be detached, cut, folded, or placed as is into the cavity.
- Cover the wound and the PolyMem Wic Silver with a PolyMem formulation dressing or another suitable secondary dressing.

Removal

- Change PolyMem Wic Silver and secondary dressing when exudate in the secondary dressing reaches the periwound area. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, an infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the wound filler in one piece. (It won't adhere to the wound.) Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. Additional cleaning of the wound may injure regenerating tissues and may delay the wound-healing process.
- Apply a new PolyMem Wic Silver dressing with a suitable secondary dressing.

*See package insert for complete information.

NEW PRODUCT

Restore Calcium Alginate Dressing, Silver

Hollister Wound Care

How supplied

Dressing: 2″ × 2″; A6196
4″ × 4.75″; A6196
Rope: 12″; A6199

Action

Calcium Alginate Dressing, Silver is a sterile, nonwoven pad composed of a high G (guluronic acid) calcium alginate, carboxymethylcellulose (CMC) and ionic silver complex (Silver Sodium Hydrogen Zirconium Phosphate), which releases silver ions in the presence of wound fluid. As wound fluid is absorbed, the alginate forms a gel, which assists in maintaining a moist environment for optimal wound healing and allows intact removal. The silver ions released in the presence of wound exudate protect the dressing from a broad spectrum of microorganisms over a period of up to 14 days, based on *in-vitro* testing. Odor reduction results from the antibacterial effect of the dressing. Calcium Alginate Dressing, Silver is an effective barrier to bacterial penetration.

Calcium Alginate Dressing, Silver protects the wound and aids autolytic debridement, therefore facilitating wound healing.

Indications

Indicated for moderate to heavily exuding partial- to full-thickness wounds, including postoperative wounds, trauma wounds, leg ulcers, pressure ulcers, diabetic ulcers, graft and donor sites

Contraindications

- Not for use on third-degree burns
- Not for use on dry or lightly exuding wounds
- Not for use on individuals with a known sensitivity to alginates or silver
- Not for use to control heavy bleeding
- Not for use on surgical implantation

Application

- Debride when necessary and irrigate the wound site in accordance with standard protocols.
- Remove excess solution from surrounding skin.
- Select a size of Calcium Alginate Dressing, Silver that is slightly larger than the wound.
- Cut (using clean scissors) or fold the dressing to fit the wound. Loosely fill deep wounds, ensuring the dressing does not overlap the wound margins.
- Apply to wound bed directly.
- Cover and secure Calcium Alginate Dressing, Silver with a nonocclusive secondary dressing.

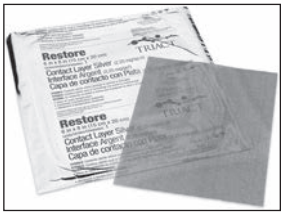
Removal

- Dressing change frequency will depend on wound condition and the level of exudate. Initially it may be necessary to change the dressing every 24 hours.
- Reapply Calcium Alginate Dressing, Silver when the secondary dressing has reached its absorbent capacity or whenever good wound care practice dictates that the dressing should be changed.
- Gently remove the secondary dressing.
- If the wound appears dry, saturate the dressing with sterile saline solution prior to removal.
- Gently remove the dressing from the wound bed and discard.
- Irrigate the wound site in accordance with standard protocols prior to application of a new dressing.

NEW PRODUCT

Restore Contact Layer, Silver with TRIACT Technology

Hollister Wound Care



How supplied

Dressing: 4″ × 5″, 6″ × 8″; A6207

Action

The proprietary TRIACT technology is comprised of a nonocclusive polyester mesh impregnated with a polymer matrix containing hydrocolloid particles and petrolatum-based formulation. Upon contact with wound exudates, the hydrocolloid particles combine with the matrix to form a lipido-colloidal gel, providing a moist environment that promotes healing. Being nonadhesive, removal of Restore Contact Layer is virtually pain-free and helps minimize damage to newly formed surrounding skin. It is ideal for use on wounds with fragile surrounding skin. Restore Contact Layer Silver was shown to be effective against bacteria most frequently associated with wound infections. *Staphylococcus aureus, Streptococcus pyogenes, Pseudomonas aeruginosa* (pyocyanic bacillus) and MRSA (strain ATCC 4300). The dressing sustains antibacterial activity for up to 7 days in *in vitro* studies.

Indications

Indicated in low to moderate exuding partial- and full-thickness wounds, including minor cuts, abrasions, scalds and burns, leg ulcers, diabetic ulcers, pressure ulcers, surgical wounds, graft and donor sites, second-degree burns, skin tears

Contraindications

- Concomitant use of other antimicrobial agent not recommended
- Use in pregnant and breast-feeding women and newborns has not been studied
- Do not re-use dressing
- Not for use on individuals who are sensitive to silver or who have had an allergic reaction to the dressing or one of its components

Application

- Remove the protective clear tabs from both sides of the Restore Contact Layer Dressing with Silver. (Note: Restore Contact Layer Dressing with Silver tends to stick to latex gloves. Moisten latex gloves with normal sterile saline prior to use.)
- Apply Restore Contact Layer Dressing with Silver to cover the entire wound using aseptic technique. The dressing may overlap onto healthy skin.
- Cover with appropriate secondary dressing using aseptic technique (gauze, transparent film, etc.).
- Secure secondary dressing with tape or other material.
- Remove gloves and wash hands after completing procedure.

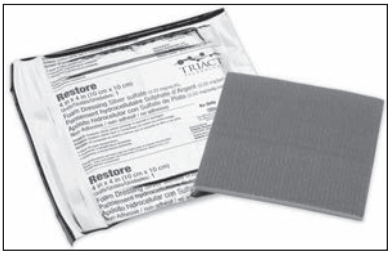
Removal

- Wash hands and put on gloves.
- Remove secondary dressing.
- Remove Restore Contact Layer Dressing with Silver.
- Irrigate wound base using Restore Wound Cleanser or sterile saline.
- Reapply dressing if necessary.
- Remove gloves and wash hands after completing procedure.
- Restore Contact Layer Dressing with Silver should be changed every 1 to 3 days. Dressing change frequency will depend on patient condition and the healing progression.

NEW PRODUCT

Restore Non-Adhesive Foam Dressing, Silver with TRIACT Technology

Hollister Wound Care



How supplied

Dressing: 4″ × 4″; A6209
6″ × 8″; A6210

Action

The proprietary TRIACT technology is comprised of a nonocclusive polyester mesh impregnated with a polymer matrix containing hydrocolloid particles and petrolatum-based formulation. Upon contact with wound exudates, the hydrocolloid particles combine with the matrix to form a lipido-colloidal gel, providing a moist environment that promotes healing. Being nonadhesive, removal of Restore Contact Layer is virtually pain-free and helps minimize damage to newly formed surrounding skin. It is ideal for use on wound with fragile surrounding skin. Restore Contact Layer Silver was shown to be effective against bacteria most frequently associated with wound infections. Under a log reduction in vitro test, it has demonstrated an antibacterial activity (at least a 4 log reduction) against the following bacteria: *Staphylococcus aureus, Streptococcus pyogenes, Pseudomonas aeruginosa* (pyocyanic bacillus) and MRSA (strain ATCC 4300). The dressing sustains antibacterial activity for up to 7 days in *in vitro* studies.

The superabsorbent foam pad ensures drainage of exudate and helps protect the skin around the lesion from any maceration. The backing is soft, pliable, and very comfortable; it allows the dressing to be easily shaped to the anatomical contours of the wound. Restore Non-Adhesive Foam Dressing Silver is suitable for use under compression bandaging, due to the ability of the dressing to retain exudates.

Indications

May help reduce infection in moderately to high exuding partial- and full-thickness wounds, including partial thickness burns, pressure ulcers, venous stasis ulcers, diabetic ulcers, graft and donor sites

Contraindications

- Concomitant use of other topical antimicrobial agent is not recommended
- Use in pregnant or breast-feeding women and newborns has not been studied
- Do not re-use the dressing
- Store the dressing flat and at room temperature
- Known sensitization to silver and/or other dressings components

Application

- Cleanse the wound using sterile saline solution or an appropriate wound cleanser.
- Choose a dressing size that ensures the dressing will cover the entire wound.
- Remove the protective tabs from the dressing.

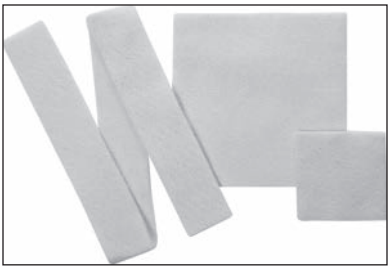
- Apply the dressing directly to wound.
- Hold in place using a fixing bandage. Using a compression bandage when prescribed.
- Duration of treatment is determined by the physician and depends on wound type and healing conditions.

Removal

- Restore Foam Dressing Silver should be changed every 1 to 3 days, depending on the wound and the healing progression.

SeaSorb Soft Ag Alginate Dressing with Silver
SeaSorb Soft Ag Alginate Filler with Silver

Coloplast Corp.



How supplied

Dressing: 2″ × 2″, 4″ × 4″; A6196
6″ × 6″; A6197
1″ × 17 1/2″; A6199

Action

SeaSorb-Ag Alginate Dressing with Silver is a unique mix of calcium alginate and highly absorbent carboxymethylcellulose with the addition of an ionic silver complex, which releases silver ions in the presence of wound exudate. As exudate is absorbed, the dressing forms a soft, cohesive gel that intimately conforms to the wound surface. Silver ions protect the dressing from a broad spectrum of microorganisms over a period of up to 4 days.

Indications

To manage moderate to heavily exuding wounds such as pressure ulcers, leg ulcers, diabetic ulcers, second-degree burns, grafts, donor sites, trauma wounds, as well as cavity wounds; may be used on infected wounds under the discretion of a health care professional

Contraindications

- Contraindicated for use on third-degree burns
- Contraindicated for use on dry or lightly exuding wounds
- Contraindicated for use on individuals with a known sensitivity to alginates or silver
- Contraindicated for control of heavy bleeding
- Contraindicated for surgical implantation

Application

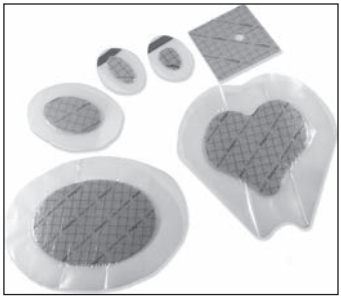
- Debride when necessary, and irrigate the wound site in accordance with standard protocols.
- Remove excess solution from surrounding skin.
- Select a size of SeaSorb-Ag alginate dressing with silver that is slightly larger than the wound.
- Cut or fold the dressing to fit the wound.
- Apply to wound bed directly.
- Cover and secure with a nonocclusive secondary dressing, such as Comfeel Plus Clear Dressing or Biatain Foam Dressing.

Removal

- Dressing change frequency will depend on wound condition and the level of exudate. Initially, it may be necessary to change the dressing every 24 hours.
- Reapply SeaSorb-Ag Alginate Dressing with Silver when the secondary dressing has reached its absorbent capacity or whenever good wound care practice dictates that the dressing should be changed.
- Gently remove the secondary dressing. If the wound appears dry, saturate the dressing with sterile saline solution before removal.
- Gently remove the dressing from the wound bed and discard. Irrigate the wound site in accordance with standard protocols before application of a new dressing.

Shapes by PolyMem Silver Dressings*

Ferris Mfg. Corp.



How supplied

Sacral Silver Dressing Adhesive Island Film Dressing: 7.2″ × 7.8″ with 4.5″ × 4.7″ membrane pad; A6212

#8 Oval Silver Adhesive Island Film Dressing: 6.5″ × 8.2″ oval with 4″ × 5.7″ oval membrane pad; A6213

#5 Oval Silver Adhesive Island Film Dressing: 3.5″ × 5″ oval with 2″ × 3″ oval membrane pad; A6212

#3 Oval Silver Adhesive Island Film Dressing: 2″ × 3″ oval with 1″ × 2″ oval membrane pad; A6212

Action

Multifunctional Shapes by PolyMem Silver (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries and, as well, reduce both persistent and procedure-related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues. Shapes by PolyMem Silver dressings are easy-to-use, precut dressings, and contoured to fit most wounds. Shapes by PolyMem Silver dressings are recommended when a wound displays delayed healing, signs of infection, increased bioburden, or the patient has infection risk factors (such as contaminated wound, poor nutrition, diabetes, history of infection, etc.).

Shapes by PolyMem Silver Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix with a thin film adhesive border. The membrane pad is covered with a semipermeable continuous thin film backing, which is optimized for oxygen and moisture vapor permeability, protects the wound, and serves as a barrier to liquids. The PolyMem silver formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); absorbing agents; and silver (124 μg/cm^2 minimum), all in the polymeric membrane pad matrix. The silver protects the dressing from microbial contamination. Both the wound cleansing agent and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 through 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; suitable for use when visible signs of infection are present if proper medical treatment that addresses the cause of the infection has been implemented

Contraindications

- Not for use on patients with demonstrated sensitivity to the dressing

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a Shapes by PolyMem Silver Dressing of appropriate size. The silver membrane should be ¼″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with Shapes by PolyMem family of dressings.

Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry when bathing the patient. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exuding wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. Shapes by PolyMem Silver Dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new Shapes by PolyMem Silver Dressing.

*See package insert for complete information.

SilvaSorb

Medline Industries, Inc.

How supplied

Amorphous gel: 0.25 oz, 1.5 oz, 3 oz, 8 oz, 16 oz; A6248
Cavity: 6-g strands; A6262
Sheet: 2″ × 2″; A6242
4.25″ × 4.25″, 4.25″ × 4.25″ perforated, 4″ × 8″, 4″ × 10″ perforated; A6243
Site: 1″ disk with radial slit, 1.75″ disk with radial slit; A6242

Action

SilvaSorb is a sterile, single-use wound dressing for use in moist wound management, combining patented MicroLattice technology with sustained-release silver. SilvaSorb's increased fluid management and antimicrobial performance make it ideal for chronic wounds. SilvaSorb is an effective barrier to bacterial penetration. The antimicrobial barrier function of the dressing may help reduce infection by inhibiting the growth of *Staphylococcus aureus,* methicillin-resistant *S. aureus*, *Pseudomonas aeruginosa, Escherichia coli, Candida albicans*, vancomycin-resistant *Enterococcus*, and other clinically significant microorganisms. SilvaSorb is biocompatible and won't stain or discolor tissue. It also doesn't require preconditioning or periodic irrigation.

SilvaSorb Amorphous Gel donates moisture to dry wound beds while providing antimicrobial silver. Thick, viscous formulation stays in contact with the wound bed to provide an optimally moist environment for up to 3 days.

The polyacrylate material in SilvaSorb Cavity and Sheet Dressings helps maintain a moist wound environment by either donating moisture or absorbing at least five times its weight in excess wound exudate. These dressings maintain their antimicrobial effectiveness for up to 7 days.

SilvaSorb Site offers ionic silver percutaneous site protection to help fight infection at pin, port, and catheter sites. The translucent, flexible material offers a snug fit around the indwelling device, with little or no gap where bacteria could easily enter.

Indications

To manage partial- and full-thickness wounds, such as pressure ulcers, diabetic foot ulcers, leg ulcers, skin tears, first- and second-degree burns, grafted wounds and donor sites, surgical wounds, and lacerations and abrasions

Contraindications

- Not intended for use on infected wounds, except at discretion of physician
- Not for use over eschar; eschar should be debrided before use

Application

SilvaSorb Amorphous Gel

- Clean the wound using sterile saline or appropriate wound cleanser, such as Skintegrity Wound Cleanser.
- Dispense SilvaSorb to an appropriate clean applicator, such as a tongue blade or gauze, in sufficient quantities to liberally cover the wound.
- Cover the gel with an appropriate secondary dressing, such as a gauze pad, a film dressing, or nonwoven adhesive secondary dressing, such as Stratasorb.

SilvaSorb Cavity and Sheet Dressings

- Clean the wound using sterile saline or appropriate wound cleanser, such as Skintegrity Wound Cleanser.
- Remove the dressing from the package and blue liners. For the perforated version, prestretch the sheet to open the perforations and allow the dressing to relax.
- For the cavity dressing, adequate spacing is obtained by loosely filling one-half to two-thirds of the wound deficiency. For the sheet dressing, place either side of the dressing in contact with the wound base, making sure that greater than ½″ (1.3 cm) is covering the periwound skin.
- If the cavity or sheet style is too large for the wound, tear or cut the dressing to the appropriate size.
- Cover the dressing with an appropriate secondary cover like a transparent film such as SureSite, Medline Bordered Gauze, or a composite island dressing such as Stratasorb. Your secondary dressing selection and wear time will depend on the amount of exudate and the condition of the periwound skin.
- The dressing may remain in place for up to 7 days, depending on the amount of exudate. Change the dressing if the wound exudate begins to pool within the wound or significant strikethrough occurs on the secondary dressing. Generally, dressings should be changed more frequently for heavily exuding wounds.

SilvaSorb Site

- Prepare the site per facility protocol.
- Wrap dressing around insertion site.
- Cover and secure with transparent film (such as Sureview I.V. dressings).
- Remove every 7 days (or more often if heavy exudate is present).

Removal

- Carefully remove the secondary dressing and SilvaSorb from the wound.
- SilvaSorb Sheets and Cavity Dressings are normally nonadherent to the wound, but they can be remoistened with saline or wound cleanser to ease removal.
- Gently clean the wound with sterile saline or an appropriate wound cleanser, such as Skintegrity Wound Cleanser.
- Follow the directions for reapplying a new SilvaSorb dressing, if appropriate.

NEW PRODUCT

SILVERCEL Non-Adherent

Systagenix

How supplied

Dressing: 2″ × 2″; A6196
4 1/4″ × 4 1/4″; A6197
4″ × 8″; A6197
Rope: 1″ × 12″; A6199

Action

SILVERCEL Non-Adherent is a silver antimicrobial dressing with the unique feature of a non-adherent layer to maximize protection of the wound bed, particularly at dressing change. The unique composition, a mixture of alginate, carboxymethylcellulose, and silver-coated nylon fibers, manages exudate effectively in infected or heavily colonized wounds while the unique EasyLIFT film layer keeps the dressing simple and convenient to use, minimizing pain and trauma at dressing change for your patients.

Indication

For use in the management of all moderate to heavily exuding, partial- and full-thickness, chronic and acute wounds, including decubitus (pressure) ulcers, venous ulcers, diabetic ulcers, donor sites, and traumatic surgical wounds; contains alginate, and so may assist in supporting the control of minor bleeding in superficial wounds; suitable for use, under medical supervision, in the management of infected wounds, or wounds in which there is an increased risk of infection

Contraindications

- None provided by the manufacturer

Application

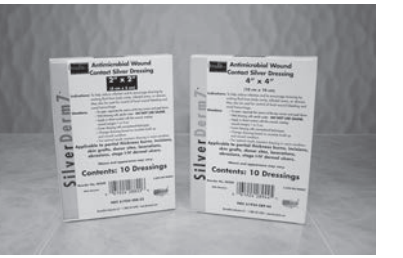
- Cut or fold SILVERCEL Non-Adherent to fit the wound. (SILVERCEL Non-Adherent Antimicrobial Alginate Dressing Rope should not be cut lengthwise.)
- Cover the dressing with a nonocclusive secondary dressing, such as one of the Tielle Hydropolymer Dressings.
- Reapply SILVERCEL Non-Adherent when the secondary dressing has reached its absorbent capacity or whenever good wound care practice dictates that the dressing should be changed.

Removal

- To remove the dressing, first gently remove the secondary dressing.
- Consistent with good wound care practice, always remove the dressing from the wound with gloved fingers or forceps.
- Grip both outer layers of SILVERCEL Non-Adherent dressing and gently remove from the wound bed.
- If the wound appears dry, saturate the dressing with normal saline solution prior to removal.
- Irrigate the wound site with a suitable wound cleanser prior to application of a new dressing.
- Dressing change frequency will depend on wound condition and the level of exudate.

SilverDerm7

DermaRite Industries, LLC



How supplied

Dressing: 2″ × 2″, 4″ × 4″

Action

SilverDerm7 antimicrobial dressings are nonadherent, lightly absorbent wound dressings. They provide a sustained release of ionic silver from a silver-plated rayon fabric. Only ionic silver is released without the deposition of metallic silver in the wound. Silver ions are released within 30 minutes and aid in pain reduction.

Indications

To help reduce infection and to encourage draining by wicking fluid from body cavity, infected areas or abscess; may also be used for control of local wound bleeding and nasal hemorrhage

Contraindications

- Contraindicated on patients with sensitivity to silver
- Use on third-degree burns not yet evaluated

Application

- Clean the wound with sterile water. Moisten the dressing with water. Don't use saline solution.
- Apply in direct contact with wound, overlapping wound margins by 3/8" to 3/4" (1 to 2 cm).
- Cover dressing with conventional techniques.

Removal

- Change dressing based on exudate buildup and wound condition.
- Rinse the dressing with sterile water and reapply if clear of exudates and debris.
- If the dressing dries and adheres to the wound, moisten with sterile water before removing.

Silverlon Breast Pads

Argentum Medical, LLC

How supplied

Breast Pad: 5″ diameter with moisture-control pouch

Action

Silverlon Breast Pads are designed to relieve mastitis, lactation irritation, post-mastectomy pain, as well as other breast and nipple inflammation or infection.

Indications

For over-the-counter or professional use; to manage partial-thickness burns, incisions, skin grafts, donor sites, lacerations, abrasions, and stages 1 through 4 dermal ulcers

Contraindications

- Not for use on patients with sensitivity to silver or nylon or those with third-degree burns

Application

- Moisten the dressing (with sterile or clean water), place in intimate contact with all affected wound surfaces, and secure with conventional techniques.
- Rear moisture control pouch utilizes standard disposable absorbent lactation pads and should be changed when saturated.

Removal

- If pad adheres to nipple, moisten with water and gently lift.

Silverlon CA

Argentum Medical, LLC

How supplied

Pads: 2″ × 2″; A6196
4.25″ × 4.25″, 4″ × 8″; A6197
8″ × 12″; A6198
3/4″ × 12″; A6199

Action

Silverlon CA Advanced Antimicrobial Alginate Dressings are durable nonwoven pads composed of High M (manuronic acid) alginate and a Silverlon metallic mesh core. In the presence of moisture, the silver ions provide an antimicrobial barrier that protects the dressing from bacterial contamination. The dressings absorb exudates, maintain a moist wound environment, and feature easy one-piece removal.

Indications

Effective barrier to microbial penetration for moderate to heavily exuding partial- and full-thickness wounds, including pressure ulcers, venous ulcers, diabetic ulcers, donor and graft sites, traumatic and surgical wounds, and first- and second-degree burns; for external use only

Contraindications

- Not for use on patients with sensitivity to silver or nylon

Application

- Select a size of Silverlon CA that is slightly larger than the wound. Cut using clean scissors, or fold the dressing to fit the wound.
- Loosely pack deep wounds, ensuring the dressing doesn't overlap the wound margins.
- For wounds with minimal exudates, apply to wound bed moistened with sterile water or saline.
- Cover and secure Silverlon CA dressing with a nonocclusive secondary dressing.

Removal

- Silverlon CA can be used up to 7 days or at the discretion of professional based on wound exudate.
- To remove, first gently remove the secondary dressing. If the wound appears dry, saturate the Silverlon CA dressing with clean water or normal saline before removal. Then gently grasp the Silverlon dressing, remove it from the wound bed, and discard it.

Silverlon Digit Sleeve Dressing

Argentum Medical, LLC

How supplied

Adult multiple-digit sleeve dressing: 1″ × 12″; A4649

Action

The Silverlon Digit Sleeve Dressing provides a sustained release of ionic silver from a stable silver-plated fabric substrate, offering effective antibacterial and antifungal broad spectrum of activity for up to 7 days. Only ionic silver is released, without the deposition of metallic silver in the wound. The fabric is very elastomeric and flexible, conforming to the surfaces of digits and toes, allowing range of motion.

Indications

For over-the-counter as well as professional use; to manage partial-thickness burns, incisions, skin grafts, donor sites, lacerations, abrasions, and stages 1 to 4 dermal ulcers (vascular, venous, pressure, and diabetic)

Contraindications

- Contraindicated on patients with sensitivity to silver or nylon

Application

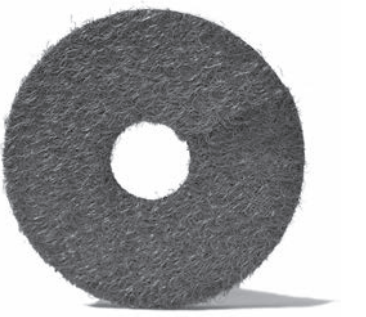
- Clean the wound with wound cleanser of choice.
- Wet the dressing with sterile water, and gently stretch it around digits or toes. Allow it to conform to the surface of the digit or toe.
- Cover the Silverlon dressing and secure with conventional techniques.

Removal

- Change the dressing depending on the amount of exudate present and the condition of the wound.
- The dressing may be sprayed with a wound cleanser or rinsed with clean water and reapplied to the wound surface if the dressing is clear of exudate and debris.
- The dressing may be used up to 7 days or at the discretion of professional.
- If the dressing adheres to the wound, saturate with water or normal saline before removing.

Silverlon Lifesaver Dressing

Argentum Medical, LLC



How supplied

Catheter dressing: 1″ diameter, 1.5 mm, 4 mm, 7 mm; A6251

Action

Silverlon technology uses the sustained release of ionic silver, offering effective antimicrobial and antifungal spectrum of activity for up to 7 days of use.

Indications

For over-the-counter as well as professional use; primary antimicrobial dressing to prevent local infection; placed around I.V. insertion sites, catheters, dialysis catheters, drain tubes, and external fixator pins

Contraindications

- Not for use on patients with sensitivity to silver or nylon

Application

- Activate dressing by moistening with sterile water or normal saline.
- Place tubing through center hole and secure directly to entry site, silver side down.

Removal

- The Silverlon Lifesaver Ag dressing may be used up to 7 days or at the discretion of professional.

Silverlon Negative Pressure Dressing

Argentum Medical, LLC

How supplied

Dressing: 2″ × 2″, 4″ × 5″; A6206
5″ × 8″; A6207
5″ × 12″, 12″ × 12″; A6208

Action

Silverlon Negative Pressure Dressing (NPD) is designed for use with all negative-pressure wound therapy (NPWT) systems. The unique design with built-in dual flow ports allows for easy flow of fluid and particles through the dressing, while providing sustained release of ionic silver from a stable silver-plated fabric. Silverlon NPD offers an effective antibacterial and antifungal spectrum of activity for up to 7 days of use. Only ionic silver is released, without the deposition of metallic silver into the wound.

Indications

For use in partial-thickness burns, incisions, skin grafts and flaps, donor sites, lacerations, abrasions, stages 1 through 4 dermal ulcers (vascular, venous, pressure, and diabetic), and acute, traumatic, or dehisced wounds

Contraindications

- Contraindicated for patients with sensitivity to silver or nylon

Application

- Wet dressing with sterile or clean water.
- Apply either side of dressing in direct contact with the wound bed and wall, overlapping wound margins by 1 to 2 cm.
- Silverlon NPD is placed on the wound first and followed by the foam or fill media of choice, then covered with the film according to manufacturer's instructions.
- Silverlon NPD can be rinsed and reused up to 7 days or at the discretion of professional.

Removal

- Discard the NPWT dressings and gently remove the Silverlon NPD dressing.
- If the NPD dressing adheres to the wound, saturate with clean water or saline before removing.

Silverlon Surgical Wound Pad and Island Dressing

Argentum Medical, LLC

How supplied

Pad dressing: 2″ × 2″, 2″ × 3″, 2″ × 6″, 2″ × 8″; A6251
2″ × 10″, 2″ × 12″, 3″ × 8″, 3″ × 10″, 3″ × 16″, 4″ × 4.5″; A6252

Island dressing: 2″ × 3″ (1″ × 2″ pad), 3″ × 4″ (1.5″ × 2.5″ pad) 4″ × 4″ (2″ × 2″ pad); A6254
4″ × 6″ (2″ × 4″ pad), 4″ × 10″ (2″ × 8″ pad), 4″ × 12″ (2″ × 10″ pad), 6″ × 6″ (4″ × 4.5″ pad); A6255
4″ × 14″ (2″ × 12″ pad); A6256

Adhesive strip: 1″ × 3″ (1″ × 1″ pad); A6254

Action

The Silverlon Pad Dressing is a multilayer sterile dressing combining a Silverlon wound contact layer, an absorbent rayon pad layer, and a clear semipermeable film top layer. The island dressings include an additional top layer of adhesive tape. The Silverlon Island and Adhesive Strip Dressings are multilayer dressings with a semipermeable polyurethane tape backing layer overlapping the pad circumferentially and providing adhesion to the surrounding skin. The Silverlon Pad and Island dressings are made from silver nylon substrate and offer an effective antibacterial and antifungal broad spectrum of activity for up to 7 days. Since only ionic silver is released, without the deposition of metallic silver in the wound, Silverlon won't stain wound tissue. In a moist environment, it has been reported that the fabric's high conductivity provides analgesic activity.

Indications

For over-the-counter as well as professional use; to manage partial-thickness burns, incisions, skin grafts, donor sites, lacerations, abrasions, and stages 1 to 4 dermal ulcers (vascular, venous, pressure, and diabetic)

Contraindications

- Contraindicated for patients with sensitivity to silver or nylon

Application

- Clean the wound with a wound cleanser of choice.
- Wet the dressing with clean water or saline, and place the silver side down in direct contact with the wound surface, overlapping the wound margins by 1 to 2 cm.
- For the pad dressing, secure with conventional techniques.

Removal

- The dressing may be used up to 7 days or at the discretion of professional.
- If the dressing adheres to the wound, saturate with clean water before removing.

Silverlon Wound and Burn Contact Dressings and Gloves

Argentum Medical, LLC

How supplied

Wound contact dressing:	2″ × 2″; A6206 4″ × 4.5″, 4″ × 12″; A6207 10″ × 12″, 4″ × 66″; A6208
Burn contact dressing:	4″ × 4″, 4″ × 8″, 8″ × 16″, 16″ × 16″, 24″ × 24″; A9270
Compressive burn wrap:	4″ × 66″, 6″ × 108″; A9270
Acute burn glove:	Pediatric, Small, Medium, Large, X-Large; A9270

Action

Silverlon technology uses the sustained release of ionic silver from a stable, highly conformable and comfortable silver nylon substrate and offers effective antibacterial and antifungal broad spectrum of activity for up to 7 days. Since only ionic silver is released, without the deposition of metallic silver in the wound, Silverlon won't stain wound tissue. In a moist environment, it has been reported that the dressing's high conductivity provides an analgesic effect.

Indications

For over-the-counter as well as professional use; to manage partial-thickness burns, incisions, skin grafts, donor sites, lacerations, abrasions, and stages 1 through 4 dermal ulcers (vascular, venous, pressure, and diabetic)

Contraindications

- Contraindicated on patients with sensitivity to silver or nylon

Application

- Clean the wound with a wound cleanser of choice.
- Cut dressing to fit the wound base and overlap wound margins by 1 to 2 cm.
- Wet the dressing with clean water or saline, and place either side in direct contact with the wound surface, overlapping periwound skin by at least 1 to 2 cm.
- Cover Silverlon with gauze or secondary dressing of choice, or the vacuum-assisted closure, to maintain wound environment.
- Periodically check and rehydrate the dressing as needed.

Removal

- Change the dressing depending on the amount of exudate present and the condition of the wound.
- The dressing may be moistened with a wound cleanser, or rinsed with clean water, and reapplied to the wound surface if the dressing is clear of exudate and debris.
- The dressing may be used up to 7 days or at the discretion of professional, based on the wound condition.
- If the dressing adheres to the wound, saturate it with clean water or normal saline before removing.

Silverlon Wound Packing Strips

Argentum Medical, LLC

How supplied

Strips: 1″ × 12″, 1″ × 24″; A4649

Action

The Silverlon Wound Packing Strips are sterile, nonadherent, wound dressings. They provide a sustained release of ionic silver from a stable silver nylon substrate and offer an effective antibacterial and antifungal broad spectrum of activity for up to 7 days. Because only ionic silver is released, without the deposition of metallic silver in the wound, Silverlon won't stain wound tissue. The durable ribbon-like format encourages the drainage and wicking of fluids from a body cavity, infected area, or abscess, and features easy one-piece removal.

Indications

For professional use only, to help control local wound bleeding and nasal hemorrhage and to encourage draining by wicking fluids from a body cavity, infected area, or abscess

Contraindications

- Contraindicated on patients with sensitivity to silver or nylon

Application

- Clean the wound with the fluid of choice.
- Wet the dressing with clean water.
- Loosely pack from the origin of the sinus or tunnel to the surface.
- Cover with dressing of choice.

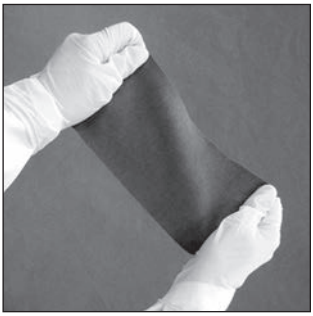
Removal

- Change the dressing depending on the amount of exudate present and the condition of the wound.
- The dressing may be sprayed with a wound cleanser, rinsed with sterile water, and reapplied if clear of exudate and debris.
- The secondary dressing is changed depending the amount of exudate or debris on the surface of the dressing.
- If the dressing dries and adheres to the wound, saturate with clean water or wound cleanser before removing.

NEW PRODUCT

Silver Matrix

Brennen Medical, LLC



How supplied

Sheet: 4″ × 4″, 4″ × 8″, 5″ × 12″, 8″ × 16″, 16″ × 16″; A9270
Roll: 4″ × 48″; A9270

Action

Silver Matrix is a soft, flexible, nylon mesh fabric coated with antimicrobial ionic silver, providing an effective barrier to bacterial and fungal penetration for up to 10 days.

Indications

Silver Matrix is an effective barrier to bacterial and *Candida albicans* penetration. The dressing may be used for partial and full-thickness wounds, including decubitus ulcers, venous stasis ulcers, diabetic ulcers, first- and second-degree burns, donor sites, and surgical wounds. Silver Matrix dressings may be used as a temporary covering for full-thickness and grafted wounds.

Contraindications

- Contraindicated for third-degree burns
- Contraindicated on patients with sensitivity to silver and patients with a history of multiple serum allergies

Applications

- Using aseptic technique, clean and prepare the wound site.
- Apply either side of the dressing to the wound surface. Insure intimate contact of the dressing with the wound. If necessary, moisten the dressing with sterile water for easier manageability. Remove any wrinkles or creasing of the dressing.
- Staples may be used when applying the dressing to donor sites.
- Apply an absorbent dressing over the Silver Matrix, and secure in place with a flexible net, gauze, or similar dressing.
- Protect the wound from movement for 30 to 60 minutes after the dressing has been applied to ensure contact with the wound.
- Inspect covered areas daily to detect the formation of purulent accumulations, suggesting infection. Take appropriate measures, possibly including removal of the dressing.
- Abrupt temperature elevation may occasionally be observed immediately following the application of the Silver Matrix. If the elevated temperature persists, an infection may be present and appropriate measures should be taken. Removal of the dressing may be indicated.

Removal

- Inspect the wound after 24 hours to assess status.
- Remove the absorbent outer dressing. Leave the Silver Matrix open, or wrap lightly with a flexible net, gauze, or similar dressing. If any signs of infection

are present, remove the Silver Matrix, clean the wound site, and apply a new dressing. If the Silver Matrix adheres to the wound and/or the wound is re-epithelializing, the dressing may remain on the wound as a simple barrier or protective dressing until healing is complete.

- When dressing becomes very dry and healing appears complete, apply a topical cream (such as GlucanPro 3000) over the Silver Matrix and leave in place overnight. Easily lift the Silver Matrix off the healed wound at next dressing change.

NEW PRODUCT

Sorbact

Integrated Healing Technologies, LLC

How supplied

Sorbact mesh (Compress/Contact Layer)
4 × 6 cm (27 in²); A6207
7 × 9 cm (71 in²); A6208
Sorbact Surgical/Post-Operative Dressing
5 × 7.2 cm, 8 × 10 cm, 8 × 15 cm, 10 × 20 cm, 10 × 25 cm; A6203
10 × 30 cm, 10 × 35 cm; A6204
Sorbact Ribbon Gauze/Packing Strip
1 × 50 cm, 10 × 200 cm, 5 × 200 cm, 2 × 50 cm; A6266
Sorbact Absorption Dressings
7 × 9 cm, 10 × 10 cm; A6251
10 × 20 cm; A6252
Sorbact Spherical Swabs
3 cm; A6222
Sorbact Gel Dressing
7.5 × 7.5 cm; A6231
7.5 × 15 cm; A6232
Calcium Alginate with Sorbact Dressing System
4.25 × 4.25 in; A6197
Sorbact NPWT Dressing Kit
Small, Medium, Large; A6550

Action

Selective antimicrobial effect utilizing the Sorbact Method and Hydrophobic Interaction; applicable where low-adherence, antimicrobial effect, and microbial balance is desired. Sorbact targets pathogenic microorganisms while leaving normal flora intact. Sorbact does not contribute to mechanisms of antimicrobial resistance.

Indication

Sorbact Wound Dressings are intended for use in the management of moderate to heavily exudating partial- to full-thickness wounds (including clean, colonized, contaminated, or infected wounds) and to bind hydrophobic microbes. Dressings are indicated for postoperative wounds, trauma wounds, shallow cavity wounds, fistulas, pressure ulcers, diabetic ulcers, and venous ulcers.

Contraindications

- Do not apply Sorbact together with ointments or creams.
- Greasy and oily agents interfere with the mode of action.

Application

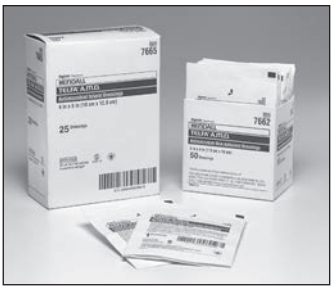
- Apply green Sorbact material directly to wound tissue in the presence of moisture.
- Moisture is required; therefore add saline or hydrogel when necessary.

Removal

- Sorbact is low-adherent. Add a moistening agent if adherence is observed, then gently remove dressing from the wound.
- Adhesive films may be stretched at a perpendicular angle to loosen adhesive and ease removal from periwound tissue.

TELFA AMD Dressings

Covidien



How supplied

Pad: 3″ × 4″; A6222
3″ × 8″; A6223
Island dressing: 4″ × 5″, 4″ × 8″; A6203
4″ × 10″, 4″ × 14″; A6204

Action

TELFA AMD dressings help protect against methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), and other wound infections with no change to protocol. TELFA AMD resists bacterial colonization within the dressing and reduces bacterial penetration through the dressing. Broad-spectrum effectiveness of PHMB provides protection against gram-positive and gram-negative microorganisms, including MRSA, VRE, yeast, and fungi. Nonadherent TELFA AMD won't disrupt healing tissue.

Indications

To protect lightly draining wounds, including surgical site wounds and central or peripheral I.V. sites

Contraindications

- A known sensitivity to PHMB
- Dakin's solution

Application

- Apply TELFA AMD as a primary dressing.

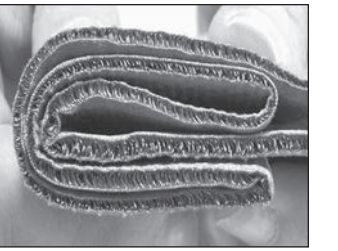
Removal

- Gently remove dressing.

NEW PRODUCT

TheraBond 3D Antimicrobial Barrier Systems

Choice Therapeutics, Inc.



How supplied

1.5″ × 3″, 1.5″ × 6″, 1.5″ × 10″,
1.5″ × 14″
1.5″ × 14″, 4″ × 8″; A6207
8″ × 16″, 16″ × 16″; A6208
4″ × 72″, 6″ × 96″, 2″ × 48″; A6208
2″ × 2″, 4″ × 5″, 4″ × 6″, 4″ × 10″, 4″ × 12″, 4″ × 14″, 24″ × 24″

Action

TheraBond 3D is manufactured using Choice Therapeutics' leading-edge 3D spacer and autocatalytic/electroless manufacturing technologies. These technologies enable TheraBond 3D to provide state-of-the-art antimicrobial action for up to 14 days, superior fluid and exudate management, and unmatched comfort and conformability. Rather than absorbing fluid and exudate and becoming saturated, TheraBond 3D transfers them, by capillary action, through the dressing to an inexpensive outer dressing. The TheraBond 3D material is soft and conformable for maximum patient comfort, while ensuring full contact with gentle compression. Dressing changes are minimized due to the 14-day wear time, superior fluid and exudate management, and patient comfort by design. TheraBond 3D may be used to protect dermal regeneration products such as Integra.

Indications

TheraBond 3D is indicated for use in light to moderately exuding partial- and full-thickness wounds, including traumatic wounds, surgical wounds, donor sites, first- and second-degree burns, as well as decubitus ulcers, diabetic ulcers, and vascular ulcers. TheraBond 3D may be used over debrided and partial-thickness wounds.

Contraindications

- Not for use on patients with a known sensitivity to silver
- Not for use during magnetic resonance imaging (MRI) examination or radiation therapy. Apply a new TheraBond 3D Antimicrobial Barrier System following treatment.

Application

Wraps and Contact Systems

- Cleanse wound with sterile water.
- Choose a System that completely covers the wound.
- Remove System from sterile pouch, using aseptic technique.
- To apply, moisten the system with sterile water and place the textured side in contact with the wound.
- Cover and secure the system per wound care protocol.

Island Systems

- Cleanse wound with sterile water.
- Choose a System where the pad completely covers the wound.
- Remove System from sterile pouch, using aseptic technique.
- To apply, remove half of the release paper and place silver pad in contact with the wound.
- Remove second half of the release paper and smooth system down.

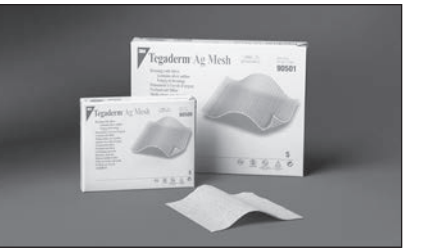
Removal

Wraps, Contact, and Island Systems

- To remove, lift one corner and slowly remove in a motion parallel to the skin. Dressing should be changed based on the amount of exudate or the condition of the wound.

3M Tegaderm Ag Mesh Dressing with Silver

3M Health Care



How supplied

Dressing: 2″ × 2″; A6402
4″ × 5″, 4″ × 8″; A6403
8″ × 8″; A6404

Action

3M Tegaderm Ag Mesh Dressing with Silver is a fast-acting, long-lasting antimicrobial barrier in an affordable silver dressing. Tegaderm Ag Mesh dressing is effective, versatile, patient-friendly, and ready to use. It may be used as a primary dressing, used with absorbent wound fillers, or packed into tunnels or undermined areas.

Indications

For ulcers (pressure, venous, arterial, and neuropathic), open surgical wounds, trauma wounds, first-degree burns, and abrasions

Contraindications

- Not for use on individuals who have a known hypersensitivity to silver or cotton
- Not intended for use as a surgical sponge
- Not for use on third-degree burns

Application

- Remove the dressing from the package. For dry to minimally draining wounds, the dressing should be moistened with a sterile normal saline or sterile water or liquid hydrogel, to provide a moist wound environment. For moderate to highly draining wounds, premoistening may not be required.
- If necessary, trim or fold the dressing to fit the wound site.
- Apply the dressing to the wound bed without overlap onto the surrounding skin.
- Secure with an appropriate cover dressing to help manage the wound drainage. A moisture retentive barrier may be used as a cover dressing to help maintain a moist wound environment.

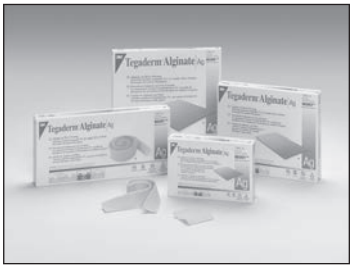
Removal

- Change the dressing as needed. Frequency of changing will depend on factors such as the type of wound and volume of drainage. The dressing remains effective for up to 7 days.
- At the time of dressing change, if the dressing is adhered to the wound surface, saturate with sterile normal saline or sterile water, allow the dressing to soften, and gently remove.
- Avoid forceful removal of the dressing to minimize disruption of the wound.

NEW PRODUCT

3M Tegaderm Alginate Ag Silver Dressing

3M Health Care



How supplied

Dressing: 2″ × 2″; A6196
4″× 5″; A6197
6″× 6″; A6198
Rope: 1″× 12″; A6199

Action

3M Tegaderm Alginate Ag Silver Dressing is a highly absorbent, sterile, nonwoven antimicrobial dressing composed of high G (guluronic acid), calcium alginate, carboxymethylcellulose (CMC), and an ionic silver complex (Silver Sodium Hydrogen Zirconium Phosphate), which releases silver ions in the presence of wound exudate. As exudate is absorbed, the dressing forms a gel, which aids in autolytic debridement while maintaining a moist environment for optimal wound healing and allows intact removal. The silver ions protect the dressing from a broad spectrum of microorganisms such as *Staphylococcus aureus* (including MRSA), *S. epidermidis* (including MRSE), *Streptococcus pyogenes,* and *Enterococcus faecalis* (VRE), *Pseudomonas aeruginosa, Escherichia coli,* and fungi such as *Candida albicans*, over a period of up to 14 days, based on *in-vitro* testing.

Indications

For use as a primary wound dressing in the management of moderate to heavily exuding, partial-to full-thickness wounds such as postoperative wounds, trauma wounds (dermal lesions, trauma wounds or incisions), leg ulcers, pressure ulcers, diabetic ulcers, graft and donor sites, and second-degree (superficial, partial-thickness) burns; for external use only; can be used under compression bandages; may assist in supporting the control of minor bleeding in superficial wounds

Contraindications

- Not for use on individuals with a known sensitivity to alginates or silver
- Not for use as a surgical sponge or for surgical implantation to control heavy bleeding

Application

- Remove the dressing from the package.
- For superficial wounds, the dressing may be cut or folded to fit the wound site. For use in wounds with depth, loosely fill the wound with the dressing making sure that the dressing does not overlap onto the wound margin or surrounding skin. Discard unused dressing.
- Apply to the wound bed.
- Secure with an appropriate cover dressing to help manage the wound drainage.

Removal

- Dressing change frequency will depend on wound condition and level of exudate. Reapply Tegaderm Alginate Ag Silver Dressing when the cover dressing

has reached its absorbent capacity or per facility protocol. Initially it may be necessary to change the dressing every 24 hours. The dressing remains effective for up to 14 days.

- Gently remove the cover dressing.
- If the Tegaderm Alginate Ag Silver Dressing appears dry, saturate the dressing with sterile saline solution prior to removal.
- Gently remove the Tegaderm Alginate Ag Silver Dressing from the wound bed and discard.

COLLAGENS

Action

Collagen, the most abundant protein in the body, is fibrous and insoluble and is produced by fibroblasts. Its fibers are found in connective tissues, including skin, bones, ligaments, and cartilage. During wound healing, collagen encourages the deposition and organization of newly formed collagen fibers and granulation tissue in the wound bed. It also stimulates new tissue development and wound debridement, creating an environment conducive to healing. Collagen dressings are manufactured as sheets, pads, particles, solutions, and gels.

Indications

Collagen dressings may be used as primary dressings for partial- and full-thickness wounds, infected and noninfected wounds, tunneling wounds, wounds with minimal to heavy exudate (depending on the form of collagen dressing), skin grafts, donor sites, and red or yellow wounds.

Advantages

- Are absorbent
- Maintain a moist, wound-healing environment
- May be used in combination with topical agents
- Conform well to a wound surface
- Are nonadherent
- Are easy to apply and remove

Disadvantages

- Are not recommended for third-degree burns
- Are not recommended for black wounds
- Require a secondary dressing

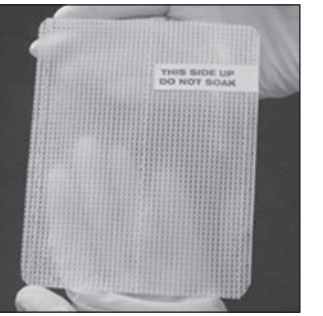
HCPCS code overview

The HCPCS codes normally assigned to collagen dressings are:
A6021—pad size < 16 in^2
A6022—pad size > 16 in^2 but < 48 in^2
A6023—pad size > 48 in^2

The HCPCS codes normally assigned to collagen wound fillers are:
A6010—wound filler, dry form, per gram of collagen
A6011—wound filler, gel/paste, per gram of collagen
A6024—wound filler, per 6″ (15 cm)

BGC Matrix Wound Dressing

Brennen Medical, LLC



How supplied

Patch: 2.5″ × 3″; A6021
Sheet: 5″ × 6″; A6022
5″ × 12″; A6023

Action

BGC Matrix is a temporary, multifilament mesh matrix wound dressing. It combines the highly advanced oat beta-glucan technology with collagen, which provides structural support for new cell growth. BGC Matrix provides a moist environment that supports the autolytic debridement of wounds with scattered areas of necrosis and slough.

Indications

To manage partial-thickness burns, ulcers, donor sites, chronic wounds, and other shallow or abrasive wounds

Contraindications

- Contraindicated for third-degree burns and for wounds with large amounts of eschar
- Contraindicated on patients with a sensitivity to plant extracts or collagen
- Contraindicated on patients with a history of multiple serum allergies

Application

- Prepare the wound by removing (debriding) dead or necrotic tissue, eschar, or foreign debris. Cleanse the wound with normal saline solution or other noncytotoxic wound cleanser.
- Apply the mesh side of the dressing to the wound surface, film side up. (Dressing is labeled "THIS SIDE UP.") If the wound bed is dry, or to increase dressing pliability, lightly moisten the dressing with sterile saline before application.
- Smooth the BGC Matrix into place on the wound surface. Avoid any wrinkling; the BGC Matrix should have intimate contact with the wound bed. If necessary, overlap adjoining pieces of Matrix to provide total wound coverage. Cut edges to fit wound.
- For deep wounds, cut the BGC Matrix to fit the size of the wound bed. Push it gently into the wound so dressing is in contact with wound bed. Then lightly pack the wound with dry gauze if wound is heavily exudating, or moist gauze if wound is dry.
- If the wound is exudative, apply a nonadherent absorbent secondary dressing over the BGC Matrix, and secure in place. If the wound is nonexudative, apply a secondary dressing to maintain moisture at the wound base, and secure in place.
- After 24 hours, remove the secondary dressing and inspect the wound. If the wound is still draining, leave the BGC Matrix in place and reapply a clean absorbent outer dressing. Inspect daily.
- If the BGC Matrix is adherent and the film layer is intact, see Removal.

- If any signs of infection are present, remove the BGC Matrix dressing, clean the wound site and reapply a new dressing. Treat infection per normal prescribed protocol.
- You may see an increase of exudate during the first few days of the BGC Matrix application.
- BGC Matrix may be left on the wound for up to 72 hours. Check secondary dressing every 24 hours. If "strikethrough" is evident, or outer dressing is saturated with exudate, remove outer dressing and replace. Note: The Matrix mesh will not dissolve.

Removal

- BGC Matrix will occasionally adhere to red, granulating tissue. To remove an adherent BGC Matrix dressing, apply a normal saline moistened gauze, amorphous hydrogel, or topical ointment over the BGC Matrix, then lightly cover with a nonadherent secondary dressing. Leave in place for 24 hours.
- After 24 hours, carefully lift the dressing off the wound. To prevent damage to new tissue, never force the dressing from the wound; simply reapply gauze, hydrogel, or topical ointment to remaining adherent dressing, and attempt removal in 12 to 24 hours.
- When the outer secondary dressing is removed, you may observe an accumulation of yellow exudate. You may also detect an odor. Yellow exudate and odor may be normal occurrences when using dressings containing hydrocolloid; they're not necessarily signs of infection.

CellerateRX Gel

Wound Care Innovations, LLC

How supplied

Tube: 28 g: A6011, sterile
6 g: A6011, sterile

Action

A medical hydrolysate of type I collagen, CellerateRX gel (approximately 65% collagen) is appropriate for use on light to moderately exudative or dry wounds. It protects the wound bed and newly formed granulation tissue by the formation of an outer occlusive barrier while maintaining a moist gelatinous wound contact layer. The product conforms to any wound site and is biocompatible, biodegradable, safe and nontoxic. CellerateRX occludes nerve endings to reduce pain, minimizes the potential of scarring, and is effective in all wound phases.

Indications

For management of acute and chronic wounds, including but not limited to pressure ulcers (stages 2 to 4), venous stasis ulcers, ulcers resulting from arterial insufficiency, surgical wounds, diabetic ulcers, traumatic wounds, superficial wounds, and first- and second-degree burns; ideal for tunneling/undermining wounds, skin flaps, and/or grafts

Contraindications

- Not for use on patients with known sensitivities to bovine collagen

Application

- It is recommended that the wound be debrided of any loose necrotic tissue prior to initial application.
- Apply CellerateRX gel directly onto wound. Completely cover the wound bed and the edges of the wound.
- Cover the wound with an appropriate secondary dressing if desired.
- Reapply every 2 to 3 days or as indicated.

Removal

- Remove the secondary dressing and reapply gel as above.
- It is not necessary to remove CellerateRX from the wound with subsequent dressing application, just add more.

CellerateRX Powder

Wound Care Innovations, LLC

How supplied

Powder: 1 g; A6010
5 g; A6010

Action

A medical hydrolysate of type I collagen, CellerateRX powder (approximately 95% collagen) interacts with the wound site, forming a gel when it mixes with wound exudate and providing a moist healing environment. The powder absorbs approximately 30 times its weight in exudate and is safe and nontoxic. CellerateRX protects the wound bed and newly formed granulation tissue by forming an occlusive gelatinous barrier. It conforms to any wound site and is biocompatible and biodegradable. CellerateRX occludes nerve endings to reduce pain, minimizes the potential of scarring, and is effective in all wound phases.

Indications

For management of acute and chronic wounds including but not limited to pressure ulcers (stages 2 to 4) venous stasis ulcers, ulcers resulting from arterial insufficiency, surgical wounds, diabetic ulcers, traumatic wounds, superficial wounds, and first- and second-degree burns; ideal for tunneling/undermining wounds, skin flaps, and/or grafts.

Contraindications

- Not for use on patients with known sensitivities to bovine collagen

Application

- It is recommended that the wound be debrided of any loose necrotic tissue prior to initial application.
- Apply CellerateRX powder directly to the wound site. Powder should cover the entire wound bed.
- Apply appropriate secondary dressing to manage exudate.

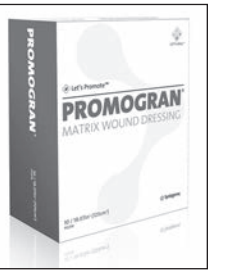
Removal

- Remove the secondary dressing and reapply CellerateRX powder as above. Suggested application is 2 to 3/times per week or as indicated.
- CellerateRX powder does not need to be removed with subsequent dressing changes.

NEW PRODUCT

Promogran

Systagenix



How supplied

Sterile Freeze-Dried Wound Dressing: 4.34 sq. in.; A6021
19.1 sq. in.; A 6022

Action

PROMOGRAN Matrix Wound Dressing is an advanced wound care device comprised of a sterile, freeze-dried composite of 45% oxidized regenerated cellulose (ORC) and 55% collagen. In the presence of exudate the PROMOGRAN Dressing transforms into a soft, conformable, biodegradable gel, and thus allows contact with all areas of the wound. PROMOGRAN Dressing maintains a physiologically moist microenvironment at the wound surface. This environment is conducive to granulation tissue formation, epithelialization, and rapid wound healing.

Indications

PROMOGRAN Matrix is indicated for the management of all wounds healing by secondary intent which are clear of necrotic tissue, including diabetic ulcers, venous ulcers, pressure ulcers, ulcers caused by mixed vascular etiologies, traumatic and surgical wounds; PROMOGRAN Matrix has known hemostatic properties; can be used under compression therapy

Contraindications

- Contraindicated in patients with known hypersensitivity to the components of this product (i.e., ORC, collagen, and silver)

Application

- Prepare the wound per your standard wound care protocol and debride when necessary.
- PROMOGRAN Matrix may be used when visible signs of infection are present in the wound area only when proper medical treatment addresses the underlying cause.
- Hydrate with saline for wounds with low or no exudate.
- Apply directly to wound, covering the entire wound bed. PROMOGRAN Matrix forms a gel on contact with exudate or through saline hydration.
- Cover PROMOGRAN Matrix with a secondary dressing to maintain a moist wound healing environment.
- Choose a suitable secondary dressing depending on level of exudate.

Removal

- It is not necessary to remove any residual PROMOGRAN Matrix during dressing changes as it will be naturally absorbed into the body over time.
- After initial treatment, remove secondary dressing and retreat the wound with PROMOGRAN Matrix up to every 72 hours depending upon the amount of exudates.
- Cover with new secondary dressing.

NEW PRODUCT

Promogran Prisma

Systagenix

How supplied

Sterile Freeze-Dried Wound Dressing: 4.34 sq. in.; A6021
19.1 sq. in.; A 6022

Action

PROMOGRAN PRISMA Matrix is comprised of a sterile, freeze-dried composite of 44% oxidized regenerated cellulose (ORC), 55% collagen, and 1% silver-ORC. Silver-ORC contains 25 % w/w ionically bound silver, a well-known antimicrobial agent. In the presence of exudate, the PRISMA Matrix transforms into a soft, conformable, biodegradable gel, and thus allows contact with all areas of the wound. PRISMA Matrix, when covered with a semi-occlusive dressing, maintains a physiologically moist microenvironment at the wound surface. This environment is conducive to granulation tissue formation, epithelialization, and optimal wound healing. PRISMA Matrix provides an effective antibacterial barrier as demonstrated by the *in-vitro* reduction of bacterial growth with common wound pathogens such as, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* and *Streptococcus pyogenes*.

Indications

PROMOGRAN PRISMA Matrix is indicated for the management of all wounds healing by secondary intent which are clear of necrotic tissue, including diabetic ulcers, venous ulcers, pressure ulcers, ulcers caused by mixed vascular etiologies, traumatic and surgical wounds; PROMOGRAN PRISMA Matrix has known hemostatic properties; can be used under compression therapy

Contraindications

- Contraindicated in patients with known hypersensitivity to the components of this product (i.e., ORC, collagen, and silver)

Application

- Prepare the wound per your standard wound care protocol and debride when necessary.
- PROMOGRAN PRISMA Matrix may be used when visible signs of infection are present in the wound area only when proper medical treatment addresses the underlying cause.
- Hydrate with saline for wounds with low or no exudate.
- Apply directly to wound, covering the entire wound bed. PROMOGRAN PRISMA Matrix forms a gel on contact with exudate or through saline hydration.
- Cover PROMOGRAN PRISMA Matrix with a secondary dressing to maintain a moist wound healing environment.
- Choose a suitable secondary dressing depending on level of exudate.

Removal

- It is not necessary to remove any residual PROMOGRAN PRISMA Matrix during dressing changes as it will be naturally absorbed into the body over time.
- After initial treatment, remove secondary dressing and retreat the wound with PROMOGRAN PRISMA Matrix up to every 72 hours depending upon the amount of exudates.
- Cover with new secondary dressing

NEW PRODUCT

Puracol Plus and Puracol Plus Ag Collagen Dressing

Medline Industries, Inc.

How supplied

Puracol

Pad: 1-mm thick, 2″ × 2.25″; A6021
1 mm thick, 4.25″ × 4.50″; A6022
1 mm thick, 8″ × 8″

Puracol AG

Pad: 1-mm thick, 8″ × 8″

Puracol Plus

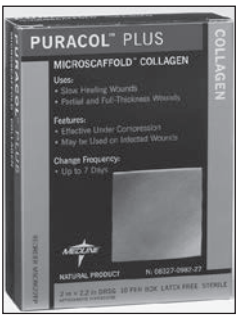
Pad: 2-mm thick, 1″ × 8″; A6021
2-mm thick, 2″ × 2.25″; A6021
2-mm thick, 4.25″ × 4.50″; A6022

Puracol Plus AG

Pad: 2-mm thick, 1″ × 8″; A6021
2-mm thick, 2″ × 2.25″; A6021
2-mm thick, 4.25″ × 4.50″; A6022

Action

Puracol, Puracol AG, Puracol Plus, and Puracol Plus AG MicroScaffold Wound Dressing are advanced wound care products composed of pure collagen. This unique, sterile biomaterial forms a soft, conformable moist gel sheet at the wound surface, promoting natural healing. The collagen-based, moist microenvironment provides an ideal scaffold for the infiltration, proliferation, and growth of cells involved in natural wound healing, allowing optimal levels of granular tissue formation and rapid epithelialization. The porous microstructure of the product promotes capillary action, which in turn adds to the intrinsic absorbency of native collagen. The absorbent nature of the dressing further allows for the removal of necrotic tissue fragments, exudate, and miscellaneous debris from the wound site. Puracol and Puracol Plus AG possess all of these unique characteristics, but also contains ionic silver to manage infection.



The dressing can be used as a primary dressing or in combination with other traditional or advanced wound dressings of occlusive or semi-occlusive nature. The dressing can be cut to any size to fit any wound. The Puracol Plus brand offers twice the available collagen as the standard Puracol brand.

Indications

To manage chronic and acute, partial- and full-thickness wounds, including superficial wounds, minor abrasions, skin tears, second-degree burns, pressure ulcers, lower-extremity ulcers (venous, arterial, and mixed), diabetic ulcers, dehisced surgical wounds, and donor sites

Contraindications

- Contraindicated on patients who are allergic to collagen, who are allergic to silver (Puracol AG and Puracol Plus AG), or who have active vasculitis; should be discontinued if signs of sensitization occur
- Not suitable for third-degree burns

Application

- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin to allow secure adhesion of the dressing.
- The product should be directly applied to the wound and may be moistened with saline to preform the gel if the wound bed is very dry.
- The dressing may be cut to size or shape to better match the wound area.
- The product should be covered with a suitable secondary dressing (such as SureSite Film Dressings, Optifoam, or Optifoam Ag foam dressings, StrataSorb, or a bordered gauze) in order to maintain the moist wound environment.
- Change the dressing as best wound care practice suggests. A heavily exuding wound may require more frequent dressing replacement.
- The dressing may be left in the wound for up to 7 days or replaced at the discretion of the health care professional. The product is 100% pure collagen and is completely biodegradable.

Removal

- The dressing may be replaced at the discretion of the health care professional or left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Gently remove the outer dressing, irrigate, and reapply a new collagen dressing if appropriate.

NEW PRODUCT

SilvaKollagen

DermaRite Industries

How supplied

42 g (1.5 oz) tube; A6011

Action

SilvaKollagen is a Group I hydrolyzed bovine collagen and ionic as well as nanocrystalline dressing that both absorbs 8 to 10 times its weight in fluid and contributes moisture based on the wounds' immediate needs. The combination of silvers provides both long and short kill times against a broad spectrum of micro-organisms and is evidence-based proven to debride efficiently, quickly, and autolytically as well as manage pain at the surface level.*

Indications

Pressure ulcers stages 3 or 4, diabetic, arterial, and venous ulcers, second-degree burns and traumatic wounds, recalcitrant wounds, painful wounds

Contraindications

- Third-degree burns, heavily exuding wounds

Application

- Cleanse wound with sterile water only! No saline or wound cleansers.
- Using a cotton or acetate tipped applicator, paint the wound bed with the SilvaKollagen. You may also use packing gauze rope with product if tunneling and/or undermining is present.
- Cover with a secondary dressing of choice.

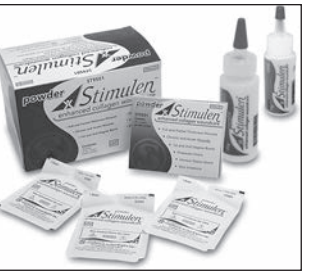
Removal

- Gently remove the secondary dressing; cleanse the wound bed with sterile water; re-apply dressing as ordered.

*See published studies.

Stimulen

Southwest Technologies, Inc.



How supplied

Powder: 1 g (10 packs/box, 10 boxes/case); A6010
10 g (12 bottles/case); A6010
20 g (12 bottles/case); A6010
40 g (4 bottles/case); A6010

Collagen gel: 5 g (individual pkt/single use; 10 pkt/box, 10 boxes/case); A6011
1 oz (12 tubes/case); A6011
0.5 oz (12 tubes/case); A6011

Sheets: 2″ × 3″ (5 boxes, 40 boxes/case = 200); A6021
4″ × 4″ (5 boxes, 20 boxes/case = 100); A6021

Lotion: 5 g (individual pkt/single use;10 pkt/box, 10 boxes/case)
2 oz (12 bottles/case)
4 oz (6 bottles/case)

Action

Stimulen is a new collagen line that comes in four forms: powder (which is 100% collagen), collagen gel, sheets, and lotion are combined with glycerin to add the bacteriostatic properties. These collagen products are combined with long and short polypeptides. The long strands offer a "bridge" to connect wound edge to wound edge, providing a lattice, and the short are broken down into the amino acid form so that the body can readily create and use a healing environment especially suited for the rapid regeneration of tissue skin.

Indications

Lotion used for topical therapies such as cracked heels, herpes, facial lesions, rashes, psoriasis; sheets are soluble and will melt when in contact with wound exudate, leaving collagen and glycerin in the wound bed; collagen gel used for deep craters or tunneling wounds; all forms used for stalled wounds or wounds in compromised patients—with diabetes, for full- and partial-thickness wounds, pressure ulcers, venous and diabetic ulcers, partial-thickness burns, acute and chronic wounds, and traumatic wounds healing by secondary intention

Contraindications

- Allergies to bovine

Application

Powder

- Prepare the wound site using the standard protocol. If the wound is highly contaminated, a preliminary treatment to reduce bioburden may be appropriate.
- Open the package, and apply Stimulen to the wound site. Apply a generous covering of powder over the entire wound surface, 1/32″ to 1/8″ deep. The nature of the wound will be a factor to consider when applying the product.
- Cover the dressing with a nonadherent secondary dressing, and secure with tape or appropriate covering.

- Maintain a moist, not wet, wound healing environment.
- Change the secondary dressing, and reapply the Stimulen powder daily or as needed.

Collagen gel

- Before use, remove cap and peel off the safety seal.
- Cleanse the wound using standard protocol.
- Apply a generous coating of the collagen gel onto wound site, or fill wound cavity.
- Cover the dressing with a nonadherent secondary dressing, and secure with tape or appropriate covering.
- Change the secondary dressing, and reapply the collagen gel daily or as needed.

Gel sheet

- Prepare the wound site using the standard protocol. If the wound is highly contaminated, a preliminary treatment to reduce bioburden may be appropriate.
- Open the package, and apply Stimulen to the wound site. The nature of the wound will be a factor to consider when applying the product. Apply a gel sheet that is approximately the same size as the wound; cut to size. *Note:* The Stimulen gel sheet is soluble and will form a gel in the wound cavity.
- Cover the dressing with a nonadherent secondary dressing, and secure with tape or appropriate covering.
- Change the secondary dressing, and reapply the Stimulen gel daily or as needed.

Lotion

- Before use, remove cap and peel off the safety seal.
- Cleanse the wound using standard protocol.
- Apply 2 to 4 drops of the lotion, and spread evenly over the affected area.

Removal

- Remove the dressing, gel, sheet, or lotion according to your facility's policy.

COMPOSITES

Action

Composite dressings combine two or more physically distinct products and are manufactured as a single dressing with several functions. Features must include a physical (not chemical) bacterial barrier that is present over the entire dressing pad and extends out into the adhesive border; an absorptive layer other than an alginate or other fiber-gelling dressing, foam, hydrocolloid, or hydrogel; and either a semiadherent or nonadherent property over the wound site.

Indications

Composite dressings may be used as primary or secondary dressings for partial- and full-thickness wounds with minimal to heavy exudate, healthy granulation tissue, or necrotic tissue (slough or moist eschar), or mixed wounds (granulation and necrotic tissue).

Advantages

- May facilitate autolytic debridement
- Allow for exchange of moisture vapor
- Mold well
- May be used on infected wounds
- Are easy to apply and remove
- Include an adhesive border

Disadvantages

- Require a border of intact skin for anchoring the dressing

HCPCS code overview

The HCPCS codes normally assigned to composite dressings with an adhesive border are:
A6200—pad size ≤ 16 in^2
A6201—pad size > 16 in^2 but ≤ 48 in^2
A6202—pad size > 48 in^2
A6203—pad size ≤ 16 in^2
A6204—pad size > 16 in^2 but ≤ 48 in^2
A6205—pad size > 48 in^2

Alldress Composite Dressing

Mölnlycke Health Care

How supplied

Cover dressing: 4″ × 4″, 6″ × 6″; A6203
6″ × 8″; A6204

Action

Alldress is a multilayered, waterproof, all-in-one sterile wound dressing; each layer serves a purpose. The porous contact layer is low-adherent and protects the wound surface. An absorbent layer wicks away excess exudate and debris, minimizing exposure of intact skin to moisture and maceration. A gentle adhesive holds the dressing securely in place, and the nonwoven layer provides stability to the dressing structure for ease of application. A semipermeable film layer maintains a moist wound environment and at the same time protects the wound from external environmental contamination and doesn't let wound fluid pass through the dressing. The smooth surface reduces the friction from bed linen and clothing and potential disturbance of the dressing.

Indications

For use as a primary or secondary cover dressing through all phases of healing for pressure ulcers (stages 1 to 4); partial- and full-thickness wounds; tunneling wounds; infected and noninfected wounds; wounds with minimal, moderate, or heavy drainage; wounds with serosanguineous or purulent drainage; and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- If necessary, gently irrigate or flush the wound with normal saline solution or another nonirritating solution.
- Gently blot excess saline solution in the wound with sterile gauze.
- Remove one side of the dressing's backing, and place the other side on the skin. Be careful not to stretch the dressing over the wound.
- Smooth the edges to ensure secure adhesion.

Removal

- Change the dressing when it's nearly saturated (soaking is visible through the outer surface of the dressing) or as required by the product.

CompDress Island Dressing

Derma Sciences, Inc.

How supplied

Pad: 2″ × 2″, 4″ × 4″, 4″ × 6″, 6″ × 6″, 4″ × 8″, 4″ × 10″, 6″ × 8″, 4″ × 14″

Action

CompDress is a sterile multilayer dressing combining a nonadherent gauze pad contact layer with a dressing retention tape.

Indications

For use as a primary or secondary dressing to manage acute and chronic lightly to moderately draining wounds

Contraindications

- None provided by the manufacturer

Application

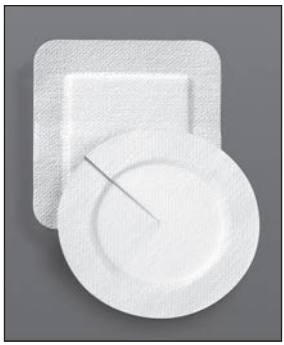
- Clean the wound with PrimaDerm Dermal Cleanser or solution.
- Pat dry the skin adjacent to the wound.
- Peel back the dressing's backing, and position dressing over the wound.
- Smooth the dressing edges to ensure secure adhesion.

Removal

- Gently lift the edge of the dressing.
- Continue around the perimeter of the dressing until it lifts off easily.

Covaderm Plus

DeRoyal



How supplied

Multilayered pad with fabric tape border

1″ pad with 2″ tape, 1 1/2″pad with 2 1/2″ tape, 2 1/2″ pad with 4″ tape, 2 × 7 1/2″ pad with 4″ × 10″ tape; A6203
4″ pad with 6″ tape, 2 1/2″ diameter pad with 4″ diameter tape with 2″ radial slit; A6203
2″ × 11″ pad with 4″ × 14″ tape, 4″ × 6″ pad with 6″ × 8″ tape; A6204

Action

Covaderm Plus is an adhesive barrier composite wound dressing that consists of a protective, nonadherent wound contact layer; a soft drainage absorption pad; a semiocclusive polyurethane film (to maintain moisture, prevent contamination, and allow vapor transmission); and a conformable adhesive tape border.

Indications

For use as a primary or secondary dressing to manage pressure ulcers (stages 1 to 4), leg ulcers, I.V. sites, chronic wounds, and surgical wounds; may also be used on partial- and full-thickness wounds, burns, tunneling wounds, infected and noninfected wounds, wounds with moderate drainage, wounds with serosanguineous or purulent drainage, and red, yellow, or black wounds; may also be used to cover orthopedic incisions and joint pins under casts

Contraindications

- None provided by the manufacturer

Application

- Peel the dressing's backing from the center to expose the pad.
- Apply the pad over the cleansed wound, making sure that adhesive tape doesn't touch the wound site.
- Remove the product's backing one side at a time, and smooth the dressing into place.

Removal

- Carefully lift the edges of the tape, and peel off the dressing.

Covaderm Plus VAD

DeRoyal

How supplied

Multilayered dressing: 4″ × 4″, 6″ × 6″; A6203

Action

The Covaderm Plus Vascular Access Device (VAD) dressing is a multilayered dressing that provides protection, bacterial barrier, absorption, cushioning, and conformability and also has an extra tape that is uniquely shaped to seal around the vascular access catheter extension.

Indication

For use with central venous catheter sites (subclavian, jugular, femoral, and antecubital); peripheral I.V. sites; implanted parts; and midline catheters

Contraindication

- None provided by the manufacturer

Application

- Peel the dressing's backing from the center to expose the pad.
- Apply the pad over the cleansed wound, making sure that adhesive tape doesn't touch the wound site.
- Remove the product's backing one side at a time, and smooth the dressing into place.

Removal

- Carefully lift the edges of the tape, and peel off the dressing.

DermaDress

DermaRite Industries, LLC

How supplied

Dressing: 4″ × 4″, 6″ × 6″; A6203, 6″ × 8″

Action

DermaDress is a multilayered waterproof sterile dressing. A low-adherent layer protects the wound, a semi-occlusive layer keeps external contamination from striking through, and a nonwoven adhesive tape holds the dressing in place.

Indications

For use as a primary or secondary dressing to manage pressure ulcers (stages 1 to 4); full-thickness wounds; wounds with minimal, moderate, or heavy drainage; and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with DermaKlenz wound cleanser or Safe Wash saline.
- Remove one side of the backing, and place the dressing over the wound.
- Remove the remaining backing to cover the wound entirely.
- Secure the edges of the dressing with gentle pressure.

Removal

- Carefully loosen the perimeter of the dressing.
- Holding down one edge of the dressing, gently lift dressing.

DuDress Film Top Island Dressing

Derma Sciences, Inc.

How supplied

Pad: 4″ × 4″, 6″ × 6″, 6″ × 8″

Action

DuDress is a sterile multilayer dressing composed of a nonadherent, gauze pad contact layer and a transparent film top layer.

Indications

For use as a primary or secondary dressing to manage acute and chronic lightly to moderately draining wounds; waterproof to allow bathing, reducing unnecessary dressing changes

Contraindications

- None provided by the manufacturer

Application

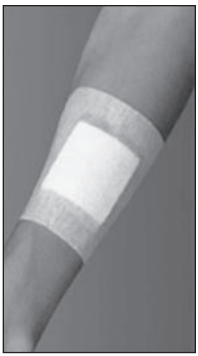
- Clean the wound with PrimaDerm Dermal Cleanser or saline solution.
- Pat dry the skin adjacent to the wound.
- Peel back the dressing's backing, and position the dressing over the wound.
- Smooth the dressing edges to ensure secure adhesion.

Removal

- Lift the edge of the dressing.
- Gently stretch the dressing to facilitate removal.
- Continue around the perimeter of the dressing until it lifts off easily.

MPM Multi-Layered Dressing (Bordered)

MPM Medical, Inc.



How supplied

Pad: 4″ × 4″, 6″ × 6″; A6203
6″ × 8″; A6204

Action

MPM Multi-Layered Dressing (Bordered) is a nonadherent, absorbent dressing with a protective adhesive backing that allows for moisture vapor transfer. The dressing provides a moist environment that facilitates wound healing.

Indications

To manage pressure ulcers (stages 1 to 4); partial- and full-thickness wounds, surgical incisions, dehisced incisions, tunneling wounds, infected and noninfected wounds, wounds with moderate to heavy serosanguineous and purulent drainage, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with MPM Wound Cleanser or normal saline solutions.
- Peel back and release the dressing's backing to expose the pad.
- Apply the pad over the wound, and finish removing the backing.
- Smooth the dressing into place.

Removal

- Carefully lift the edge of the tape, and peel off the dressing.

MPM Multi-Layered Dressing (Non-Bordered)

MPM Medical, Inc.

How supplied

Pad: 2″ × 2″, 4″ × 4″; A6200
6″ × 6″, 8″ × 10″; A6201

Action

MPM Multi-Layered Dressing (Non-Bordered) is a nonadherent, absorbent dressing with a protective adhesive backing that allows for moisture vapor transfer. The dressing provides a moist environment that facilitates wound healing.

Indications

To manage pressure ulcers (stages 1 to 4); partial- and full-thickness wounds, surgical incisions, dehisced incisions, tunneling wounds, infected and noninfected wounds, wounds with moderate to heavy serosanguineous and purulent drainage, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with MPM Wound Cleanser.
- Remove pad from pouch, and, if necessary, cut to fit the wound. Adhere to patient using hypoallergenic tape.

Removal

- Remove pad from wound according to protocol or when saturated.

OpSite Post-Op Composite Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

Dressing: 2 1/2″ × 2″ with 1 1/2″ × 1/2″ pad, 3 1/4″ × 3 3/8″ with 3″ × 1 1/5″ pad, 4 3/4″ × 4″ with 3″ × 2″ pad, 6 1/8″ × 3 1/8″ with 5″ × 1 1/2″ pad, 8″ × 4″ with 6″ × 2″ pad, 10″ × 4″ with 8″ × 2″ pad; A6203
11 3/4 × 4″ with 10″ × 2″ pad, 13 1/4″ × 4″ with 11 3/4″ × 2″ pad; A6204

Action

OpSite Post-Op Composite Dressings combine OpSite transparent film with an absorbent, nonadherent pad. Drainage can be monitored without disturbing the dressing. Moisture vapor permeability combined with nonsensitizing adhesive allows the wound and the skin under the dressing to breathe. The dressing stays in place, reducing the risk of maceration. The OpSite film is impermeable to water and body fluids. The pad is highly absorbent, minimizing the number of dressing changes. Its nonadherent surface leaves the wound site undisturbed, reducing pain and wound trauma during dressing changes.

Indications

For use as primary dressings for skin tears, pressure ulcers (stages 1 to 3), postoperative and arthroscopic wounds, minor cuts, and lacerations; may also be used as secondary dressings over gels and alginates

Contraindications

- None provided by the manufacturer

Application

- Remove one backing tab, and place the dressing over the wound.
- Peel off the remaining backing while smoothing the dressing onto the skin.
- Remove the film carrier.

Removal

- Grasp a corner of the dressing's clear film, and pull it parallel to the skin. This stretching action releases the adhesive for gentle removal.
- Continue stretching around the circumference of the dressing, and then lift it off.

Repel Wound Dressing

MPM Medical, Inc.

How supplied

Pad: 4″ × 4″; A6203
6″ × 6″, 6″ × 8″; A6204

Action

Repel Wound Dressing is a nonadherent island dressing with a waterproof protective backing and an adhesive border that allows for moisture vapor transfer. Repel Wound Dressing maintains a moist wound environment that facilitates wound healing.

Indications

To manage pressure ulcers (stages 2 to 4), venous stasis ulcers, partial- and full-thickness wounds, surgical incisions, tunneling wounds, infected and noninfected wounds, and moderately to heavily draining wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with MPM Wound Cleanser or normal saline solution.
- Peel back the dressing's backing to expose the pad.
- Apply the pad over the wound, and finish removing the backing.
- Smooth the dressing into place.

Removal

- Carefully lift the edge of the tape, and peel off the pad.

Stratasorb

Medline Industries, Inc.

How supplied

Island dressing: 4″ × 4″ (2.5″ × 2″ pad)
6″ × 6″ (4″ × 4″ pad)
4″ × 10″ (2″ × 8″ pad); A6203
6″ × 7.5″ (4″ × 6″ pad), 4″ × 14″ (2″ × 12″ pad); A6204

Action

Stratasorb is a four-layer composite island dressing that absorbs exudate, protects the wound, and keeps it moist. It consists of a nonadherent wound contact layer, an absorbent soaker, a nonwoven adhesive border, and a waterproof, bacteria-resistant outer layer.

Indications

To manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, tunneling wounds, infected and noninfected wounds, wounds with minimal to heavy drainage, wounds with serosanguineous or purulent drainage, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the application site with normal saline solution or an appropriate cleanser, such as Skintegrity Wound Cleanser. Dry the surrounding area to ensure that it's free from any greasy substance.
- Select the appropriate dressing size for the wound. Make sure the dressing extends 1 1/4″ to 1 1/2″ (3 to 4 cm) beyond the wound so the dressing can attach to healthy tissue.
- Remove one side of the dressing's paper backing, and apply the exposed adhesive to the skin.
- Remove the second side of the paper backing, and apply the remaining adhesive, being careful not to stretch the dressing.

Removal

- Change the dressing as indicated by the wound's condition and the amount of exudate or as the primary dressing indicates.
- Lift the dressing by one edge, and peel it back while holding the skin edge.
- Repeat cleansing procedure before applying a new dressing.

Suresite 123 + Pad Composite Island Film Dressing

Medline Industries, Inc.

How supplied

Island dressing: 2.4″ × 2.8″ (1.3″ × 1.6″ pad), 4″ × 4.8″ (2.4″ × 3.2″ pad)

Action

Suresite 123 + Pad is a composite island dressing constructed with a nonadherent, absorbent center pad and transparent film, waterproof adhesive border. This dressing absorbs exudate, protects the wound, and keeps it moist.

Indications

To manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, tunneling wounds, infected and noninfected wounds, wounds with minimal to heavy drainage, wounds with serosanguineous or purulent drainage, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the application site with normal saline solution or an appropriate cleanser, such as Skintegrity Wound Cleanser. Dry the surrounding area to ensure that it's free from any greasy substance.
- Select the appropriate dressing size for the wound. Make sure the dressing extends 1 1/4″ to 1 1/2″ (3 to 4 cm) beyond the wound so the dressing can attach to healthy tissue.
- Remove one side of the dressing's paper backing, and apply the exposed adhesive to the skin.
- Remove the second side of the paper backing, and apply the remaining adhesive, being careful not to stretch the dressing.
- Remove the top, paper liner from the center S-curve split.

Removal

- Change the dressing as indicated by the wound's condition and the amount of exudate or as the primary dressing indicates.
- Lift the dressing by one edge, stretch laterally to the skin surface to release the adhesive from the skin.

TELFA Island Dressing

Covidien

How supplied

Pad: 2″ × 3 3/4″ 4″ × 4″, 4″ × 5″; A6219
4″ × 8″, 4″ × 10″, 6″ × 6″; A6220
4″ × 14″; A6221

Action

TELFA Island Dressing has a soft, nonwoven backing that conforms to the wound and seals all four sides. The dressing protects the wound from the external environment, and the nonadherent surface allows nontraumatic removal.

Indications

To manage lightly draining wounds and to act as a securing dressing for central and peripheral I.V. sites; may also be used on infected and noninfected wounds, partial- and full-thickness wounds, wounds with minimal drainage, and red wounds

Contraindications

- None

Application

- Clean the wound with normal saline solution or a cleansing agent.
- Apply the dressing over the wound.
- Secure the edges of the dressing to the periwound.

Removal

- Gently remove the soiled dressing, taking care not to disturb the wound bed.
- May be used with Webcol skin barrier wipe.

Telfa "Ouchless" Adhesive Dressing

Covidien

How supplied

Pad: 2″ × 3″, 3″ × 4″

Action

Telfa "Ouchless" Adhesive Dressing is made of an absorbent, nonwoven cotton fabric core. Adhesive strips keep the dressing close to the affected area. The nonadherent surface permits nontraumatic removal.

Indications

For use as a primary dressing on lightly draining wounds; may also be used on pressure ulcers (stages 1 and 2), partial-thickness wounds, infected and noninfected wounds, and wounds with minimal drainage.

Contraindications

- None

Application

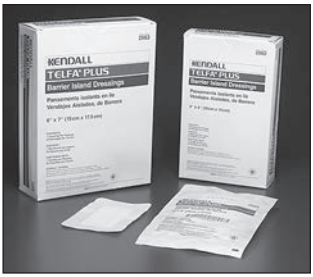
- Clean the wound with normal saline solution or a cleansing agent.
- Apply the dressing over the wound, and smooth the adhesive onto the periwound skin.

Removal

- Gently remove the soiled dressing, taking care not to disturb the wound bed.

TELFA PLUS Island Dressing

Covidien



How supplied

Pad: 4″ × 6″; A6203
6″ × 7″, 6″ × 10″, 8″ × 8″; A6204

Action

TELFA PLUS Island Dressing absorbs moderate amounts of fluid, doesn't adhere to wounds, and provides a barrier to fluid and bacteria.

Indications

For use as a primary or secondary dressing and securing layer to manage surgical incisions, lacerations, central and peripheral I.V. sites, pressure ulcers, partial- and full-thickness wounds, stasis ulcers, arterial ulcers, and diabetic ulcers. May also be used for wounds with light to moderate drainage, infected and noninfected wounds

Contraindications

- None

Application

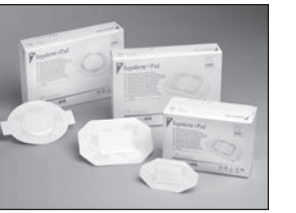
- Clean the wound with a nontoxic cleansing solution or normal saline solution.
- To remove excess cleanser or saline solution, gently pat the wound and surrounding skin with a sterile 4″ × 4″ gauze sponge. Be sure the surrounding skin is thoroughly dry to ensure a good seal between the skin and the dressing adhesive.
- Prep the skin with an adhesive barrier wipe prior to dressing application. This ensures a better seal and reduces trauma upon dressing removal.
- Remove the dressing's release liners from the center out, position and apply the dressing over the wound, and then smooth the adhesive borders to ensure contact.

Removal

- Carefully peel back the island border and pad, taking care not to tear fragile skin or disturb the wound bed.

3M Tegaderm +Pad Film Dressing with Non-Adherent Pad

3M Health Care



How supplied

Island: 2″ × 2 3/4″ (1″ × 1 1/2″ pad); 2 3/8″ × 4″ (1″ × 2 3/8″ pad), 3 1/2″ × 4″ (1 3/4″ × 2 3/8″ pad), 6″ × 6″ (4″ × 4″ pad), 3 1/2″ × 6″ (1 3/4″ × 4″ pad), 3 1/2″ × 8″ (1 3/4″ × 4″ pad), 3 1/2″ × 10″ (1 3/4″ × 8″); A6203
3 1/2″ × 13 3/4″ (1 3/4″ × 11 3/4″ pad); A6204

Oval: 3 1/2″ × 4 1/8″ (1 3/4″ × 11 3/4″ pad); A6203

Action

The 3M Tegaderm +Pad Film Dressing with Non-Adherent Pad is a sterile, waterproof bacterial barrier which consists of a nonadherent absorbent pad bonded to a larger, thin film transparent dressing.

Indications

To manage acute wounds, cuts, burns, abrasions, I.V. catheter sites, and surgical incisions; may also be used for superficial and partial-thickness chronic wounds

Contraindications

- Not for replacing sutures or other primary wound closures

Application

- Prepare the site for wound dressing or catheter insertion according to facility policy. To ensure dressing adhesion, clip excess hair at the site, but don't shave. Allow all preparation liquids to dry completely before applying the dressing.
- Peel the paper liner from the paper-framed dressing, exposing the adhesive surface. Position the framed window over the wound site or catheter insertion site; apply the dressing.
- Remove the paper frame from the dressing while smoothing down the dressing edges and sealing them securely around the wound or catheter.

Removal

- Grasp the edge gently, and slowly peel the dressing from the skin in the direction of hair growth.

3M Tegaderm Absorbent Clear Acrylic Dressing

3M Health Care

How supplied

Oval: 1 1/2″ × 2 1/4″, 2 3/8″ × 3″, 3 3/8″ × 4 1/2″; A6203
Sacral: 4 1/2″ × 5″; A6204
Square: 3 7/8″ × 4″; A6203
5 7/8″ × 6″; A6204

Action

3M Tegaderm Absorbent Clear Acrylic Dressing is a transparent, absorbent dressing for optimal clinical performance and wear time that allows wound monitoring without changing the dressing. 3M Tegaderm Absorbent Clear Acrylic Dressing provides a moist wound environment, which promotes autolytic debridement. It's conformable, comfortable for patients, and easy to apply and remove.

Indications

For use on pressure ulcers, skin tears, abrasions, donor sites, superficial burns, and clean, closed approximated surgical incisions or laparoscopic incisions.

Contraindications

- None known

Application

- Hold the dressing by a tab, and peel the liner from the dressing, exposing the adhesive surface.
- Hold the dressing by the tabs, and center the dressing over the wound, adhesive side down. Avoid stretching the dressing or skin.
- Gently position the dressing in place, smoothing from the center outward.
- Slowly remove the paper frame while pressing down and smoothing the film border to ensure good adhesion.

Removal

- Carefully lift the film edges from the skin. If there is difficulty lifting the dressing, apply tape to the edge and use tape to lift.
- Continue lifting the film until all edges are free from the skin surface.
- Remove the dressing slowly, folding it over itself. Pull carefully in the direction of hair growth.

CONTACT LAYERS

Action

Contact layers are manufactured as single layers of a woven (polyamide) net that acts as a low-adherence material when placed in contact with the base of the wound. These materials allow wound exudate to pass to a secondary dressing. They may be used with topical medications. Contact layers aren't intended to be changed with each dressing change.

Indications

Contact layers may be used as primary dressings for partial- and full-thickness wounds; wounds with minimal, moderate, and heavy exudate; donor sites; and split-thickness skin grafts.

Advantages

- Can protect wound bases from trauma during dressing changes
- May be applied with topical medications, wound fillers, or gauze dressings

Disadvantages

- Are not recommended for stage 1 pressure ulcers; wounds that are shallow, dehydrated, or covered with eschar; or wounds that are draining a viscous exudate
- Require secondary dressings

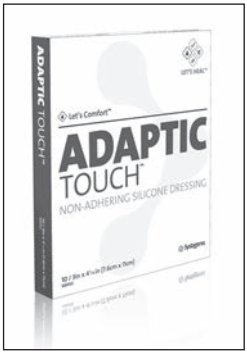
HCPCS code overview

The HCPCS codes normally assigned to contact layer dressings are:
A6206—pad size ≤ 16 in^2
A6207—pad size > 16 in^2 but ≤ 48 in^2
A6208—pad size > 48 in^2

NEW PRODUCT

Adaptic Touch

Systagenix



How supplied

Open mesh contact layer: 2″ × 3″, 3″ × 4 1/4″; A6206
5″ × 6″; A6207
8″ × 12 3/4″; A6208

Action

Silicone assists dressing application and atraumatic removal; advanced mesh design means minimized risk of exudates pooling and secondary dressing adherence to wounds, reduced chance of maceration

Indications

Indicated for use in the management of dry to heavily exuding, partial- and full-thickness chronic wounds, including venous ulcers, decubitus (pressure) ulcers, diabetic ulcers, traumatic and surgical wounds, donor sites and first- and second-degree burns. It can be used under compression and in conjunction with negative pressure wound therapy (NPWT).

Contraindications

Not indicated for use with patients with a known sensitivity to silicone or cellulose acetate fabric or surgical implantation

Application

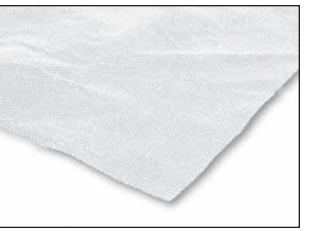
- To prevent potential adherence of silicone to gloves, moisten gloves with a sterile solution to facilitate handling.
- Prepare the wound according to wound management protocol.
- Ensure skin surrounding the wound is dry.
- If needed, ADAPTIC TOUCH may be cut to size with sterile scissors—leave one or two of the release papers in place when cutting.
- Remove protective films from ADAPTIC TOUCH.
- Place ADAPTIC TOUCH dressing directly over the wound and smooth in place around the wound.
- ADAPTIC TOUCH should be applied as a single layer (no folding), as this will allow exudates to easily flow through into secondary layer.
- If more than one piece of ADAPTIC TOUCH is required, ensure dressings overlap completely covering entire wound bed and surrounding edges to avoid secondary dressing adherence to the wound; however, overlap should be minimized to prevent occlusion of mesh.
- Cover with an appropriate semi-occlusive secondary dressing, e.g., TIELLE Hydropolymer Dressing.

Removal

- Adaptic Touch may be left in place for several days depending on wound condition and exudate level.

Conformant 2 Wound Veil

Smith & Nephew, Inc.
Wound Management



How supplied

Sterile sheet: 4″ × 4″; A6206
4″ × 12″; A6207
12″ × 12″, 12″ × 24″, 24″ × 36″; A6208
Sterile roll: 3″ × 5 yards, 4″ × 3 yards, 6″ × 2 yards, 6″ × 4 yards; A6206

Action

Conformant 2 is a single, transparent, nonadherent wound veil made of perforated high-density polyethylene. It's used to line wounds or to place under packing materials. It's easy to remove and assists in the removal of other products placed over the veil. Because it's transparent, Conformant 2 allows visualization of the wound bed.

Indications

To prevent skin breakdown and to manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, infected and uninfected wounds, draining wounds, and red, yellow, or black wounds; may also be applied directly to the wound as a liner or used with any topical preparation or ointment

Contraindications

- Contraindicated for tunneling wounds

Application

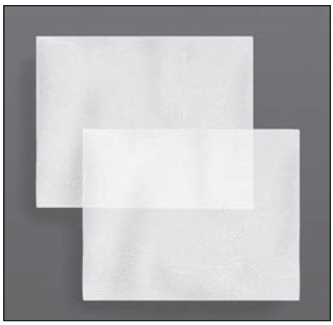
- Place the sheet over the wound and surrounding tissue, and affix it with tape or roll gauze.

Removal

- Remove the tape or roll gauze.
- Gently lift one corner of the sheet, and peel it back from the wound.

DERMANET Wound Contact Layer

DeRoyal



How supplied

Sheet: 3″ × 3″; A6206
5″ × 4″; A6207
8″ × 10″, 20″ × 15″, 24″ × 36″; A6208
Roll: 6″ × 72″; A6208

Action

DERMANET Wound Contact Layer is a lightweight net made from high-density polyethylene that forms a porous fine-mesh structure. It's nonlinting, inert (totally nonreactive), soft, air- and fluid-permeable, and nonadherent. It conforms to the shapes of wounds and may be used as a primary dressing, coated with ointment for burns, or used as a liner for deep wounds that need to be packed (thus allowing easy removal of packing material).

Indications

For use as a primary dressing to protect burns, graft sites, donor sites, and granulating dermal ulcers and to line deep wounds before packing

Contraindications

- None provided by the manufacturer

Application

- After cleaning the wound and applying topical medications, as prescribed, carefully apply DERMANET Wound Contact Layer.
- Cover the contact layer with a secondary dressing.
- Alternatively, apply medications directly to DERMANET Wound Contact Layer, and place it over the wound before applying a cover dressing.
- For deep, open wounds, line the wound with DERMANET Wound Contact Layer, pack the wound with appropriate packing material, and then apply a cover dressing.

Removal

- Gently lift the dressing off or out of the wound.

Glucan II Wound Dressing

Brennen Medical, LLC

How supplied

Dressing: 5″ × 6″; A6207
5″ × 12″, 10″ × 15″; A6208

Action

The Glucan II Wound Dressing is a film-backed, mesh-reinforced wound dressing consisting of oat beta-glucan. This temporary wound dressing provides an optimum gas-permeable, semiocclusive covering for the wound site; decreases pain by providing a cover for sensory nerve terminals; reduces the need for painful dressing changes; decreases fluid loss; reduces heat loss; forms a barrier against bacterial contamination; may permit early physical therapy; and provides cover for donor sites. It may provide a soothing interface at the wound surface.

Indications

To manage partial-thickness burns, ulcers, donor sites, and other shallow or abrasive wounds; may be used as a wound covering immediately after initial cleansing and removal of broken blisters (unbroken blisters may be left intact)

Contraindications

- Contraindicated for third-degree burns and for wounds with large amounts of eschar
- Contraindicated on patients with sensitivity to plant extracts and patients with a history of multiple serum allergies

Application

- Using aseptic technique, prepare the wound site. If necessary, debride or excise the wound, removing broken blisters, eschar, necrotic tissue, and foreign debris.
- Apply the dressing to the wound surface. (Dressing is labeled "THIS SIDE UP.") Smooth the Glucan II Wound Dressing into place on the wound surface to ensure intimate contact of the dressing with the wound. If necessary, moisten the dressing with sterile saline for easier manageability. Remove any wrinkles or creasing of the dressing.
- Staples may be used when applying the dressing to donor sites.
- Apply an absorbent dressing over the Glucan II Wound Dressing, and secure in place with a flexible net, gauze, or similar dressing.
- Protect the wound from movement for 30 to 60 minutes after the dressing has been applied to ensure adherence to the wound. Dressing perforations allow normal wound drainage.
- Inspect covered areas daily to detect the formation of purulent accumulations, suggesting infection. Take appropriate measures, possibly including removal of the dressing.
- Abrupt temperature elevation may occasionally be observed immediately following the application of the Glucan II Wound Dressing. If the elevated temperature persists, an infection may be present and appropriate measures should be taken. Removal of the dressing may be indicated.

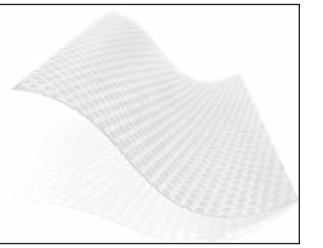
Removal

- Inspect the wound after 24 hours to assess status.
- Remove the absorbent outer dressing. Leave the Glucan II Wound Dressing open, or wrap lightly with a flexible net, gauze, or similar dressing. If any signs of infection are present, remove the Glucan II Wound Dressing, clean the wound site, and apply a new dressing. If the Glucan II Wound Dressing adheres to the wound and/or the wound is re-epithelializing, the dressing may remain on the wound as a simple barrier or protective dressing until healing is complete.
- When dressing becomes very dry and healing appears complete, apply a topical cream (such as GlucanPro 3000) over the Glucan II Wound Dressing and leave in place overnight. Easily lift the Glucan II Wound Dressing off the healed wound at next dressing change.

NEW PRODUCT

Mepitel One Wound Contact Layer

Mölnlycke Health Care



How supplied

Single Sided Sheet: 2″ × 3″, 3″ × 4″; A6206
4″ × 7″; A6207
6.8″ × 10″; A6208

Action

Mepitel One is a soft silicone wound contact layer featuring a Safetac technology layer on one side and a transparent, flexible, thin, and perforated polyurethane film. The Safetac technology layer tacks gentle to dry surfaces but not to moist ones such as open wound, therefore reducing trauma and pain to the patient during dressing changes. Mepitel One is a nonabsorbent dressing that allows for exudate to pass vertically into a secondary into a secondary absorbent pad. It may also be used under compression bandages and may be cut to suit various wound shapes and sizes.

Indications

For the management of a wide range of exuding wounds such as painful wounds, skin tears, skin abrasions, surgical incisions, partial-thickness burns, traumatic wounds, blistering, lacerations, partial- and full-thickness grafts, radiated skin, leg and foot ulcers, as well as for a protective layer on nonexuding wounds or fragile skin

Contraindications

- When used on Epidermolysis Bullosa patients, extra attention must be paid during dressing changes. Mepitel One has a stronger level than Mepitel.
- Avoid unnecessary pressure upon the dressing when Mepitel One is used on burns treated with mesh grafts, or after facial resurfacing.
- When Mepitel One is used for the fixation of skin grafts, the dressing should not be changed before the fifth day post application.

Application

- Clean the wound in accordance with clinical practice and dry the surrounding skin.
- Choose a size of Mepitel One that covers the wound and the surrounding skin by at least 2 cm. For larger wounds, more overlap is required. If more than one piece of Mepitel One is required, overlap the dressings, making sure that the holes are not blocked.
- Remove the protective film by using the overlapping grip edge and apply Mepitel One with the tacky side to the wound.
- Remove the remaining protective film and smooth Mepitel One in place onto the surrounding skin, ensuring a good seal.
- Apply a secondary absorbent dressing on top of Mepitel One and fixate.

Removal

- Gently lift one corner of the sheet, and peel back from the wound.

Mepitel Wound Contact Layer

Mölnlycke Health Care

How supplied

Sheet: 2″ × 3″, 3″ × 4″; A6206
4″ × 7″; A6207
8″ × 12″; A6208

Action

Mepitel is a soft silicone wound contact layer featuring double-sided Safetac technology that is nonadherent to moist the wound bed, yet adheres gently to dry skin. Mepitel prevents the outer dressing from sticking to the wound and therefore minimizes trauma and pain associated with dressing changes. This results in less trauma to the wound and less pain to the patient, which ensures undisturbed wound healing.

Indications

To manage a wide range of painful wounds and wounds with compromised or fragile surrounding skin, such as skin tears, chronic wounds, traumatic wounds, contact layer for protection of fragile granulation tissue, fixation of grafts, partial-thickness burns, and painful skin conditions with blisters such as epidermolysis bullosa

Contraindications

- None provided by the manufacturer

Application

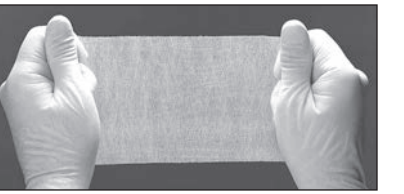
- Clean the wound area.
- If necessary, cut the dressing to the appropriate shape.
- Remove the release film. (*Note:* To avoid sticking when handling Mepitel once the backing has been removed, moisten gloves with saline or water.)
- Apply Mepitel to the wound, overlapping dry skin by at least $^{3}/_{8}$″ (1 cm).
- Apply outer absorbent dressing. Mepitel can be left in place through several outer-dressing changes.

Removal

- Gently lift one corner of the sheet, and peel back from the wound.

N-TERFACE Interpositional Surfacing Material

Winfield Laboratories, Inc.



How supplied

Roll: 4″ × 10″ (feet); A6208
Sheet: 4″ × 4″; A6206
4″ × 12″; A6207
12″ × 12″, 12″ × 24″; A6208

Action

N-TERFACE Interpositional Surfacing Material is a patented, lightweight, extruded, high-density polyurethane sheeting material that can be used as the primary wound contact layer to prevent adherence of secondary dressings or to line deep wounds for easy removal of packing material. It's nonreactive, translucent, nonlinting, air- and fluid-permeable, and nonadherent. It allows visual examination of the wound as well as cleaning and medicating through the material. It may be changed daily or after several days. It's useful under an Unna boot to prevent its sticking to wounds or grafts.

Indications

As a wet or dry dressing and postoperatively, to manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds; skin graft sites; donor sites, skin conditions; fungating neoplasms; burns; tunneling wounds; infected and noninfected wounds; wounds with heavy, serosanguineous, or purulent drainage; minor lacerations; and red, yellow, or black wounds

Contraindications

- Contraindicated for preventing skin breakdown
- Contraindicated for third-degree burns

Application

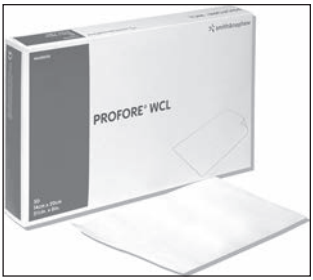
- Select a dressing size that covers the wound and periwound area.
- Apply the desired topical agent to the wound or to the dressing before placing the dressing on the wound.
- Apply the dressing dry, or dip it in normal saline solution for better conformability.
- Apply a secondary dressing.
- Secure with stretch netting, roll gauze, or tape.

Removal

- Change the dressing as required.
- Gently lift the dressing off the wound.
- If the wound has dried or is very bloody, or if the contact layer sticks to the wound, rinse the wound with normal saline solution, leaving the contact layer in place. Then remove the contact layer, or leave this layer in place to protect fragile epithelium.
- If the contact layer is left in place for longer than 24 hours, clean the wound through the N-TERFACE contact layer when the secondary absorptive dressing is changed.

PROFORE WCL

Smith & Nephew, Inc.
Wound Management



How supplied

Sheet: 5 1/2″ × 8″; A6207

Action

PROFORE WCL (wound contact layer) is a dressing made of knitted viscose rayon. It provides physical separation between the wound and external environments to assist in preventing bacterial contamination of the wound. It also aids in the creation and maintenance of a moist wound environment. Moist wound environments have been established as optimal environments for the management of the wound.

Indications

To act as a nonadherent interface between the granulating wound surface and conventional absorbent dressings; also for use in conjunction with PROFORE, PROFORE LF and PROFORE Lite, the Multi-Layer Compression Bandage Systems

Contraindications

- Not for use if reddening or sensitization occurs; discontinue use and consult a health care professional

Application

- CAUTION: Don't use contents if pouch is opened or damaged.
- Use a clean technique to remove the wound contact layer from the pack and apply directly to the wound.
- Either side of the WCL can be placed in contact with the wound.
- Make sure that the ulcerated area is covered.
- Use extra WCL as required.

Removal

- Gently lift the layer out of the wound.

NEW PRODUCT

Restore Contact Layer Dressing with TRIACT Technology

Hollister Wound Care

How supplied

Dressing: 2″ × 2″; A6206
4″ × 5″, 6″ × 8″; A6207
8″ × 12″; A6208

Action

The proprietary TRIACT technology is comprised of a nonocclusive polyester mesh impregnated with a polymer matrix containing hydrocolloid particles and petrolatum-based formulation. Upon contact with wound exudates, the hydrocolloid particles combine with the matrix to form a lipido-colloidal gel, providing a moist environment that promotes healing. Being nonadhesive, removal of Restore Contact Layer is virtually pain-free and helps minimize damage to newly formed surrounding skin. It is ideal for use on wound with fragile surrounding skin.

Indications

Indicated in low to moderate exuding partial- and full-thickness wounds, including minor cuts, abrasions, scalds and burns, leg ulcers, diabetic ulcers, pressure ulcers, surgical wounds, graft and donor sites, second-degree burns, skin tears

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Remove the protective clear tabs from both sides of the Restore Contact Layer dressing.
- Apply Restore Contact Layer dressing to cover the entire wound using aseptic technique. The dressing may overlap onto healthy skin.
- Cover with appropriate secondary dressing using aseptic technique (gauze, transparent film, etc.).
- Secure secondary dressing with tape or other material.
- Remove gloves and wash hands after completing procedure.

Removal

- Wash hands and put on gloves.
- Remove secondary dressing.
- Remove Restore Contact Layer dressing.
- Irrigate wound base using Restore Wound Cleanser or sterile saline.
- Reapply dressing if necessary. Remove gloves and wash hands after completing procedure.
- Restore Contact Layer Dressing should be changed depending on the wound and the healing progression or after a maximum of 7 days.

NEW PRODUCT

Restore Contact Layer FLEX Dressing with TRIACT Technology

Hollister Wound Care

How supplied

Dressing: 2″ × 2″; A6206
4″ × 5″, 6″ × 8″; A6207

Action

TRIACT technology is an advanced formulation used in select RESTORE wound care dressings, which are comprised of a nonocclusive polyester mesh impregnated with a polymer matrix containing hydrocolloid particles and a petrolatum-based formulation. Upon contact with wound exudates, the hydrocolloid particles form a lipido-colloidal gel, providing a moist healing environment that provides a moist wound interface and minimizes dressing adherence. Restore Contact Layer FLEX allows virtually painfree dressing removal and helps minimize damage to delicate tissue in the wound bed or surrounding skin. It is ideal for use on wounds with fragile periwound skin.

Indications

Indicated in low to moderate exuding partial- and full-thickness wounds, including minor cuts, abrasions, scalds and burns, leg ulcers, diabetic ulcers, pressure ulcers, surgical wounds, graft and donor sites, second-degree burns, skin tears, and wounds associated with EB. It is indicated for use in conjunction with negative pressure wound therapy (NPWT).

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Remove the protective clear tabs from both sides of the Restore Contact Layer FLEX dressing (the dressing can be cut to size or shape before removing the clear tabs).
- Apply Restore Contact Layer FLEX dressing to cover the entire wound using aseptic technique. The dressing may overlap onto healthy skin.
- Cover with appropriate secondary dressing based on the amount of exudate, using aseptic technique (gauze wrap, gauze, transparent film, or other absorbent dressings, etc.).
- Secure the dressing, as needed, with gauze wrap, tape, or another fixation method.
- Remove gloves and wash hands after completing the procedure.

Removal

- Wash hands and put on gloves.
- Remove the secondary dressing.
- Remove the Restore Contact Layer FLEX dressing.

- Irrigate the wound base using Restore Wound Cleanser or sterile saline.
- Reapply dressing, if necessary.
- Remove gloves and wash hands after completing the procedure.
- Note: Restore Contact Layer FLEX Dressing should be changed depending on the wound and the healing progression or after a maximum of 7 days.

Silon-TSR Temporary Skin Replacement

Bio Med Sciences, Inc.

How supplied

Dressing: 5″ × 5″; A6207
5″ × 10″, 11″ × 12″; A6208
Face mask: Face Mask Design
Face mask kit: Face Mask Kit
Roll: 5″ × 48″; A6208

Action

Silon-TSR (temporary skin replacement) is a semi-occlusive silicone membrane made of a complex weave of patented polymers that provides an optimal moist environment for rapid re-epithelization and wound healing. Unique surface properties include a self-cling effect without adhesives and a nonadherent surface that won't integrate into the wound bed. Silon is ultra thin and transparent, permitting continuous monitoring of the wound without removal of the dressing, thus reducing patient discomfort.

Indications

To manage partial-thickness wounds (laser resurfacing wounds, dermabrasion wounds, donor sites, second-degree burns, skin tears), and autograft sites (meshed autografts, sheet autografts)

Contraindications

- Contraindicated for infected wounds
- Contraindicated in patients with allergies or sensitivities to silicone

Application

- Remove eschar, necrotic tissue, and foreign debris from the wound, and carefully irrigate the site with cleansing solution.
- While gripping the product by the "butterfly" folds of the release liners, peel the liners away while applying the dressing to the wound site. Overlap beyond the edges of the wound by at least 1″ (2.5 cm).
- Apply a gauze pad as a secondary dressing. Wound exudate will pass through the Silon-TSR and collect in the gauze. Secondary dressings may be changed periodically to prevent strikethrough of blood and exudate.
- Mastisol may be applied around the perimeter of the wound to enhance fixation. Adhesive tape may be used at points around the perimeter to prevent rollup or shifting position. Silon-TSR may remain in place for up to 10 days.

Removal

- Inspect the wound periodically.
- Remove the dressing after the first 1 to 2 days, cleaning the area, and reapplying a new dressing for the remainder of the healing process. Superficial wounds, such as laser resurfacing wounds, may not require dressing replacement.

Telfa Clear

Covidien

How supplied

Sheet: 3″ × 3″, 4″ × 5″, 12″ × 12″, 12″ × 24″

Action

Telfa Clear makes re-epithelialization possible without interrupting the healing process by providing a nonstick surface to help prevent dressings from adhering to the wound bed, and it can be removed without causing pain.

Indications

For use as a primary dressing on lightly, moderately, or heavily draining wounds; allows the freedom to choose the most appropriate absorbent secondary dressing

Contraindications

- None provided by the manufacturer

Application

- Clean the wound and surrounding skin according to facility policy.
- Carefully apply the dressing to the wound.
- Cover the contact layer with an appropriate secondary and securement wound dressing.

Removal

- Gently lift the contact layer off the wound.

3M Tegaderm Non-Adherent Contact Layer

3M Health Care

How supplied

Sheet: 3″ × 4″; A6206
3″ × 8″; A6207
8″ × 10″; A6208

Action

3M Tegaderm Non-Adherent Contact Layer is a woven nylon fabric with sealed edges that is a lint-free, nonadherent, nontoxic, nonirritating, and hypoallergenic material. Clinical studies show that Tegaderm Contact Layer can be left on the wound for up to 7 days. Tegaderm Contact Layer can be used under gauze or other absorbent dressings, while allowing exudates to pass through to an absorbent outer barrier. The nonadherence of this material will minimize disruption of healthy granulation tissue and re-epithelialized surfaces.

Indications

For use directly over wounds, including partial- and full-thickness wounds, clean closed surgical incisions, superficial, partial-thickness burns, donor sites, graft fixation sites, skin tears, traumatic and chronic wounds, and dermatologic lesions

Contraindications

- Not designed, sold, or intended for use except as indicated

Application

- Debride, clean, or irrigate the wound and surrounding skin as necessary according to facility policy.
- Topical treatment with ointments or medicaments, if indicated, can be applied to the wound surface before applying the wound contact material, or they can be applied on top of the material after it has been placed on the wound.
- If the dressing material must be cut to fit, remove all frayed or loose fibers.
- When wound drainage is minimal, moisten the dressing's wound contact material with sterile saline solution to facilitate positioning and to ensure complete contact with the wound surface.
- Gently position the material over the entire wound, including a margin of healthy skin. The material should extend at least $^1/_2$″ (1.3 cm) beyond the edge of the wound, and the cut edges of the material should not be placed directly over the wound bed.
- Dress the wound with an outer dressing of gauze, a transparent dressing, a hydrocolloid, or another suitable wound dressing.

Removal

- Dressing may remain undisturbed on the wound for up to 7 days. If the wound is infected, change the dressing according to facility policy for infected wounds.
- Change gauze dressings as needed, or at least every 24 hours. During gauze dressing changes, moisten Tegaderm Non-Adherent Contact layer, if necessary, to maintain a moist healing environment.

- When a transparent or hydrocolloid dressing is used as the outermost dressing, follow facility policy for dressing changes.
- Gently lift Tegaderm Non-Adherent Contact Layer off the wound. When this material is maintained in a moist environment, it is nonadherent and its removal is virtually pain free.
- If the wound surface is dry, soak the dressing with normal saline solution, and then gently remove it.

FOAMS

Action

Foam dressings are nonlinting and absorbent. They vary in thickness and have a nonadherent layer, allowing nontraumatic removal. Some have an adhesive border and may have a film coating as an additional bacteria barrier. Foam dressings provide a moist environment and thermal insulation. They're manufactured as pads, sheets, and pillow (cavity) dressings.

Indications

Foam dressings may be used as primary and secondary dressings for partial- and full-thickness wounds with minimal, moderate, or heavy drainage, as primary dressings for absorption and insulation, or as secondary dressings for wounds with packing. They may also be used to provide additional absorption and to absorb drainage around tubes.

Advantages

- Are nonadherent
- May repel contaminants
- Are easy to apply and remove
- Absorb light to heavy amounts of exudate
- May be used under compression

Disadvantages

- Are not effective for wounds with dry eschar
- May macerate periwound skin if they become saturated
- May require secondary dressing, tape, wrap, or net

HCPCS code overview

The HCPCS codes normally assigned to foam wound covers without an adhesive border are:
A6209—pad size ≤ 16 in^2
A6210—pad size > 16 in^2 but ≤ 48 in^2
A6211—pad size > 48 in^2

The HCPCS codes normally assigned to foam wound covers with an adhesive border are:
A6212—pad size ≤16 in^2
A6213—pad size > 16 in^2 but ≤ 48 in^2
A6214—pad size > 48 in^2

The HCPCS code normally assigned to foam wound fillers is:
A6215—per gram

NEW PRODUCT

ALLEVYN, ALLEVYN Adhesive

Smith & Nephew, Inc.
Wound Management

How supplied

ALLEVYN:	4″ × 4″; A6209
	6″ × 6″; A6210
ALLEVYN Adhesive:	5″ × 5″; A6212
	7″ × 7″; A6213
ALLEVYN Plus Adhesive Sacrum:	6 3/4″ × 6 3/4″, 9″ × 9″; A6213
ALLEVYN Heel:	4 1/2″ × 5 2/2″; A6210

Action

ALLEVYN dressings have a unique tri-laminate structure made up from a nonadherent perforated polyurethane wound contact layer, a soft and highly absorbent central hydrocellular layer, and an outer film layer that is both bacteria-proof and waterproof. ALLEVYN dressings employ all the proven benefits of moist wound healing, without any breakdown of the dressing caused by contact with exudate. These dressings absorb and retain exudates and cellular debris, ensuring minimal mess at dressing changes. ALLEVYN dressings are highly absorbent and can stay in place for up to seven days. ALLEVYN dressings are soft and cushioning, giving excellent patient comfort and contributing to a pressure reduction protocol. The ALLEVYN line provides non-adhesive options for the most fragile skin and adhesive options designed for more active patients and high friction areas. Exudate management ranges from light to heavy. The perforated wound contact layer allows even viscous exudate to pass into the dressing. The hydrocellular core of the dressing absorbs and retains liquid in its microscopic structure. The breathable outer surface of the dressing allows excess moisture to evaporate away from the dressing. The result is the creation of a wound environment, which allows healing to progress.

Indications

ALLEVYN is indicated for the management of shallow, granulating, exuding wounds, including venous leg ulcers, pressure ulcers, donor sites

Contraindications

- Not for use with oxidizing agents such as hypochlorite solutions (e.g., Dakin's) or hydrogen peroxide, as these can break down the absorbent hydrocellular component of the dressing.

Application

- Cleanse the wound and surrounding skin with DERMAL Wound Cleanser or normal saline.
- Prepare the periwound with a skin protectant, such as SKIN-PREP or NO-STING SKIN PREP for fragile skin, and allow it to dry.
- Select a dressing that allows at least a 1/2″ margin onto the skin around the wound.

- Peel back the protector papers and anchor the dressing over the wound with the adhesive side on the wound (if applicable).
- Smooth the dressing into place, ensuring that the edges of the dressing are not wrinkled.
- Secure with a secondary dressing.

Removal

- Lift one corner of the dressing and gently lift away from the wound. Stretching the dressing laterally may help to break the adhesive for gentler removal.

NEW PRODUCT

ALLEVYN Gentle, ALLEVYN Gentle Border

Smith & Nephew, Inc.
Wound Management

How supplied

ALLEVYN Gentle: 4″ × 4″; A6209
6″ × 6″; A6210

ALLEVYN Gentle Border: 3″ × 3″, 5″ × 5″; A6212

ALLEVYN Gentle Border Heel: 9″ × 9 1/8″; A6213

Action

ALLEVYN Gentle dressings have a unique tri-laminate structure made up from a nonadherent perforated polyurethane wound contact layer, a soft and highly absorbent central hydrocellular layer, and an outer film layer that is both bacteria-proof and waterproof. ALLEVYN Gentle dressings employ all the proven benefits of moist wound healing, without any breakdown of the dressing caused by contact with exudate. These dressings absorb and retain exudates and cellular debris, ensuring minimal mess at dressing changes. ALLEVYN dressings are highly absorbent, making them ideal for moderately to heavily exuding wounds and allowing for longer wear times. ALLEVYN Gentle dressings help minimize pain and trauma at dressing change and are suitable for us on patients with fragile skin.

Indications

ALLEVYN Gentle and ALLEVYN Gentle Border dressings are indicated for chronic and acute, full- or partial-thickness or granulating, exuding wounds, including leg ulcers, pressure ulcers, diabetic foot ulcers, donor sites, surgical wounds, infected wounds, malignant wounds, and burns (first- and second-degree)

Contraindications

- None provided by manufacturer

Application

- Cleanse the wound and surrounding skin with DERMAL Wound Cleanser or normal saline.
- Prepare and cleanse the periwound area removing excess moisture. A skin protectant may not be necessary with the ALLEVYN Gentle dressings.
- Select a dressing that allows at least a 1/2″ margin onto the skin around the wound.
- Remove the protector material from ALLEVYN Gentle or ALLEVYN Gentle Border and apply the white, adherent side to the wound ensuring good contact.
- Secure ALLEVYN Gentle with a secondary dressing.

Removal

- To remove, lift one corner of the dressing and gently lift away from the wound.

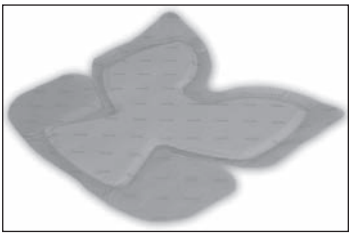
NEW PRODUCT

ALLEVYN Gentle Border Heel

ALLEVYN Gentle Border Lite

ALLEVYN Gentle Border Sacrum

Smith & Nephew, Inc.
Wound Management



How supplied

ALLEVYN Gentle Border Heel: 9″ × 9 1/8″
ALLEVYN Gentle Border Lite: 2″ × 2″, 3″ × 3″, 2 1/8″ × 4 3/4″, 4″ × 4″, 6″ × 6″
ALLEVYN Gentle Border Sacrum: 6.63″ × 6.75″
ALLEVYN Gentle Border Multisite: 6 3/4″ × 7 1/16″

Action

The advanced triple-layered construction of ALLEVYN Gentle Border facilitates dynamic fluid management to provide the optimal moist wound environment, which leads to the promotion of faster wound closure and reduced risk of maceration. The wound contact surface of ALLEVYN

Gentle Border is coated with a gentle silicone adhesive layer that ensures nontraumatic removal at dressing changes. ALLEVYN Gentle Border can be lifted and repositioned without losing its adherent properties. ALLEVYN Gentle Border can be left in place without the need for secondary retention and is both easy to apply and remove.

Indications

Wound management by secondary intention on shallow, granulating wounds, chronic and acute exudative wounds, full- and partial-thickness wounds such as pressure ulcers, leg ulcers, diabetic foot ulcers, infected wounds, malignant wounds, surgical wounds, first- and second-degree burns, donor sites, skin tears, fungating ulcers. ALLEVYN Gentle Border can be used in conjunction with INTRASITE Gel for necrotic or sloughy wounds. ALLEVYN Gentle Border is suitable for use on fragile skin.

Contraindications

- None provided by manufacturer

Application

- Apply the foam dressing directly to the wound surface.

Removal

- To remove ALLEVYN Gentle Border dressing, lift one corner of the dressing and slowly peel back until completely removed from the wound.
- Sacral dressings should be removed from the top edge and down towards the anus to minimize the chance of transmitting infection.

Allevyn Non-Adhesive Hydrocellular Foam Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

Pad: 2″ × 2″, 4″ × 4″; A6209
6″ × 6″; A6210
8″ × 8″; A6211
Heel: A6210
Tracheostomy: 3 1/2″ × 3 1/2″; A6209

Action

Allevyn Hydrocellular Foam Dressing is a sterile, absorbent foam dressing with a nonadherent wound contact layer and a semipermeable polyurethane film top layer. It maintains a moist environment and helps prevent bacterial contamination. The dressing absorbs well under compression, conforms well in areas that are awkward to dress, and absorbs up to four times more than a hydrocolloid dressing of similar size.

Indications

To manage exudate in pressure ulcers (stages 2 to 4), leg ulcers, donor sites, partial- and full-thickness wounds, wounds with moderate drainage, wounds with serosanguineous drainage, and red or yellow wounds

Contraindications

- Not intended for use on nonexuding wounds

Application

- Apply the foam dressing directly to the wound surface.
- Secure the foam dressing with dressing retention tape, regular surgical tape, or waterproof tape.

Removal

- Soak the wound site, and then remove the fixative tape.
- The dressing will come off without leaving residue in the wound.

Allevyn Thin Polyurethane Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

Dressing: 2″ × 2 3/8″, 4″ × 4″; A6209
6″ × 8″; A6210

Action

Allevyn Thin Polyurethane Dressings are sterile, absorbent foam dressings with a mild, low-tac adhesive layer and a semipermeable polyurethane film top layer that maintain a moist environment and help prevent bacterial contamination. This dressing absorbs well under compression, conforms well in areas that are awkward to dress, and absorbs up to four times more than a hydrocolloid dressing of similar size.

Indications

For use on fragile skin or skin tears, or to manage exudate in pressure ulcers (stages 2 and 3), leg ulcers, donor sites, partial- and full-thickness wounds, wounds with moderate drainage, wounds with serosanguineous drainage, and red or yellow wounds

Contraindications

- Not intended for use on nonexuding wounds

Application

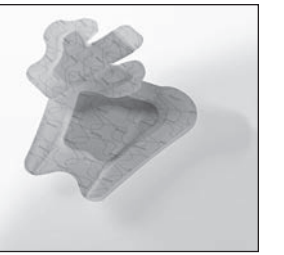
- Apply the foam dressing directly to the wound surface.
- For extra security, apply with dressing retention tape, regular surgical tape, or waterproof tape.

Removal

- Soak the wound site, and then remove the fixative tape.
- The dressing will come off without leaving residue in the wound.

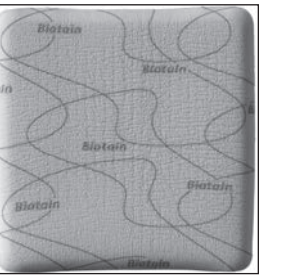
Biatain Adhesive Foam Dressing
Biatain Non-Adhesive Foam Dressing
Biatain Soft-Hold Foam Dressing

Coloplast Corp.



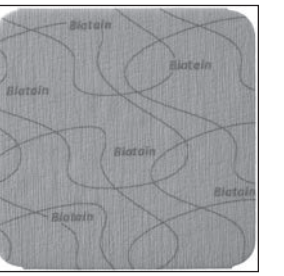
How supplied

Adhesive foam dressing:	4″ × 4″; A6212
	5″ × 5″; A6212
	7″ × 7″; A6213
Sacral dressing:	9″ × 9″; A6213
Heel dressing:	7 1/2″ × 8″; A6212
Non-Adhesive foam dressing:	2″ × 2 3/4; A6209
	4″ × 4; A6209
	6″ × 6″; A6210
	8″ × 8″; A6211
Soft-Hold foam dressing:	2″ × 2 3/4″; A6209
	4″ × 4″; A6209
	6″ × 6″; A6210



Action

Biatain Adhesive Foam Dressing and Biatain Non-Adhesive Foam Dressing provide an exudate-handling system for wounds with light to heavy exudate. They're highly absorbent, three-dimensional, polymer dressings. Biatain Adhesive Foam Dressing has a hydrocolloid adhesive border and a central 3-D polymer absorbent pad with a waterproof, semipermeable film backing. Biatain Non-Adhesive Foam Dressing is especially suitable for use on fragile skin because it doesn't have an adhesive.



Indications

To manage leg ulcers, skin tears, and diabetic and pressure ulcers with light to heavy exudate; may be used on patients with systemic infections; may be used throughout the healing process to provide padding and protection for all types of wounds

Contraindications

- Contraindicated for use with hypochlorite solutions or hydrogen peroxide
- Must be removed before radiation therapy

Application

- Rinse the wound with Sea-Clens or normal saline solution. Gently pat dry the surrounding skin.
- Choose a dressing that overlaps each side of the wound by 1″ (2.5 cm).
- Biatain Adhesive Foam Dressing may be used with Purilon Gel to encourage natural debridement of necrotic tissue.

Removal

- Biatain Adhesive Foam Dressing and Biatain Non-Adhesive Foam Dressing may be left in place for up to 7 days, depending on the amount of exudate and the condition of the dressing. Change when clinically indicated or when the exudate reaches 1″ (2.5 cm) from the edge of the dressing.

NEW PRODUCT

Bordered Foam

DermaRite Industries, LLC

How supplied

Dressing: 4″ × 4″, 6″ × 6″

Action

Bordered foam is a foam dressing layered with a nonwoven adhesive waterproof backing and border. It provides superb fluid distribution and is partially occlusive while still protecting the wound from bacterial invasion.

Indications

For chronic and acute wounds; partial- and full-thickness wounds; diabetic wounds; stage 2, 3, and 4 pressure ulcers; donor sites; infected and noninfected wounds; may be used as a secondary dressing

Contraindications

Third-degree burns

Application

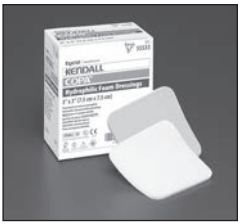
- Cleanse with DermaKlenz or safe Wash saline; pat dry.
- Select the appropriate primary dressing if this is being used as a secondary dressing; if this is being used as a primary dressing, choose the appropriate size making sure there is 1 1/4″- to 1 1/2″- overlap on intact skin.
- Remove the paper backing and in a rolling fashion, apply the dressing from one side to the other smoothing the dressing with your hand during application

Removal

- Press down gently on the skin at the edge of the dressing and lift the edge of the dressing. Do this around the entire perimeter of the dressing until all edges are freed; remove the dressing.
- If the dressing is sticking to the base of the wound, release it with wound cleanser of choice.
- Repeat cleansing procedure before application of new dressing.

COPA Ultra Soft Foam Dressing

Covidien



How supplied

Sterile sheet:	2″ × 2″, 3″ × 3″, 4″ × 4″; A6209
	5″ × 5″, 6″ × 6″, 4″ × 8″, 8″ × 8″; A6211
Drain sponge (fenestrated):	3.5″ × 3″; A6209
Island dressing:	4″ × 4″; A6212
	6″ × 6″; A6213
	8″ × 8″; A6214

Action

COPA Ultra Soft Foam Dressing provides an ideal healing environment for a variety of wounds. This highly absorbent dressing offers physical protection against external fluids and bacteria. The soft, gentle, nonadherent surface conforms to body contours. COPA foams have superior softness and absorbency. This product is available also with the topsheet that helps prevent strike-through.

Indications

To manage postsurgical incisions, pressure ulcers (stages 1, 2, and 4), venous stasis ulcers, diabetic foot wounds, donor sites, tubes, and drains

Contraindications

- Known sensitivity to polyurethane

Application

- Clean the wound.
- Apply the dressing to the wound. For best results, leave a margin of at least 1″ (2.5 cm) around the wound. For improved fit around tubes and drains, the dressing may be cut.

Removal

- Change the dressing as often as necessary.

NEW PRODUCT

DermaFoam

DermaRite Industries, LLC

How supplied

Dressing: 2″ × 2″, 4″ × 4 ¼″, 6″ × 6″ (heel/elbow)

Action

A foam dressing with a waterproof backing that maintains a moist wound environment and helps prevent bacterial invasion. DermaFoam absorbs up to 4 times more fluid than hydrocolloids and conforms to awkward-to-dress areas.

Indications

To manage chronic and acute wounds (stages 2 to 4) with low to moderate exudates, partial- and full-thickness wounds, leg ulcers, and donor sites.

Contraindications

- Contraindicated for nonexuding wounds

Application

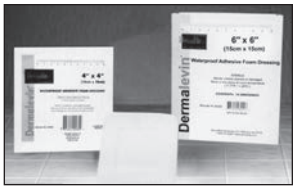
- Cleanse the area with DermaKlenz or Safe Wash saline spray.
- Remove dressing from packaging and place on wound.
- Cover with secondary adhesive dressing of choice or adhere with tape.

Removal

- Carefully loosen any adherent dressing or tape and remove this along with foam dressing; if foam dressing sticks to the wound, release it with cleanser of choice.

DermaLevin

DermaRite Industries, LLC



How supplied

Dressing: 4″ × 4″, 6″ × 6″

Action

DermaLevin is a sterile, waterproof, adhesive foam dressing with a nonadherent contact layer and a semipermeable polyurethane film top layer that maintains a moist healing environment and helps prevent bacterial contamination. DermaLevin absorbs four times more than hydrocolloids and conforms to awkward dress areas.

Indications

To manage chronic and acute wounds (stages 2 to 4) with low to moderate exuding, partial- and full-thickness wounds, leg ulcers, and donor sites

Contraindications

- Contraindicated for nonexuding wounds

Application

- Clean the wound area with DermaKlenz wound cleanser or Safe Wash saline.
- Remove the release paper from the dressing, and smooth gently into place.

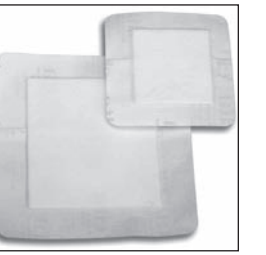
Removal

- Carefully loosen the perimeter of the dressing, and lift it gently.
- Edges may be released with water.

NEW PRODUCT

Elta Soft-Touch Bordered Hydrophilic Foam Dressing

SteadMed Medical



How supplied

Hydrophilic Foam Dressing: 4″ × 4″, 6″ × 6″; A6212

Action

Elta Soft-Touch bordered wound dressings are made with a soft, breathable tape backing and gentle adhesive that is convenient, easy, and quick to use in the treatment of a variety of wounds.

Indications

Hydrophilic Foam dressings are appropriate for use as either a primary or secondary dressing for full-thickness wounds with moderate to heavy exudates, wounds with necrotic tissue, mixed wounds, or superficial wounds where light padding is desired.

Contraindications

- Not for use on wounds when an intact, healthy border of skin is unavailable

Application

- Wash hands, don gloves, clean and prepare the wound bed.
- Remove paper backing and apply smoothly to cover the wound completely.

Removal

- Begin removal at the corner of the dressing using one hand to support the skin and one hand to gently lift the dressing away so as not to damage fragile skin. Wetting the dressing will also facilitate removal.

HydraFoam

DermaRite Industries, LLC

How supplied

Pad: 2″ × 2″, 4″ × 4″, 6″ × 6″

Action

HydraFoam is a foam dressing with a nonadherent contact layer that maintains a moist healing environment and helps prevent bacterial contamination. HydraFoam absorbs up to 20 times more of its weight in fluid than hydrocolloids and conforms to awkward-to-dress areas.

Indications

To manage chronic and acute wounds (stages 2 to 4) with moderate to high exudation, partial- and full-thickness wounds, leg ulcers, and donor sites

Contraindications

- Contraindicated for nonexudating wounds

Application

- Clean the wound area with DermaKlenz wound cleanser or Safe Wash saline.
- Remove the foam dressing from packaging and place on wound. Cover dressing with conventional techniques.

Removal

- Carefully loosen any adherent dressing such as tape, bordered gauze, or transparent dressing, and remove foam dressing. If foam dressing sticks to the wound, moisten with sterile water and lift gently.

HydroCell Adhesive Foam Dressing

Derma Sciences, Inc.

How supplied

Adhesive foam pad: 4″ × 4″, 6″ × 6″

Action

HydroCell Adhesive Foam Dressing is a highly absorptive, nonadherent, polyurethane foam pad and an adhesive protective film covering to protect the wound from outside contaminants, without the need for a secondary dressing.

Indications

To manage moderately to highly exuding wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Pat dry the skin adjacent to the wound.
- Position the HydroCell Adhesive Foam Dressing pad directly on the wound.
- Smooth the edges of the adhesive border to ensure secure adhesion.

Removal

- Remove the dressing gently.
- Removal may be facilitated by gently stretching the adhesive film border.

HydroCell Foam Dressing

Derma Sciences, Inc.

How supplied

Sheet: 4″ × 4″, 6″ × 6″

Action

HydroCell Foam Dressing is a nonadherent, highly absorptive, polyurethane foam sheet with protective film covering to protect the wound from outside contaminants. A secondary dressing is required to hold this dressing in place.

Indications

To manage moderately to highly exuding wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Pat dry the skin adjacent to the wound.
- Position HydroCell Foam Dressing directly on the wound.
- Secure with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- Remove the HydroCell Foam Dressing.

HydroCell Thin Adhesive Foam Dressing

Derma Sciences, Inc.

How supplied

Sheet: 2″ × 3″, 4″ × 4″

Action

HydroCell Thin Adhesive Foam Dressing is an absorptive polyurethane foam sheet with a nonadherent foam pad and an adhesive protective film covering to protect the wound from outside contaminants without the need for a secondary dressing.

Indications

To manage lightly exuding wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Pat dry the skin adjacent to the wound.
- Position the HydroCell Thin Adhesive Foam Dressing pad directly on the wound.
- Smooth the edges of the adhesive border to ensure secure adhesion.

Removal

- Gently remove the HydroCell Thin Adhesive Foam Dressing.
- Removal may be facilitated by gently stretching the adhesive film border.

NEW PRODUCT

Hydrofera Blue Bacteriostatic Wound Dressing

Hollister Wound Care

How supplied

Standard dressing:	2″ × 2″, 4″ × 4″, 6″ × 6″, 9 mm tunneling dressing (1.2 gm)
Heavy drainage dressing:	4″ × 4″ × 0.5″ thick, 6″ × 6″ × 0.75″ thick
Dressings with moisture-retentive film:	4″ × 4″, 2.25″ × 8″
	4″ × 4.75″ island dressing (pad size 2″ × 2.75″)
	2.5″ diameter ostomy dressing

Action

Hydrofera Blue Bacteriostatic Foam Dressing is a sterile absorptive foam dressing made of Hydrofera Polyvinyl alcohol sponge, methylene blue, and Gentian violet. The product provides a protective bacteriostatic cover that may help prevent infection, manages bioburden, which helps the body's own immune system restore bacterial balance, provides broad-spectrum activity against microorganisms commonly found in wounds, including MRSA and VRE. Hydrofera Blue binds endotoxins, which can aid in patient comfort.

Indications

To manage pressure ulcers, venous stasis ulcers, arterial ulcers, donor sites, abrasions, lacerations, superficial burns, postsurgical incisions, diabetic ulcers, and other wounds caused by trauma; appropriate for use with enzymatic debriders

Contraindications

- Contraindicated for third-degree burns

Application

- Before initial application, debride the wound of any necrotic tissue.
- Clean the wound with normal saline or with an appropriate cleansing solution, or both.
- Open the Hydrofera Foam package, and moisten the dressing with either sterile saline or sterile water. Squeeze out excess.
- Place the dressing on or in the wound, and secure with the appropriate secondary dressing.

Removal

- The first dressing change should occur at 24 hours.
- Examine the area of the dressing in contact with the wound bed: If the dressing has tuned white or lightened in color, the dressing should be changed again at 24 hours until the dressing retains its color.
- If the dressing has retained its color where it is in contact with the wound, a new dressing can be applied and left in place for up to 72 hours.
- Do not allow the dressing to completely dry out. The dressing should be rehydrated as needed. If a Hydrofera Blue Dressing is allowed to dry out, rehydration with sterile saline or sterile water is recommended prior to removal.
- The dressing should be changed if it turns white or upon strike-through drainage.

Mepilex Absorbent Foam Dressing

Mölnlycke Health Care

How supplied

Pad: 4″ × 4″; A6209
4″ × 8″, 6″ × 6″; A6210
8″ × 8″; A6211
Heel: 5″ × 8″; A6210

Action

Mepilex is a soft silicone absorbent foam dressing featuring Safetac technology, which effectively absorbs exudate and helps maintain a moist wound environment for optimal wound healing. The Safetac soft silicone technology layer minimizes the risk of periwound maceration and erosion and allows the dressing to be changed without causing additional pain to the patient or trauma to the wound and surrounding skin. Mepilex can be used under compression and may be cut for customization to the wound area.

Indications

To treat a wide range of exuding wounds, painful wounds, and wounds with compromised or fragile surrounding skin, including pressure ulcers and lower-extremity ulcers, such as venous and diabetic ulcers

Contraindications

- None provided by the manufacturer

Application

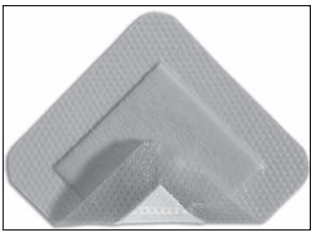
- Clean the wound area. Make sure the surrounding skin is dry.
- Select an appropriate dressing size. For best results, Mepilex should overlap the surrounding skin by at least $^{3}/_{4}$″ (2 cm). If necessary, cut the dressing to fit.
- Remove the release film, and apply the dressing with the adherent side toward the wound. Don't stretch the dressing.
- Secure the dressing with a bandage or other fixation when necessary.

Removal

- Leave Mepilex in place for several days, depending on the condition of the wound and the surrounding skin, or facility policy.

Mepilex Border Lite Bordered Thin Foam Dressing

Mölnlycke Health Care



How supplied

Self-adherent soft silicone thin foam dressing:

1.6″ × 2″
2″ × 5″, 3″ × 3″, 4″ × 4″; A6212
6″ × 6″; A6213

Action

Mepilex Border Lite self-adherent soft silicone thin foam dressing is a highly conformable dressing that absorbs exudate, maintains a moist wound environment, and minimizes the risk for periwound maceration. The Safetac technology layer allows for atraumatic removal, which prevents trauma to the wound and surrounding skin and prevents pain to the patient upon removal.

Indications

To manage a wide range of nonexuding to low exuding wounds, painful wounds, and wounds with compromised or fragile surrounding skin, including lower extremity wounds, pressure ulcers, and traumatic wounds such as abrasions, cuts, finger injuries, blisters, and skin tears; can also be used for protection of compromised and/or fragile skin

Contraindications

- Not for use with oxidizing agents

Application

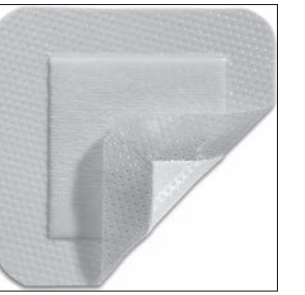
- Clean the wound area. Make sure the surrounding skin is dry.
- Remove the release film, and apply the dressing to the wound. Don't stretch the dressing.

Removal

- Mepilex Border Lite can be left in place for up to 7 days, depending on the condition of the wound and the surrounding skin, or as indicated by accepted clinical practice. Mepilex Border Lite should be changed when exudate is present at the pad edges.

Mepilex Border Self-Adherent Bordered Foam Dressing

Mölnlycke Health Care



How supplied

Pad: 3″ × 3″ (pad 1.77″ × 1.77″), 4″ × 4″ (pad 2.56″ × 2.56″); A6212
6″ × 6″ (pad 4.33″ × 4.33″), 6″ × 8″ (pad 4.33″ × 6.30″); A6213

Post-Op: 4″ × 8″; A6212
4″ × 12″; A6213

Sacrum: 7.2″ × 7.2″, 9.2″ × 9.2″; A6213

Action

Mepilex Border self-adherent foam dressing with Safetac technology absorbs exudate effectively, minimizes the risk of periwound skin maceration, and helps to maintain a moist environment for optimum wound healing. The Safetac technology properties allow the dressing to be changed without causing additional trauma to the wound and surrounding skin or pain to the patient.

Indications

Designed for a wide range of exuding wounds, painful wounds, and wounds with compromised or fragile surrounding skin, including pressure ulcers, lower-extremity ulcers (such as diabetic ulcers), and traumatic wounds such as skin tears

Contraindications

- Not for use with oxidizing agents

Application

- Clean the wound area. Make sure the surrounding skin is dry.
- Remove the release film, and apply the dressing to the wound. Don't stretch the dressing.

Removal

- Mepilex Border can be left in place for up to 7 days, depending on the condition of the wound and the surrounding skin, or as indicated by accepted clinical practice. Mepilex Border should be changed when exudate is present at the pad edges.

Mepilex Heel Foam Heel Dressing

Mölnlycke Health Care

How supplied:

Soft silicone absorbent foam heel dressing:
5″ × 8″; A6210

Action

Mepilex Heel is a soft silicone, absorbent foam dressing featuring Safetac technology and specifically designed for use on the heel. It's shaped to fit any heel so there is no need for measuring or cutting. The Safetac technology provides a good seal to reduce the risk of maceration and minimizes the trauma and pain at dressing changes.

Indications

Designed for a wide range of exuding wounds, painful wounds, and wounds with compromised or fragile periwound skin, including pressure ulcers, venous ulcers, and diabetic ulcers

Contraindications

- None provided by the manufacturer

Application

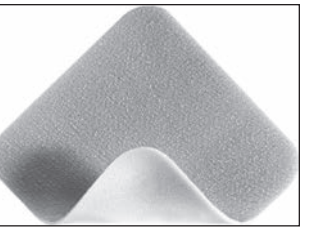
- Clean the wound area. Make sure the surrounding skin is dry.
- Remove the longer release film.
- Fix the dressing under the foot, and release the shorter release film.
- Mold the dressing around the heel, and bring edges together.
- Mepilex Heel should overlap the wound bed by at least 1″ (2.5 cm) onto the surrounding skin.

Removal

- Leave Mepilex Heel in place for several days, depending on the condition of the wound and the surrounding skin, or facility policy.

Mepilex Lite Thin Foam Dressing

Mölnlycke Health Care



How supplied

Dressing: 2.4″ × 3.4″, 4″ × 4″; A6209
6″ × 6″; A6210
8″ × 20″; A6211

Action

Mepilex Lite is a highly conformable, soft silicone foam dressing that absorbs exudates and helps maintain a moist wound environment. The Safetac technology layer seals around the wound edges, deterring exudate from leaking onto the surrounding skin, which minimizes the risk for maceration and ensures atraumatic dressing changes. Mepilex Lite can be cut to suit various wound shapes and locations.

Indications

Mepilex Lite may be used as a primary or secondary dressing for the management of a wide range of low to moderate exuding wounds, such as leg and foot ulcers, partial-thickness burns, radiation skin reactions, and epidermolysis bullosa (EB); Mepilex Lite can also be used for protection of compromised and/or fragile skin and may be used under compression bandaging

Contraindications

- Not for use with oxidizing agents.

Application

- Clean the wound area. Make sure the surrounding skin is dry.
- Select an appropriate dressing size. For best results, Mepilex Lite should overlap the surrounding skin by at least $^{3}/_{4}$″ (2 cm). If necessary, cut the dressing to fit.
- Remove the release film, and apply the dressing with the adherent side toward the wound. Don't stretch the dressing.
- Secure the dressing with a bandage or other fixation when necessary.

Removal

- Leave Mepilex Lite in place for several days, depending on the condition of the wound and the surrounding skin, or facility policy.

Mepilex Transfer Exudate Transfer Dressing

Mölnlycke Health Care

How supplied

Pad: 6″ × 8″; A6210
8″ × 20″; A6211

Action

Mepilex Transfer is thin and conformable, enabling management of difficult-to-dress wounds. As the Safetac technology layer seals around the wound margins, the foam structure allows the exudate to move vertically into a secondary absorbent pad, thus protecting the surrounding skin from excess moisture and minimizing the risk of maceration. With the Safetac technology layer, Mepilex Transfer ensures direct contact to the wound base and surrounding skin and helps minimize trauma and pain during dressing changes.

Indications

For a wide range of exuding wounds and difficult-to-dress wounds such as those caused by cancer, lymphedema, and Epstein-Barr virus; also used as a protective layer on minimal or low exuding wounds; covers large, awkward areas; ideal for areas with fragile skin

Contraindications

- None provided by the manufacturer

Application

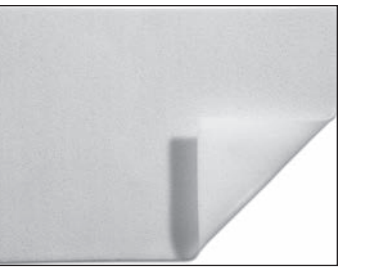
- Clean the wound area. Make sure the surrounding skin is dry.
- Remove the release film, and apply the dressing to the wound, overlapping the surrounding skin by at least 2″ (5 cm).
- Dressing may be used under compression.
- Secure Mepilex Transfer with a secondary dressing. Dressing choice depends on the location and exudate amount. Options include mesh net or other nonadhesive dressing holder, Mepore Film, Alldress, gauze, or Mefix.

Removal

- Mepilex Transfer can be left in place for several days, depending on the condition of the wound and the surrounding skin, or as indicated by accepted clinical practice.

MPM Excel Bordered Foam Barrier Dressing

MPM Medical, Inc.



How supplied

Foam pad with border: 2″ × 2″, 4″ × 4″
Circular fenestrated pad: 2″ diameter

Action

The MPM Excel Bordered Foam Barrier Dressing is a nonadherent, highly absorptive, semiocclusive dressing with a nonwoven tape border. The dressing maintains a moist environment that's conducive to healing and resists external contaminants, such as blood and drainage.

Indications

For use as a primary or secondary dressing to manage pressure ulcers (stages 2 to 4), partial- and full-thickness wounds, donor sites, tunneling wounds, infected and noninfected wounds, and draining wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with MPM Wound Cleanser or normal saline solution.
- Remove the release liner from the dressing.
- Place the dressing on the wound, and secure the dressing by gently pressing on the tape border.

Removal

- Carefully lift the edge of the tape, and peel off the dressing.

MPM Excel Non-Bordered Foam Barrier Dressing

MPM Medical, Inc.

How supplied

Foam sheet: 2″ × 2″

Action

MPM Excel Non-Bordered Foam Barrier Dressing is a nonadherent, highly absorptive polyurethane foam sheet. A secondary dressing is required to hold this dressing in place.

Indications

To manage moderately to highly exuding wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with MPM Wound Cleanser or normal saline solution.
- Pat dry the skin adjacent to the wound.
- Place the dressing on the wound, and secure with an appropriate secondary dressing.

Removal

- Gently remove the tape from the patient's skin, and lift the dressing.

Optifoam Adhesive Foam Island Dressing

Medline Industries, Inc.

How supplied

Island dressing:

4″ × 4″ with 2.5″ × 2.5″ pad; A6212
6″ × 6″ with 4.5″ × 4.5″ pad; A6213
6.1″ × 5.6″ sacral with 4″ × 4″ pad; A6212

Action

Optifoam Adhesive Foam Island Dressing is used to manage exudate in moderately to heavily draining wounds. This hydropolymer adhesive dressing is composed of a thin film backing over a hydrophilic foam island. The film backing has an adjustable moisture vapor transmission rate from 0 to 4,500 g/m^2/day, depending on the fluid level in the wound. The waterproof outer layer is coated with a medical-grade adhesive that helps maintain an optimally moist environment, which supports wound healing by encouraging autolytic debridement, which enables granulation to occur. New window-frame delivery system makes application smooth and easy. New sacral shape has anatomical shape to provide better fit and longer wear.

Indications

To manage chronic and acute, moderately to heavily exudating, partial- and full-thickness wounds, including superficial wounds, minor abrasions, skin tears, second-degree burns, pressure ulcers, lower-extremity ulcers (including those of venous, arterial, and mixed causes), diabetic ulcers, and donor sites; also suitable for use under compression bandaging; may also serve as an absorbent secondary dressing over a primary dressing, such as an alginate, to reduce frequency of dressing changes

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with active vasculitis
- For use in visibly infected wounds only when proper medical treatment addresses the underlying cause

Application

- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin to allow secure adhesion of the dressing.
- Select the appropriate size dressing to allow the foam island to cover all breached or compromised skin.
- Remove the outermost release paper, and anchor the dressing at one side.
- Smooth the dressing over the wound, and remove remaining release paper. Make sure the dressing is securely adhered without wrinkles in the adhesive border or stretching of the skin.
- Remove the paper frame, starting at the center thumb notch, following and smoothing the dressing as you lift and remove the paper frame.

Removal

- The dressing may be left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Gently press down on the skin, and lift an edge of the dressing.
- Carefully stretch the dressing laterally to the skin to promote pain-free removal.
- Clean the wound again before applying a new dressing.

Optifoam Ag Adhesive Foam Island Dressing

Medline Industries, Inc.

How supplied

Foam island dressing:

4″ × 4″ with 2.5″ × 2.5″ pad; A6212

6″ × 5.6″ with 2.75″ × 3″ pad; A6212

Action

Optifoam Ag Adhesive Foam Island Dressing provides safe, targeted release of ionic silver for an antimicrobial environment for up to 7 days. The dressing is ideal to manage exudate in moderately to heavily draining wounds. This hydropolymer adhesive dressing is composed of a thin film backing over a hydrophilic foam island. The film backing has an adjustable moisture vapor transmission rate from 0 to 4,500 g/m^2/day, depending on the fluid level in the wound. The waterproof outer layer is coated with a medical-grade adhesive that helps maintain an optimally moist environment, which supports wound healing by encouraging autolytic debridement, enabling granulation to occur. New window-frame delivery system makes application smooth and easy.

Indications

To manage chronic and acute, moderately to heavily exudating, partial- and full-thickness wounds, including superficial wounds, minor abrasions, skin tears, second-degree burns, pressure ulcers, lower-extremity ulcers (including those of venous, arterial, and mixed causes), diabetic ulcers, and donor sites; also for use under compression bandaging; may also serve as an absorbent secondary dressing over a primary dressing, such as an alginate, to reduce frequency of dressing changes

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with active vasculitis

Application

- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin to allow secure adhesion of the dressing.
- Select the appropriate size dressing to allow the foam island to cover all breached or compromised skin.
- Remove the outermost release paper, and anchor the dressing at one side.
- Smooth the dressing over the wound, and remove remaining release paper. Make sure the dressing is securely adhered without wrinkles in the adhesive border or stretching of the skin.
- Remove the paper frame, starting at the center thumb notch, following and smoothing the dressing as you lift and remove the paper frame.

Removal

- The dressing may be left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Gently press down on the skin, and lift an edge of the dressing.
- Carefully stretch the dressing laterally to the skin to promote pain-free removal.
- Clean the wound again before applying a new dressing.

Optifoam Ag Non-Adhesive Foam Island Dressing

Medline Industries, Inc.

How supplied

Foam pad: 4″ × 4″; A6210

Action

Optifoam Ag Non-Adhesive Foam Dressing provides safe, targeted release of ionic silver for an antimicrobial environment for up to 7 days. The dressing is ideal to manage exudate in moderately to heavily draining wounds. This hydropolymer dressing is composed of a thin film backing over a hydrophilic foam pad. The waterproof, film backing has an adjustable moisture vapor transmission rate from 0 to 4,500 g/m^2/day, depending on the fluid level in the wound.

Indications

To manage chronic and acute, moderately to heavily exudating, partial- and full-thickness wounds, including superficial wounds, minor abrasions, skin tears, second-degree burns, pressure ulcers, lower-extremity ulcers (including those of venous, arterial, and mixed causes), diabetic ulcers, and donor sites; also for use under compression bandaging; may also serve as an absorbent secondary dressing over a primary dressing, such as an alginate, to reduce frequency of dressing changes

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with active vasculitis

Application

- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin to allow secure adhesion of the dressing.
- Select the appropriate size dressing to allow the foam pad to cover all breached or compromised skin.
- Place the dressing over the wound, and secure with elastic net, tape, or roll bandage.

Removal

- The dressing may be left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Carefully remove dressing and discard.

Optifoam Basic Foam Dressing

Medline Industries, Inc.

How supplied

Pad: 3″ × 3″, 3″ × 3″ with fenestration; A6209
4″ × 5″; A6210

Action

Optifoam Basic Foam Dressing is a polyurethane foam pad that provides soft, cushioning absorbency for general wound or site care.

Indications

To manage chronic and acute, light to moderately exuding, partial- and full-thickness wounds, including superficial wounds, minor abrasions, skin tears, second-degree burns, pressure ulcers, lower-extremity ulcers (including those of venous, arterial, and mixed etiology), diabetic ulcers, and donor sites; also suitable for use under compression bandaging or under tracheostomies to provide cushioning; may be cut to accommodate bony prominences or smaller wound sizes; fenestrated version accommodates a gastrostomy tube or other leaking drain tubes

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with active vasculitis

Application

- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin.
- Select the appropriate size dressing to allow the foam to cover all breached or compromised skin.
- Apply the dressing, and secure it with elastic net, gauze roll, or tape.

Removal

- The dressing may be left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Gently remove the dressing.
- Clean the wound again before applying a new dressing.

Optifoam Non-Adhesive Foam Island Dressing

Medline Industries, Inc.

How supplied

Pad: 4″ × 4″; A6209
6″ × 6″; A6210

Action

Optifoam Non-Adhesive Foam Island Dressing is a hydropolymer dressing consisting of a thin film backing over a hydrophilic foam pad. The dressing's waterproof outer layer helps to maintain an optimally moist healing environment, prevent strike-through, and aid in preventing bacterial contamination of the wound.

Indications

To manage chronic and acute, moderately to heavily exuding, partial- and full-thickness wounds, including superficial wounds, minor abrasions, skin tears, second-degree burns, pressure ulcers, lower-extremity ulcers (including those of venous, arterial, and mixed etiology), diabetic ulcers, and donor sites; also for use under compression bandaging or under tracheostomies to provide cushioning

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with active vasculitis
- For use in visibly infected wounds only when proper medical treatment addresses the underlying cause

Application

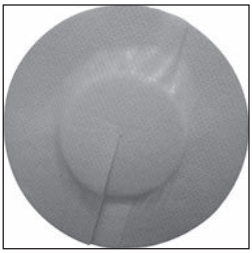
- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin.
- Select the appropriate size dressing to allow the foam to cover all breached or compromised skin. May be cut to accommodate bony prominences or smaller wound sizes or fenestrated to accommodate a gastrostomy tube or other leaking drain tubes.
- Apply the dressing, and secure it with elastic net, gauze roll, or tape.

Removal

- The dressing may be left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Gently remove the dressing.
- Clean the wound again before applying a new dressing.

Optifoam Site Adhesive Foam Dressing

Medline Industries, Inc.



How supplied

Island dressing: 4″ round with 2″ foam pad with fenestration; A6212

Action

Optifoam Site Foam Dressing is a polyurethane foam pad that provides soft, cushioning absorbency for site care and includes a nonwoven adhesive border that is conformable even around difficult-to-dress sites. Radial slit and starburst opening easily accommodate most tube circumferences.

Indications

To manage tube sites that require cushioning, absorbency, or protection

Contraindications

- Contraindicated for third-degree burns
- Contraindicated in patients with active vasculitis

Application

- Clean the wound using Skintegrity Wound Cleanser or an appropriate solution. Dry the surrounding skin.
- Remove one side of the release paper.
- Wrap the dressing around the tube site.
- Remove the remaining release paper, and smooth the dressing border into place.

Removal

- The dressing may be left in place for up to 7 days or until exudate is visible and nears the edge of the dressing.
- Gently remove the dressing.

POLYDERM BORDER Hydrophilic Polyurethane Foam Dressing

DeRoyal

How supplied

Foam pad with border: 2 1/4″ × 2 1/4″ foam with 4″ × 4″ border, 3 3/4″ × 3 3/4″ foam with 6″ × 6″ border, 2 1/2″ circular foam with 4″ circular border and 2″ radial slit; A6212

Action

POLYDERM BORDER Hydrophilic Polyurethane Foam Dressing is lint-free with a stretchable fabric border that's gentle on sensitive skin and effective for managing exuding wounds and tube sites. POLYDERM BORDER's thick foam construction provides soft, absorbent protection to painful wound sites.

Indications

For use as a primary or secondary dressing to manage pressure ulcers (stages 2 to 4), partial- and full-thickness wounds, tube sites, donor sites, tunneling wounds, infected and noninfected wounds, and draining wounds; may also be used for red, yellow, and black wounds and for exuding wounds

Contraindications

None provided by the manufacturer

Application

- Clean the wound site with normal saline solution.
- Peel back the release liner from the dressing's center to expose the foam.
- Center the foam over the wound, and press it into place.

Removal

- Gently lift the edges of the border, and then peel off the dressing.

POLYDERM Hydrophilic Polyurethane Foam Dressing

DeRoyal

How supplied

Foam pad: 2 1/4″ × 2 1/4″; A6209
3 3/4″ × 3 3/4″; A6212

Action

POLYDERM is a nonadherent, highly absorbent, lint-free foam dressing for the management of heavily exuding wounds.

Indications

For use as a primary or secondary dressing to manage pressure ulcers (stages 2 to 4), partial- and full-thickness wounds, donor sites, second-degree burns, lacerations, cuts, abrasions, and draining wounds; may also be used for red, yellow, and black wounds and for exuding wounds

Contraindications

None provided by the manufacturer

Application

- Clean the wound site with normal saline solution.
- Center the foam over the wound.
- Secure the dressing.

Removal

- Remove any secondary dressing.
- Gently lift the foam dressing from the wound.

POLYDERM PLUS Barrier Foam Dressing

DeRoyal

How supplied

Foam pad with border: 2 1/4″ × 2 1/4″ foam with 4″ × 4″ border; A6212
3 3/4″ × 3 3/4″ foam with 6″ × 6″ border; A6212

Action

POLYDERM PLUS is a nonadherent, highly absorbent, semiocclusive, lint-free foam dressing with a nonwoven tape border. It maintains a moist wound environment conducive to healing and resists external contaminants and blood or drainage strike-through.

Indications

For use as a primary or secondary dressing to manage pressure ulcers (stages 2 to 4), partial- and full-thickness wounds, donor sites, tunneling wounds, infected and noninfected wounds, and draining wounds; may also be used for red, yellow, or black wounds and for exuding wounds

Contraindications

None provided by the manufacturer

Application

- Clean the wound with normal saline solution.
- Peel back the release liner from the dressing's center to expose the foam.
- Center the foam over the wound, and press into place.

Removal

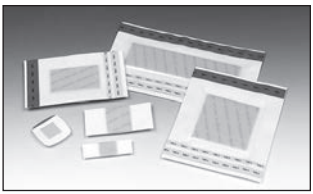
- Gently lift the edges of the border, and then peel off the dressing.

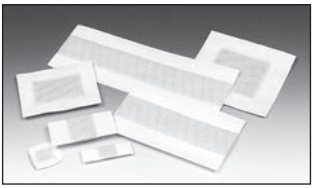
PolyMem Adhesive Film Dressing*

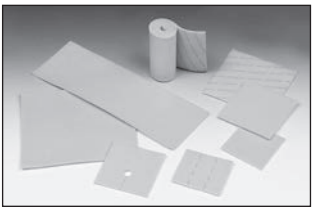
PolyMem Adhesive Cloth Dressing*

PolyMem Non-Adhesive Dressing*

Ferris Mfg. Corp.







How supplied

PolyMem Dressings with Film Adhesive Border:
2″ × 2″ dot with 1″ × 1″ membrane pad, 4″ × 5″ island with 2″ × 3″ membrane pad, 6″ × 6″ island with 3.5″ × 3.5″ membrane pad; A6212
4″ × 12.5″ island with 2″ × 10″ membrane; A6213

PolyMem Dressings with Cloth Adhesive Border:
2″ × 2″ dot with 1″ × 1″ membrane pad, 4″ × 5″ island with 2″ × 3″ membrane pad, 6″ × 6″ island with 3.5″ × 3.5″ membrane pad, 1″ × 3″ strip with 1″ × 1″ membrane pad, 2″ × 4″ strip with 1.5″ × 2″ membrane pad; A6212

PolyMem Dressing Pad without Adhesive Borders:
3″ × 3″ membrane pad, 4″ × 4″ membrane pad; A6209
5″ × 5″ membrane pad; A6210
6.5″ × 7.5″ membrane pad, 4″ × 12.5″ membrane pad, 4″ × 24″ membrane pad; 8″ × 24″ membrane pad; A6211

Action

Multifunctional PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues.

PolyMem Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix pad covered with a semipermeable continuous thin film backing that is optimized for oxygen and moisture vapor permeability, protects the wound, and serves as a barrier to liquids. The PolyMem formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); and absorbing agents, all in the polymeric membrane pad matrix. Both the wound cleansing agent and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 to 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; suitable for use when signs of infection are visible if the cause of the infection has received proper medical treatment

Contraindications

- Do not use on patients with demonstrated sensitivity to the dressing.

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a PolyMem dressing of appropriate size. The pink membrane should be 1/4″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem family of dressings.

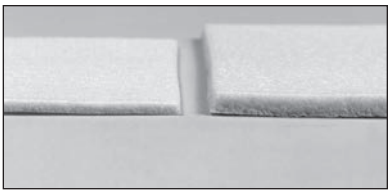
Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry when bathing the patient. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exudating wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem dressing.

*See package insert for complete information.

PolyMem Max Wound Dressing*

Ferris Mfg. Corp.



How supplied

Membrane pad without adhesive borders:
4.5″ × 4.5″; A6210
8″ × 8″; A6211

Action

Multifunctional PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure-related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues.

PolyMem Max is the higher-profile, super-thick version of the PolyMem formulation. PolyMem Max Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix pad covered with a semipermeable continuous thin film backing that is optimized for oxygen and moisture vapor permeability, protects the wound, and serves as a barrier to liquids. The PolyMem formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue-friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); and absorbing agents, all in the polymeric membrane pad matrix. Both the wound cleansing agent and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 to 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; suitable for use when signs of infection are visible if the cause of the infection has received proper medical treatment

Contraindications

- Not for use on patients with demonstrated sensitivity to the dressing

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a PolyMem dressing of appropriate size. The pink membrane should be $^1/_4$″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem Max dressing.

Removal

- A dramatic increase in wound fluid may be observed during the first few days. Not uncommon, it indicates that the PolyMem Max dressing is working.

- Keep the dressing dry when bathing the patient. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exudating wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem Max dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem Max dressing.

*See package insert for complete information.

NEW PRODUCT

PolyMem Non-Adhesive Dressing*

Ferris Mfg. Corp.

How supplied

PolyMem Dressing Pad without Adhesive Borders: 8″ × 24″

Action

Multifunctional PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues.

PolyMem Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix pad covered with a semipermeable continuous thin film backing that is optimized for oxygen and moisture vapor permeability, protects the wound, and serves as a barrier to liquids. The PolyMem formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue-friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); and absorbing agents, all in the polymeric membrane pad matrix. Both the wound cleansing agent and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 to 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; suitable for use when signs of infection are visible if the cause of the infection has received proper medical treatment

Contraindications

- Do not use on patients with demonstrated sensitivity to the dressing.

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a PolyMem dressing of appropriate size.
- The pink membrane should be 1/4″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem family of dressings.

Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry; this may require affixing with a water-resistant tape. Change the dressing if it gets wet.

- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exudating wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem dressing.

*See package insert for complete information.

NEW PRODUCT

PolyMem Tube Site Dressing*

Ferris Mfg. Corp.

How supplied

PolyMem Tube Site Dressing: 2.75″ × 2.75″

Action

Multifunctional PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries; and, as well, reduce both persistent and procedure related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues.

PolyMem Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix pad covered with a semipermeable continuous thin film backing that is optimized for oxygen and moisture vapor permeability, protects the wound, and serves as a barrier to liquids. The PolyMem formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue-friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); and absorbing agents, all in the polymeric membrane pad matrix. Both the wound cleansing agent and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 to 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; suitable for use when signs of infection are visible if the cause of the infection has received proper medical treatment

Contraindications

- Do not use on patients with demonstrated sensitivity to the dressing.

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a PolyMem dressing of appropriate size.
- The pink membrane should be $^1/_4$″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with PolyMem family of dressings.

Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry; this may require affixing with a water-resistant tape. Change the dressing if it gets wet.

- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the edge of the dressing membrane pad, change immediately. For a mildly exudating wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. PolyMem dressings contain a mild, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new PolyMem dressing.

*See package insert for complete information.

PolyMem Wic Cavity Wound Filler*

Ferris Mfg. Corp.

How supplied

Sterile pad: 3″ × 3″ and 3″ × 12″; A6215

Action

Multifunctional PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries and, as well, reduce both persistent and procedure related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues.

PolyMem Wic cavity filler is composed of a hydrophilic polyurethane membrane that may be placed into open wounds to eliminate dead space, absorb exudate, and maintain a moist wound surface. PolyMem Wic Filler minimizes the need to disturb the wound bed. PolyMem Wic Filler is the only filler that contains a nontoxic, nonionic, tissue-friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); and absorbing agents, all in the polymeric membrane pad matrix. Both wound cleansing agent and glycerin are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site. PolyMem Wic is placed in the wound bed; it provides fast wicking and absorbent capacity to accommodate large amounts of exudate. PolyMem Wic Filler expands to fill dead space and allows extended times between dressing changes. PolyMem Wic Filler is perforated so that 1″ wide strips can be detached or easily folded, or it can be placed directly into a cavity. PolyMem Wic Cavity Filler is to be covered with a secondary PolyMem formulation dressing or another suitable secondary dressing.

Indications

To manage moderately to heavily exuding wounds associated with pressure ulcers (stages 3 and 4), vascular ulcers, acute wounds, and diabetic ulcers; suitable for use when signs of infection are visible if the cause of the infection has received proper medical treatment

Contraindications

- Not for use on patients with demonstrated sensitivity to the dressing

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Ensure that PolyMem Wic is about 30% smaller than the open cavity. PolyMem Wic will expand as it wicks and absorbs fluid. Avoid overfilling the wound, because overfilling may increase pressure on the tissue in the wound bed, potentially causing additional damage.

- Lightly place the wound filler in the middle of the wound, either side up. PolyMem Wic is perforated so that 1″ (2.5 cm) wide strips can be detached, cut, folded, or placed as is into the cavity.
- Cover the wound and the PolyMem Wic with a PolyMem formulation dressing or another suitable secondary dressing.

Removal

- Change PolyMem Wic and secondary dressing when exudate in the secondary dressing reaches the periwound area. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, an infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the wound filler in one piece. (It won't adhere to the wound.) Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. Additional cleaning of the wound may injure regenerating tissues and may delay the wound-healing process.
- Apply a new PolyMem Wic cavity dressing with a suitable secondary dressing.

*See package insert for complete information.

NEW PRODUCT

Restore Foam Border Dressing with TRIACT ADVANCED Technology

Hollister Wound Care

How supplied

Dressing: 4″ × 4″ with 2″ × 2″ pad, 6″ × 6″ with 4″ × 4″ pad; A6212
6″ × 8″ with 3.3″ × 5.8″ pad, 8″ × 8″ with 5.1″ × 5.0″ pad; A6213

Action

In the presence of exudate, the hydrocolloid particles in the TRIACT ADVANCED Technology polymer matrix form a lipido-colloid gel at the interface between the wound and the dressing. This results in virtually pain-free dressing changes for the patient, maintenance of a moist environment that promotes healing, gel formation in contact with the wound, and minimizes trauma, such as pain and bleeding, which may be experienced during dressing removal. The backing is soft, flexible and very conformable to allow the dressing to be easily shaped to the anatomical contours of the wound. The super-absorbent foam pad allows containment of exudate and protects the periwound skin from maceration.

Indication

Indicated in the treatment of moderate to heavily exuding acute and chronic wounds, including pressure ulcers, diabetic ulcers, leg ulcers, surgical wounds, donor sites, partial-thickness burns, minor cuts, abrasions, scalds; suitable for use under compression bandages/wraps

Contraindication

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Cleanse the wound in accordance to established procedures.
- Carefully dry the periwound tissue.
- Select the appropriate dressing size to ensure the central pad will cover the entire wound.
- Remove one of the protective tabs and apply the dressing to the skin, positioning the central pad directly over the wound.
- Smooth down the dressing over the wound and remove the second protective tab, making sure that the dressing sticks properly. Do not pull or attempt to stretch the dressing during placement in order to eliminate periwound tissue shear.
- The dressing can be applied under compression.

Removal

- Wash hands and put on gloves.
- Remove dressing.

- Irrigate wound base using Restore Wound Cleanser or sterile saline.
- Reapply dressing if necessary.
- Remove gloves and wash hands after completing procedure.

Note: Restore Foam Border Dressing may be left in place for up to 7 days. Dressing change frequency will depend on patient condition and the level of exudate.

NEW PRODUCT

Restore Foam Dressing without Border with TRIACT ADVANCED Technology

Hollister Wound Care

How supplied

Dressing: 2.5″ × 2.5″, 4″ × 4″; A6209
6″ × 6″, 8″ × 8″; A6210
Heel dressing: 4.7″ × 7.5″; A6210

Action

In the presence of exudate, the hydrocolloid particles in the TRIACT ADVANCED Technology polymer matrix form a lipido-colloid gel at the interface between the wound and the dressing. This results in virtually pain-free dressing changes for the patient, maintenance of a moist environment that promotes healing, gel formation in contact with the wound, and minimizes trauma, such as pain and bleeding, which may be experienced during dressing removal. The backing is soft, flexible and very conformable to allow the dressing to be easily shaped to the anatomical contours of the wound. The super-absorbent foam pad allows containment of exudate and protects the periwound skin from maceration.

Indications

Indicated in the treatment of moderate to heavily exuding acute and chronic wounds, including pressure ulcers, diabetic ulcers, leg ulcers, surgical wounds, donor sites, partial-thickness burns, minor cuts, abrasions, scalds; suitable for use under compression bandages/wraps

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Cleanse the wound in accordance to established procedures.
- Carefully dry the periwound tissue.
- Select the appropriate dressing size to ensure the central pad will cover the entire wound.
- The Restore Foam Dressing without Border can be cut with the release liner in place in order to optimize placement over wounds on heels, elbows, etc.
- Remove the protective tabs from the dressing. Apply the micro-adherent side of the dressing to the wound.
- Secure the dressing using a bandage or a tape.
- The dressing can be applied under compression.

Removal

- Wash hands and put on gloves.
- Remove secondary dressing.
- Remove Restore Foam Dressing without Border.

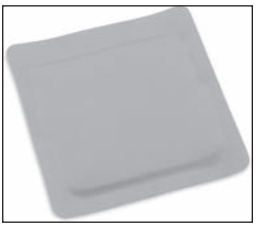
- Irrigate wound base using Restore Wound Cleanser or sterile saline.
- Reapply dressing if necessary.
- Remove gloves and wash hands after completing procedure.

Note: Restore Foam Dressing without Border may be left in place for up to 7 days. Dressing change frequency will depend on patient condition and the level of exudate.

NEW PRODUCT

Restore Hydro-Shield Dressing with Border

Hollister Wound Care



How supplied

Dressing: 4″ × 4″ with 2″ × 2″ pad; A6212
6″ × 6″ with 4.5″ × 4.5″ pad; A6213

Action

Restore Hydro-Shield Foam Dressing with border is a sterile wound dressing consisting of three layers: A soft, conformable microporous absorbent polyurethane foam pad; a breathable, waterproof, low friction polyurethane membrane backing; and a pressure-sensitive acrylic adhesive. The product is applied to the skin with the central part of the dressing in contact with the wound. The Restore Hydro-Shield Foam Dressing with border is self-adhesive and therefore no secondary dressing is required. The membrane is a waterproof layer that provides a bacterial barrier. Restore Hydro-Shield Foam Dressing with border is self-adhesive, soft, highly absorbent, conformable, and provides a moist healing wound environment.

Indications

Indicated in the treatment of moderate to heavily exuding acute and chronic wounds, including pressure ulcers, leg ulcers, diabetic ulcers, lacerations and abrasions, graft wounds and donor sites, postoperative surgical wounds, and partial thickness burns

Contraindications

- Not indicated for surgical implantation
- Do not use on patients with a known sensitivity to polyurethane membranes or foams
- Do not use with oxidizing solutions such as hypochlorite or hydrogen peroxide

Application

- Cleanse the wound in accordance with established procedures.
- Carefully dry the periwound tissue.
- Select the appropriate dressing size to ensure the central foam pad will extend beyond the open wound at least $^{3}/_{4}$″ (2 cm) in all directions.
- Remove the release liners from the dressing, and avoid touching the pad that will go directly onto the wound.
- Center the dressing on the wound and apply it gently to the wound site. Press the dressing on to the surrounding skin by gentle application of pressure.
- The dressing can be used under compression.

Removal

- Restore Hydro-Shield Foam Dressing with border can be left in place for up to 7 days, depending on the level of exudate and the clinical condition of the wound.
- Duration of treatment is determined by the physician and depends on the wound type and condition.
- Remove the dressing by peeling off from a corner using gentle pressure.
- Gently remove the dressing from the wound bed and discard.

NEW PRODUCT

Restore Hydro-Shield Dressing without Border

Hollister Wound Care

How supplied

Dressing: 3″ × 3″, 4″ × 4″; A6209
6″ × 6″; A6210
8″ × 8″; A6211

Action

Restore Hydro-Shield Foam Dressing with border is a sterile wound dressing consisting of two layers: A soft, conformable microporous absorbent polyurethane foam pad and a breathable, waterproof, low friction polyurethane membrane backing. The membrane is a waterproof layer that provides a bacterial barrier. Restore Hydro-Shield Foam Dressing with border is self-adhesive, soft, highly absorbent, conformable, and provides a moist healing wound environment.

Indications

Indicated for the treatment of all types of moderately to heavily exuding chronic and acute wounds

Contraindications

- Do not use on patients with a known sensitivity to polyurethane membranes, foams, or acrylic adhesives
- Do not use with oxidizing solutions such as hypochlorite or hydrogen peroxide

Application

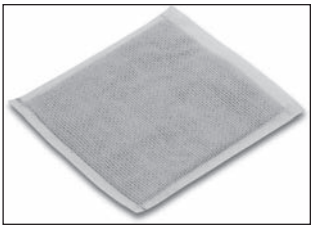
- Cleanse the wound in accordance with established procedures.
- Carefully dry the periwound tissue.
- Select the appropriate dressing size to ensure the central foam pad will extend beyond the open wound at least $^{3}/_{4}$″ (2 cm) in all directions.
- Restore Hydro-Shield Foam Dressing without Border can be cut as needed.
- Apply to the wound with white side down in contact with the wound.
- The dressing can be used under compression.

Removal

- Dressing can be left in place for up to 7 days, depending on the level of exudate and the clinical condition of the wound.
- Duration of treatment is determined by the physician and depends on the wound type and condition.
- Remove the dressing by peeling off from a corner using gentle pressure.
- Gently remove the dressing from the wound bed and discard.

Restore Odor-Absorbent Dressing*

Hollister Wound Care



How supplied

Pad: 4″ × 4″; A6209
6″ × 10″; A6211

Action

Effectively eliminates offending odors resulting from infection or bacterial contamination in surgical, traumatic, cancerous, or gangrenous wounds, pressure ulcers, or venous stasis ulcers. The dressing is composed of a foam matrix impregnated with carbon between two layers of soft, nonwoven fabric and conforms to the contours of the patient's body.

Indications

Intended as a secondary dressing but may be used as a primary dressing over a nonexuding wound

Contraindications

- None provided by the manufacturer

Application

- Peel open the envelope; remove the Odor-Absorbent Dressing. If using the dressing as a primary dressing over a nonexuding wound, place it directly over the prepared wound surface. If it's being used as a secondary dressing, apply it over the contact layer. After placement of the dressings, complete application by taping around the perimeter.
- For particularly malodorous wounds, two or more Odor-Absorbent Dressings may be applied in layers over the same wound. For wounds that exceed dimensions of the Odor-Absorbent Dressing, two or more dressings may be overlapped and taped together.

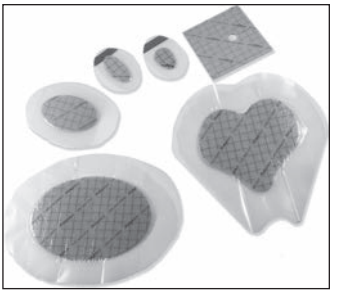
Removal

- Remove tape securing the dressing to the skin, and lift away the dressing.

*See package insert for complete instructions for use.

Shapes by PolyMem Dressings

Ferris Mfg. Corp.



How supplied

Sacral dressing adhesive island film dressing: 7.2″ × 7.8″ shaped island with 4.5″ × 4.7″ shaped membrane pad; A6212

#8 oval adhesive island film dressing: 6.5″ × 8.2″ oval island with 4.0″ × 5.7″ oval membrane pad; A6213

#5 oval adhesive island film dressing: 3.5″ × 5.0″ oval island with 2″ × 3″ oval membrane pad; A6212

#3 oval adhesive island film dressing: 2″ × 3″ oval island with 1″ × 2″ oval membrane pad; A6212

Tube site dressing: 3.5″ × 3.5″ pad with pre-cut fenestration for tube; A6209
2.75″ × 2.75″ pad with pre-cut fenestration for tube

Action

Multifunctional Shapes by PolyMem dressings (generically referred to as polymeric membrane dressings) are recognized to effectively cleanse, fill, absorb, and moisten wounds throughout the healing continuum. The dressings help to reduce edema and bruising in both open and closed injuries, and, as well, reduce both persistent and procedure-related wound pain. The dressings help to reduce the spread of inflammation into surrounding undamaged tissues. Shapes by PolyMem dressings are easy-to-use precut dressings, and contoured to fit most wounds.

Shapes by PolyMem Wound Dressings are composed of a patented hydrophilic polyurethane membrane matrix with a thin film adhesive border. The membrane pad is covered with a semipermeable continuous thin film backing that is optimized for oxygen and moisture vapor permeability, protects the wounds, and serves as a barrier to liquids. The PolyMem formulation is the only dressing formulation that contains a nontoxic, nonionic, tissue-friendly wound cleanser; a moisturizer (glycerol, also known as glycerin); and absorbing agents, all in the polymeric membrane pad matrix. Both the wound cleansing agent and glycerol are soluble in wound fluid and skin moisture. The absorbing agents contained in the PolyMem formulation draw wound fluid, which is known to contain natural growth factors and nutrients, to the wound site.

Indications

For the management of pressure ulcers (stages 1 to 4), venous stasis ulcers, acute wounds, leg ulcers, donor and graft sites, skin tears, diabetic ulcers, dermatologic disorders, first- and second-degree burns, and surgical wounds; suitable for use when signs of infection are visible if the cause of the infection has received proper medical treatment

Contraindications

- Not for use on patients with demonstrated sensitivity to the dressing

Application

- Prepare the wound according to facility policy or as directed by a physician or other ordering clinician. With subsequent dressing changes, cleaning the wound isn't recommended unless infection or gross contamination is present.
- Select a Shapes by PolyMem dressing of appropriate size. The pink membrane should be 1/4″ to 2″ (0.6 to 5 cm) larger than the wound area.
- Apply the dressing film side and printed side out.
- Topical treatments aren't recommended for use with Shapes by PolyMem family of dressings.

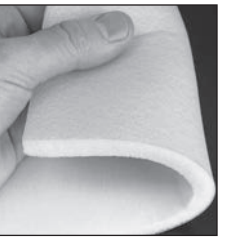
Removal

- A dramatic increase in wound fluid may be observed during the first few days.
- Keep the dressing dry when bathing the patient. Change the dressing if it gets wet.
- Change the dressing before exudate, visible through the dressing, reaches the periwound area (wound edges). If the wound fluid reaches the the edge of the dressing membrane pad, change immediately. For a mildly exudating wound in an otherwise healthy patient, the dressing may remain in place for up to 7 days. As with other dressings, more frequent changes may be indicated if the patient has a compromised immune system, diabetes, infection at the wound site, or when desiring to speed up the removal of nonviable tissue in the wound.
- Gently remove the dressing. Don't disturb the wound bed. Don't clean the wound or flush with saline or water unless the wound is infected or contaminated. Shapes by PolyMem dressings contain a safe, nontoxic wound cleanser and leave no residue. Additional cleaning of the wound may injure regenerating tissues and delay the wound-healing process.
- Apply a new Shapes by PolyMem dressing.

*See package insert for complete information.

Silon Dual-Dress 50

Bio Med Sciences, Inc.



How supplied

Multifunctional dressing: 5.5″ × 6″, 11″ × 12″, 11″ × 24″

Action

Silon Dual-Dress 50 may be used as a secondary covering over skin grafts or biosynthetic dressings or directly over clean partial-thickness wounds. The product is designed to provide and maintain a clean and moist wound healing environment and a bolster effect to maintain a slight amount of pressure on the wound surface.

Silon Dual-Dress 50 is comprised of two distinct layers: an open-cell absorbent foam and a semi-occlusive barrier film. The film is colored blue to make it easier to see. The product should be applied with the foam toward the wound and the blue film away from the wound.

Indications

For skin graft donor sites, second-degree burns, skin graft recipient sites, and other partial-thickness wounds

Contraindications

- Contraindicated for primary coverage of third-degree burns

Application

- Close, clean and/or dress the wound site as normal.
- Open and remove a sheet of Silon Dual-Dress 50 using sterile technique.
- Apply the dressing (blue side up) over the wound area and trim as required.
- More than one sheet may be placed side by side to cover larger areas.
- Affix the dressing(s) to the site using surgical staples around the perimeter. The dressing(s) should be stapled to the patients' skin around the perimeter but may be stapled to the next sheet if placed side by side.
- When fixing the dressing in place, a slight amount of tension should be applied if a bolster effect is desired.

Removal

- Inspect the wound area periodically for signs of exudate leakage.
- The dressings may be left in place up to 5 days. Reapply as needed.

SorbaCell Foam Dressing

Derma Sciences, Inc.

How supplied

Sheet: 2″ × 2″, 4″ × 4″
Strip: 1″ × 8″

Action

SorbaCell Foam Dressing is a nonadherent, highly absorptive polyurethane foam sheet that cushions and protects the wound. A secondary dressing is required to protect the wound from outside contaminants and hold the dressing in place.

Indications

To manage moderately to highly exuding wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Pat dry the skin adjacent to the wound.
- Position SorbaCell Foam Dressing directly on the wound.
- Secure with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- Remove the SorbaCell Foam.

NEW PRODUCT

3M Tegaderm Foam Adhesive Dressing

3M Health Care

How supplied

Mini Wrap: 1″ × 1″; A6212

Action

3M Tegaderm Foam Adhesive Dressing mini wrap is constructed of a conformable, absorbent, polyurethane foam pad with a highly breathable, nonwaterproof film backing reinforced with soft cloth tape, making it a perfect choice for toes, feet, noses, elbows, and chins. The unique single-spoke design allows for one-handed application for difficult-to-dress wounds.

Indications

Tegaderm Foam Adhesive Dressing is indicated for pressure, arterial, neuropathic (diabetic) and venous leg ulcers, including use under compression wraps, difficult body contours; toes, heel, and elbow, as well as skin tears, abrasions, skin grafts and donor sites

Contraindications

- None provided by manufacturer

Application

- Hold the dressing by the side tab and remove the printed liner, exposing the adhesive border.
- Grasp the paper tab on the top of the dressing and position the dressing over the wound.
- Gently press the adhesive border tabs to the skin, overlapping the tabs to conform to contours. Avoid stretching the adhesive tabs or skin during application.
- Remove the paper tab.
- Firmly press and conform the adhesive border to the skin.

Removal

- Gently lift the adhesive film border while pressing down on the skin.
- If there is difficulty lifting the film border, apply tape to the edge of the dressing and use the tape to lift.

3M Tegaderm Foam Dressing (nonadhesive)

3M Health Care

How supplied

Square: 2″ × 2″, 4″ × 4″; A6209
8″ × 8″; A6211
Rectangle: 4″ × 8″; A6210
Fenestrated: 3 1/2″ × 3 1/2″; A6209
Roll: 4″ × 24″; A6211

Action

3M Tegaderm Foam Dressing (nonadhesive) is a highly absorbent, breathable, nonadherent wound dressing. It is constructed from conformable polyurethane foam covered with a highly breathable film backing. The film backing prevents exudate strike-through and acts as a barrier to outside contamination. The dressing maintains a moist wound environment, which has been shown to enhance wound healing. The dressing is sterile and may be cut to fit the needs of the user.

Indications

For use as a primary dressing for moderately to highly exuding partial- and full-thickness dermal wounds, including pressure ulcers, venous leg ulcers, abrasions, first- and second-degree burns, donor sites, arterial ulcers, skin tears, and neuropathic ulcers

Contraindications

None provided by the manufacturer

Application

- Remove the dressing from the package, and center it over wound, printed grid side up, with the edges overlapping onto intact skin.
- Secure the dressing with adhesive tape, elastic or cohesive wrap, or other appropriate material.

Removal

- Observe dressing frequently. As the dressing absorbs, exudates will wick to the top of the dressing, and discoloration may be noticeable. When exudates spread to the edges of dressing or dressing leaks, a dressing change is indicated.

3M Tegaderm High Performance Foam Adhesive Dressing

3M Health Care

How supplied

Square: 3 1/2″ × 3 1/2″ (2″ × 2″ pad); A6212
5 5/8″ × 5 5/8″ (4″ × 4″ pad); A6212

Oval: 4″ × 4 1/2″ (2 1/2″ × 3″ pad); A6212
5 5/8″ × 6 1/8″ (4″ × 4 1/2″ pad); A6212
7 1/2″ × 8 3/4″ (5 1/2″ × 6 3/4″ pad); A6213

Heel/Elbow: 5 1/2″× 5 1/2″ (3″ × 3″ pad); A6212

Action

3M Tegaderm High Performance Foam Adhesive Dressing provides total fluid management by a combination of fast wicking, high absorbency, and breathability. The innovative spoke delivery system allows fast, easy application for wounds over body contours. Oval and square dressings are constructed from a conformable polyurethane foam pad, an additional absorbent nonwoven layer, and a top layer of transparent adhesive film. This film is moisture-vapor permeable, which prevents wound exudate strike-through and acts as a barrier to outside contamination. The dressing maintains a moist environment, which has been shown to enhance wound healing.

Indications

For use as a primary dressing for low to highly exuding partial- and full-thickness dermal wounds, including pressure ulcers, venous leg ulcers, abrasions, first- and second-degree burns, donor sites, arterial ulcers, skin tears, and neuropathic ulcers

Contraindications

None provided by the manufacturer

Application

- Hold the dressing by the side tabs, and remove the printed liner, exposing the adhesive border.
- Position the dressing over the wound while holding the tabs.
- Gently press the adhesive border to the skin. Avoid stretching the dressing or skin.
- Remove the paper frame from the dressing while smoothing down the edges of the dressing.

Removal

- Carefully lift the dressing edges from the skin. If there's difficulty lifting the dressing, apply tape to the edge of the dressing and use the tape to lift. Continue lifting edges until all are free from the skin surface.

NEW PRODUCT

TIELLE Hydropolymer Dressing

Systagenix

How supplied

Tielle Lite: 2 3/4″ × 3 1/2″, 4 1/4″ × 4 1/4″; A6212
3 1/8″ × 5 7/8″, 3 1/8″ × 7 3/4″; A6213

Tielle: 2 3/4 ″ × 3 1/2″, 4 1/4 ″ × 4 1/4″; A6212
5 7/8″ × 7 3/4″, 7″ × 7″; A6213

Tielle Sacrum: 7″ × 7″; A6213

Tielle Packing: 3 5/8″ × 3 5/8″; A6215

Tielle Plus: 4 1/4″ × 4 1/4″; A6212
5 7/8″ × 7 3/4″, 5 7/8″ × 5 7/8″; A6213

Tielle Plus HEEL: 8″ × 10″; A6213

Tielle Plus Sacrum: 5 7/8″ × 5 7/8″; A6254

Tielle MAX Non-Adhesive: 4 1/4″ × 4 1/4″, 5 7/8″ × 7 3/4″, 5 7/8″ × 5 7/8″; A6210

Action

The TIELLE Family has a unique design compared with ordinary foams: it contains LiquaLock technology, which cleverly retains exudates while also letting moisture vapor pass through the dressing, helping to provide an optimal moist wound healing environment.

Indications

TIELLE Family dressings are suitable for use under compression bandaging. The TIELLE range of dressings is indicated for the management of different types of wounds and exudate levels.

Contraindications

- Not for use on third-degree burns
- Not for use on lesions with active vasculitis
- Should not be used when visible signs of infection are present; however, under proper medical treatment that addresses the cause, the dressing may be used

Application

- Prepare the wound per your standard wound care protocol. TIELLE Dressings may be used when visible signs of infection are present in the wound area only when proper medical treatment addresses the underlying cause.
- Choose the appropriate TIELLE Dressing.
- The size selected should allow the absorbent island to overlap the wound edge by approximately 1 cm.*
- Peel open the package and remove the dressing.
- Partially peel back side backing papers. Ensure skin surrounding the wound is dry.

- Position absorbent island centrally over wound site and smooth in place. One at a time, peel away side backing papers while smoothing adhesive border onto intact skin.
- For additional water repellancy, after the application of TIELLE Adhesive Dressing, petroleum jelly or other petroleum based products can be applied to the edges of the dressing and surrounding skin.

Removal

- On removal lift one corner and carefully peel back. On fragile or friable skin, water or saline may be used to break the adhesive seal.

*These instructions do not apply to TIELLE Packing or Tielle MAX Non-Adhesive.

NEW PRODUCT

Versiva XC Gelling Foam Dressing, Adhesive

ConvaTec

How supplied

4″ × 4″; A6212
5.5″ × 5.5″; A6212
8″ × 7″ (Heel); A6213
10″ × 8″ (Sacral); A6213
7.5″ × 7.5″; A6213

Action

Versiva XC Gelling Foam Dressing, Adhesive, is a sterile wound dressing consisting of: a top waterproof polyurethane foam/film layer, an absorptive nonwoven fibrous layer (with Hydrofiber Technology) and a thin, nonadhesive wound contact layer surrounded by a thin gentle adhesive border. The outer waterproof polyurethane foam/film layer protects the wound from external contaminants and manages the moisture vapor transmission of the exudate absorbed by the dressing. The nonwoven fibrous layer absorbs and retains exudate by forming a cohesive gel. The dressing's adhesive border allows for secure retention with gentle dressing removal. The dressing absorbs wound fluid and creates a moist environment in the wound which supports the body's healing process and aids in the removal of nonviable tissue from the wound (autolytic debridement) without damaging new tissue. Versiva XC Gelling Foam Dressing, Adhesive, may be used as a primary dressing or as a secondary dressing. It may be used alone or in combination with other wound care products as directed by your healthcare professional. The dressing's backing acts as a barrier to the wound against bacterial and bloodborne viral pathogens (e.g., HIV and hepatitis viruses), provided the dressing remains intact and there is no leakage. The use of this dressing neither guarantees nor warrantees against AIDS or hepatitis virus transmission.

Indications

For the management of leg ulcers (venous leg ulcers, arterial ulcers and leg ulcers of mixed etiology); pressure ulcers (partial and full thickness); diabetic ulcers; skin tears; surgical wounds (left to heal by secondary intention); donor sites; dermatological excisions; second-degree burns; traumatic wounds; may also be used for minor abrasions, lacerations, minor cuts, minor scalds and burns

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or its components

Application

- Before using the dressing, clean the wound with an appropriate wound cleansing agent or normal saline and dry the surrounding skin.
- If the immediate sterile product pouch is damaged, do not use.

- Choose a dressing size and shape to ensure that the central absorbent pad is larger than the wound area.
- Remove the release paper from the back of the dressing, being careful to avoid finger contact with the wound contact surface and the adhesive surface.
- Hold the dressing over the wound and line up the center of the dressing with the center of the wound. Place the pad directly over the wound and smooth down the adhesive border.
- For difficult to dress anatomical locations, such as the heel or the sacrum, the specially shaped adhesive dressings may be used. A supplementary securing device such as tape may be required.
- The dressing can be cut to shape for convenience.
- Discard any unused portion of the product after dressing the wound.

Removal

- The dressing should be changed when clinically indicated. Maximum recommended wear time is up to 7 days. The wound should be cleansed at appropriate intervals.
- Press down gently on the skin and carefully lift one corner of the dressing until it is no longer adhered to the skin. Continue until all edges are free. Carefully lift away the dressing and discard according to local clinical protocols.

NEW PRODUCT

Versiva XC Gelling Foam Dressing, Non-Adhesive

ConvaTec

How supplied

3″ × 3″, 4 1/4″ × 4 1/4″; A6209
6″ × 6″; A6210
8″ × 8″; A6211

Action

Versiva XC Gelling Foam Dressing, Non-Adhesive, is a sterile wound dressing consisting of: a top waterproof polyurethane foam/film layer, an absorptive nonwoven fibrous layer (with Hydrofiber Technology), and a thin, nonadhesive wound contact layer. The outer waterproof polyurethane foam/film layer protects the wound from external contaminants and manages the moisture vapor transmission of the exudate absorbed by the dressing. The nonwoven fibrous layer absorbs and retains exudate by forming a cohesive gel. The dressing's nonadherent wound contact layer allows for gentle dressing removal.

The dressing absorbs wound fluid and creates a moist environment in the wound that supports the body's healing process and aids in the removal of nonviable tissue from the wound (autolytic debridement) without damaging new tissue. Versiva XC Gelling Foam Dressing, Non-Adhesive, may be used as a primary dressing or as a secondary dressing. It may be used alone or in combination with other wound care products as directed by your healthcare professional. The dressing's backing acts as a barrier to the wound against bacterial and bloodborne viral pathogens (e.g., HIV and hepatitis viruses), provided the dressing remains intact and there is no leakage. The use of this dressing neither guarantees nor warrantees against AIDS or hepatitis virus transmission.

Indications

For the management of leg ulcers (venous leg ulcers, arterial ulcers and leg ulcers of mixed etiology); pressure ulcers (partial and full thickness); diabetic ulcers; skin tears; surgical wounds (left to heal by secondary intention); donor sites; dermatological excisions; second-degree burns; traumatic wounds; may also be used for minor abrasions, lacerations, minor cuts, minor scalds and burns

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or its components

Application

- Before using the dressing, clean the wound with an appropriate wound cleansing agent or normal saline and dry the surrounding skin.
- If the immediate sterile product pouch is damaged, do not use.
- Choose a dressing size and shape to ensure that the central absorbent pad is larger than the wound area.
- Remove the dressing from the sterile pack being careful to avoid finger contact with the wound contact surface.

- Hold the dressing over the wound and line up the center of the dressing with the center of the wound. Place the pad directly over the wound.
- For difficult to dress anatomical locations, such as the heel or the sacrum, the specially shaped adhesive dressings may be used. A supplementary securing device such as tape may be required.
- The dressing can be cut to shape for convenience.
- Discard any unused portion of the product after dressing the wound.

Removal

- The dressing should be changed when clinically indicated. Maximum recommended wear time is up to 7 days. The wound should be cleansed at appropriate intervals.
- Press down gently on the skin and carefully lift one corner of the dressing. Continue until all edges are free. Carefully lift away the dressing and discard according to local clinical protocols.

NEW PRODUCT

XTRASORB Foam

Derma Sciences, Inc.

How supplied

Non-adhesive Dressing: 2″ × 2″; A6209
4″ × 4.75″; A6210
8″ × 8″; A6211

Adhesive Dressing: 3.2″ × 3.2″; A6212
4.5″ × 4.5″; A6212
6″ × 6″; A6213

Action

XTRASORB Foam dressing is a highly absorbent hydrophilic foam dressing designed for use in the management of exuding wounds. The foam has a patented super absorbent polymer gel laminated to its upper surface, and an integral PU film backing. The super absorbent layer converts wound fluids into a gel, absorbing and retaining fluid from the foam wound contact layer, therefore maintaining an optimally balanced moisture level in the wound contacting layer for an extended period. The dressing helps to provide an environment for optimal wound healing by managing wound exudate levels and protecting against wound dehydration and external bacterial contamination. The super absorbent gel layer both provides additional cushioning and absorption. XTRASORB Foam is available with or without an adhesive border, healing by protecting against wound dehydration while also absorbing excess wound exudates. The unique gelling action of the CMC/SAP is designed to lock wound fluid within the dressing, helping to reduce the risk of maceration.

Indications

Provides a moist environment conducive to wound healing and is indicated for lightly to heavily exuding wounds such as diabetic foot ulcers; leg ulcers (venous stasis ulcers, arterial ulcers, and leg ulcers of mixed etiology); pressure ulcers/sores (partial- and full-thickness); first- and second-degree partial-thickness burns; donor sites; and traumatic and surgical wounds. Since the dressings are able to absorb and retain fluid under pressure they are suitable for use under compression; may be used to provide moisture management and protection throughout the healing process. Can be used on highly exuding wounds; however, level of exudates will determine the effective wear time of the dressing, and the wound should be monitored accordingly; may be used on patients who are in treatment for a local or systemic infection under the discretion of a physician

Contraindications

- Not indicated for full-thickness wounds, heavily bleeding wounds, or third-degree burns
- Of little benefit in the management of dry wounds

Application

- Prior to application, cleanse the wound area as necessary.
- Select a dressing that will allow the wound contact area to completely cover the wound and extend onto healthy tissue [by approximately 1 inch (25 mm), less on a small dressing].

- Remove the sterile dressing from the package. If required, the nonadhesive dressing can be cut, although note that this may increase the risk of product delamination on exuding wounds.
- To apply a bordered (adhesive) dressing, first remove part of the white plastic liner to expose the adhesive portion of the dressing.
- Position and smooth into place while removing the second half of the white plastic liner. Carefully smooth around the edge of the dressing to ensure good contact between the adhesive film border and the periwound skin.
- Once the dressing is securely in place, peel away the backing material from the slit in the center of the top of the dressing.
- For a borderless (non-adhesive) dressing, a secondary film dressing or conforming bandage should be used to secure the dressing in place.
- For highly exuding wounds, make sure to secure any fixative film over all the edges of the dressing.

Removal

- Dressing change frequency will depend on the condition of the patient as well as on the level of wound exudate.
- To remove a bordered dressing, loosen the adhesive film border before lifting the dressing away from the wound.
- To remove a borderless dressing, gently lift the corners of the dressing away from the wound.
- Reapply when XTRASORB Foam dressing has reached its absorbent capacity or as directed by a wound care professional.
- Cleanse the wound bed prior to application of new dressing.
- If difficulty is experienced on removing the dressing, it should be irrigated or soaked with water or sterile saline solution.
- Cleanse the wound bed prior to application of new dressing.

NEW PRODUCT

XuSorb Foam Waterproof Wound Dressing

Oculus Innovative Sciences

How supplied

Dressing: 4.5″ × 4.5″, 6″ × 6″; A6210

Action

Absorbent, nonadhesive XuSorb Foam delivers superior fluid handling while providing a barrier to bacterial contamination. Absorbs four times more exudate than hydrocolloids. Maintains a moist wound-healing environment while minimizing the risk of maceration.

Indications

Suitable for many types of exuding wounds including leg ulcers, pressure ulcers, donor sites as well as partial- and full-thickness wounds; may remain in place for several days depending on the condition of the wound; may be used under compression bandages

Contraindications

- No contraindications

Application

- Clean or debride wound with Microcyn Skin and Wound Care with preservatives.
- Apply Microcyn HydroGel to wound.
- Apply XuSorb Foam wound dressing as is appropriate and change two to three times a week until healing begins.

Removal

- XuSorb Foam is easily removed without causing pain or trauma.

HYDROCOLLOIDS

Action

Hydrocolloids are occlusive or semiocclusive dressings composed of such materials as gelatin, pectin, and carboxymethylcellulose. The composition of the wound contact layer may differ considerably among dressings. These dressings provide a moist healing environment that allows clean wounds to granulate and necrotic wounds to debride autolytically. Some hydrocolloids may leave a residue in the wound, and others may adhere to the skin around the wound. Hydrocolloids are manufactured in various shapes, sizes, adhesive properties, and forms, including wafers, pastes, and powders.

Indications

Hydrocolloid dressings may be used as primary or secondary dressings to manage select pressure ulcers, partial- and full-thickness wounds, wounds with necrosis or slough, and wounds with light to moderate exudate.

Advantages

- Are impermeable to bacteria and other contaminants
- Facilitate autolytic debridement
- Are self-adherent and mold well
- Provide light to moderate absorption
- Minimize skin trauma and disruption of healing
- Allow observation of the healing process, if transparent
- May be used under compression products (compression stockings, wraps, pumps, and Unna's boot)

Disadvantages

- Are not recommended for wounds with heavy exudate, sinus tracts, or infections; wounds surrounded by fragile skin; or wounds with exposed tendon or bone
- Can make wound assessment difficult, if opaque
- May be dislodged if the wound produces heavy exudate
- Provide an occlusive property that limits gas exchange between the wound and the environment
- May curl at edges
- May injure fragile skin upon removal

HCPCS code overview

The HCPCS codes normally assigned to hydrocolloid wound covers without an adhesive border are:
A6234—pad size <16 in^2
A6235—pad size >16 in^2 but <48 in^2
A6236—pad size >48 in^2

The HCPCS codes normally assigned to hydrocolloid wound covers with an adhesive border are:
A6237—pad size <16 in^2
A6238—pad size >16 in^2 but <48 in^2
A6239—pad size >48 in^2

The HCPCS codes normally assigned to hydrocolloid wound fillers are:
A6240—paste, per fluid ounce
A6241—dry form, per gram

CombiDERM ACD Absorbent Cover Dressing*

ConvaTec

How supplied

Sterile dressing: 4″ × 4″, 5 1/4″ × 5 1/4″, 6″ × 7″; A6237
6″ × 10″, 8″ × 8″, 8″ × 9″; A6238

Action

CombiDERM ACD Absorbent Cover Dressing is a sterile dressing with a hydrocolloid adhesive and an absorbent pad. The absorbent pad wicks exudate and doesn't damage tissue.

Indications

To manage exuding, chronic dermal ulcers, such as pressure ulcers, leg ulcers, and diabetic ulcers, as well as acute wounds, such as abrasions, lacerations, biopsy sites, and open and closed surgical wounds

Contraindications

- Contraindicated for patients with sensitivity to the dressing or its components

Application

- Clean the wound surface and surrounding skin with an appropriate cleansing solution. Dry the surrounding skin thoroughly.
- Debride the wound, if necessary.
- Determine the ideal dressing size, allowing a minimum 1 1/4″ (3 cm) margin beyond the reddened skin.
- If a filler or exudate management product is required, apply AQUACEL Hydrofiber Dressing, KALTOSTAT alginate dressing, or other appropriate dressing.
- Remove CombiDERM ACD release paper, and place the dressing directly over the wound.
- Press and smooth the dressing edges to ensure adherence and a firm seal.

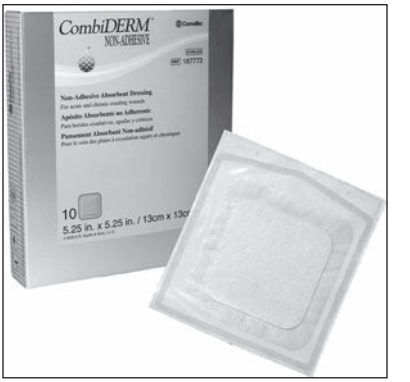
Removal

- Gently press down on the skin, and carefully lift the blue tab on the corner of the dressing. Continue until all edges are free.
- Carefully lift away the dressing.

*See package insert for complete instructions for use.

CombiDERM Non-Adhesive Sterile Dressing*

ConvaTec



How supplied

Sterile dressing: 3″ × 3″; A6234
5 1/4″ × 5 1/4″; A6235
6″ × 10″; A6236

Action

CombiDERM Non-Adhesive is a sterile, nonadhesive wound dressing consisting of absorbent hydrocolloids that provide a moist environment, absorb exudate, and are nondamaging to tissue. The dressing may be used alone or with other primary dressings to manage wound exudate.

Indications

To manage exudate in chronic wounds, such as pressure ulcers, leg ulcers, and diabetic ulcers, as well as acute exuding wounds, such as abrasions, lacerations, biopsy sites, and open and closed surgical wounds

Contraindications

- Contraindicated for patients with sensitivity to the dressing or its components

Application

- Clean the wound site, rinse well, and dry the surrounding skin.
- Choose a dressing that extends 1″ (2.5 cm) beyond the wound.
- Apply the dressing, white side down, directly over the wound.
- Secure the dressing with tape or with a secondary bandage or wrap.
- For highly exuding wounds, it's recommended that CombiDERM Non-Adhesive dressing be used with AQUACEL or KALTOSTAT dressing.

Removal

- Change the dressing when clinically indicated or as the softened area approaches the edge of the dressing. The dressing may be left in place for up to 7 days.
- Carefully lift the dressing away from the wound.

*See package insert for complete instructions for use.

Comfeel Plus Contour Dressing

Comfeel Plus Pressure Relief Dressing

Comfeel Plus Sacral Dressing

Coloplast Corp.

How supplied

Comfeel Plus Contour Dressing

Wafer: 24 in^2, 42 in^2; A6235

Comfeel Plus Pressure Relief Dressing

Wafer: 3″ butterfly, 4″ round; A6237
6″ round; A6238

Comfeel Plus Sacral Dressing

Wafer: 7″ × 8″; A6239

Action

The range of Comfeel hydrocolloid dressings provides an optimal, moist healing environment.

Indications

Comfeel Plus Contour Dressing to manage pressure ulcers in difficult-to-dress sites; Comfeel Plus Pressure Relief Dressing to manage and prevent pressure ulcers; Comfeel Plus Sacral Dressing to manage pressure ulcers in the sacral and hard-to-dress areas; all types for diabetic or infected wounds, under physician's supervision

Contraindications

- Contraindicated if a wound becomes infected
- Must be removed before radiation therapy

Application

- Rinse the wound with Sea-Clens or normal saline solution. Gently pat dry the skin around the wound.
- Choose a dressing that allows for $^3/_8$″ to 1″ (1 to 2.5 cm) overlap of the wound.

Comfeel Plus Contour Dressing

- Remove the protective paper from the center of the dressing, and place the dressing on the wound.
- Remove the protective paper from the wings, and gently press the wings one at a time to ensure that the dressing adheres to the skin.

Comfeel Plus Pressure Relief Dressing

- Remove the number of foam rings with orange print to get a foam-free area $^3/_4$″ to 1″ (1 to 2.5 cm) larger than the wound.
- Remove the protective paper from the dressing, and roll the dressing on from one side.
- Remove the protective paper from the microporous tape, and gently apply the tape to the skin.

Comfeel Plus Sacral Dressing

- Remove the protective paper from the center of the dressing.
- Spread the gluteal fold, place the dressing's narrow end into the deepest depression of the gluteal fold, and secure it in place. Ensure that the wound has 1″ (2.5 cm) of intact periwound skin and that the dressing adheres to the skin.
- Remove the second protective paper from the dressing, and secure the dressing in place.

Removal

- As Comfeel dressings absorb wound exudate, they turn white or lighten. Change the dressing when the color-change indicator spreads to $^{3}/_{8}$″ (1 cm) from the border.
- In case of leakage or nonadherence, change the dressing immediately.
- Although Comfeel dressings are odorproof, the wound itself may have a characteristic odor. This is normal, and the odor should resolve once the wound is rinsed. If the odor persists, contact a physician.

Comfeel Plus Ulcer Dressing

Comfeel Ulcer Care Dressing

Comfeel Plus Transparent Dressing

Coloplast Corp.

How supplied

Comfeel Plus Ulcer Dressing

Wafer: $1\frac{1}{2}'' \times 2\frac{1}{2}''$, 4″ × 4″; A6234
6″ × 6″; A6235
8″ × 8″; A6236

Comfeel Ulcer Care Dressing

Wafer: $1\frac{1}{2}'' \times 2\frac{1}{2}''$, 4″ × 4″; A6234
6″ × 6″; A6235

Comfeel Plus Transparent Dressing

Wafer: $2'' \times 2\frac{3}{4}''$, 4″ × 4″; A6234
$3\frac{1}{2}'' \times 5\frac{1}{2}''$, 6″ × 6″; A6235

Action

Comfeel hydrocolloid dressings provide an optimal, moist healing environment.

Indications

Primarily to manage minimally to moderately exuding leg ulcers and pressure ulcers; may be used for superficial burns, partial-thickness burns, donor sites, postoperative wounds, and skin abrasions; may also be used for diabetic or infected wounds, under a physician's supervision

Contraindications

- Contraindicated if a wound becomes infected
- Must be removed before radiation therapy

Application

- Rinse the wound with Sea-Clens or normal saline solution. Gently pat dry the skin around the wound.
- Choose a dressing that allows for $\frac{3}{8}''$ to 1″ (1 to 2.5 cm) overlap of the wound.
- Use the handles on the dressing to ensure aseptic application. Remove the protective paper.
- Place the adhesive side to the wound. Remove the handle.

Removal

- As Comfeel dressings absorb wound exudate, a gel forms. When the gel reaches the upper film surface of the dressing, it turns white or lightens. Change the dressing when the white gel spreads to $\frac{3}{8}''$ (1 cm) from the border.
- In case of leakage or nonadherence, change the dressing immediately.
- Although Comfeel dressings are odorproof, the wound itself may have a characteristic odor. This is normal, and the odor should resolve once the wound is rinsed. If the odor persists, contact a physician.

DermaFilm HD

DermaFilm Thin

DermaRite Industries, LLC

How supplied

DermaFilm HD
Film: 4″ × 4″; A6234
DermaFilm Thin
Film: 2″ × 2″, 4″ × 4″; A6234
Sacral
3″ × 5″ (heel)

Action

DermaFilm is a pressure-sensitive dressing that interacts with wound exudates to form a soft gel. It helps isolate the wound against bacterial and other external contamination. The thin formula allows visibility and maintenance of the wound bed through the course of treatment.

Indications

To manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, minor abrasions, and second-degree burns; also to prevent skin breakdown by providing protection from urine, stool, and other contaminants

Contraindications

- Contraindicated for third-degree burns
- Contraindicated for clinically infected wounds
- Contraindicated for ulcers involving muscle, tendon, or bone

Application

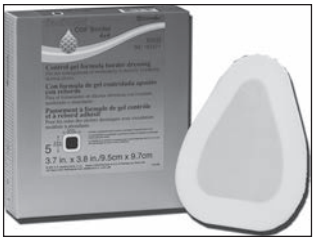
- Clean the wound area, and dry the periwound skin.
- Choose a dressing that overlaps the wound by at least 1″ (2.5 cm). Apply the dressing without stretching it.
- Press the dressing gently around the perimeter, forming it to the wound site.

Removal

- Change the dressing when the exudate extends to the edges. Dressing may be left in place for up to 7 days.
- Press down on the skin, and carefully lift an edge of the dressing. Continue lifting around the dressing until all edges are free.
- Clean the wound area again.

DuoDERM CGF Border Dressing*

ConvaTec



How supplied

Sterile dressing: 2.5″ × 2.5″ dressing plus ¾″ adhesive border, 4″ × 4″ dressing plus ¾″ adhesive border, 4″ × 5″ dressing plus 1″ adhesive border; A6237
6″ × 6″ plus 1″ adhesive border, 6″ × 7″ plus 1″ adhesive border; A6238

Action

DuoDERM CGF Border Dressing creates a moist wound environment that supports the healing process and autolytic debridement and allows for nontraumatic removal. It helps isolate the wound against bacterial and other external contamination while remaining intact and without leakage.

Indications

To manage dermal ulcers, diabetic foot ulcers, and leg ulcers; may also be used on pressure ulcers (stages 1 to 4), full-thickness wounds, minor abrasions, second-degree burns, and donor sites

Contraindications

- Contraindicated for patients with sensitivity to the dressing or its components

Application

- Dressing is sterile; handle appropriately.
- Clean the wound according to facility guidelines, and dry the surrounding skin to ensure that it's grease-free.
- Before applying the dressing, remove eschar that's particularly thick or fused to the wound margins.
- Choose a dressing size that's at least 1 1/4″ (3 cm) larger than the wound margins.
- Remove only the top backing paper.
- Apply the dressing over the wound. Smooth into place, especially at the edges of the center adhesive. *Note:* The triangle-shaped dressing can be applied in several directions, depending on the location of the ulcer. For sacral ulcers, fold the dressing in half lengthwise to make it easy to apply in the sacral fold.
- Fold back the border, and remove the release papers; press the borders into place. Additional taping isn't required.
- Obtain a bacterial culture of the site if infection develops, and start appropriate medical treatment as ordered. Continue using the dressing as directed by the primary care provider.

Removal

- Leave the dressing in place for up to 7 days unless it's uncomfortable or leaking, or infection develops.
- Press down on the skin, and carefully lift an edge of the dressing. Continue lifting around the dressing until all edges are free.
- The wound should be cleaned at each dressing change. (It's unnecessary to remove all residual dressing material from the surrounding skin.)

*See package insert for complete instructions for use.

DuoDERM CGF Dressing*

ConvaTec

How supplied

Dressing: 4″ × 4″; A6234
6″ × 6″, 6″ × 8″; A6235
8″ × 8″, 8″ × 12″; A6236

Action

DuoDERM CGF (Control Gel Formula) Dressing is an adhesive (hydrocolloid) wound contact dressing. The self-adherent dressing absorbs wound fluid and provides a moist environment, which supports the body's healing process and aids in the removal of unnecessary material from the wound (autolytic debridement) without damaging new tissue. The dressing acts as a barrier to the wound against bacterial, viral, and other external contamination while intact and without leakage.

Indications

To manage minor abrasions, lacerations, minor cuts, minor scalds and burns, leg ulcers (venous stasis ulcers, arterial ulcers, and leg ulcers of mixed etiology); diabetic ulcers and pressure ulcers (partial- and full-thickness), surgical wounds (postoperative left to heal by secondary intention, donor sites, dermatologic excisions), second-degree burns, and traumatic wounds

Contraindications

- Not for use on individuals who are sensitive to or who have had an allergic reaction to the dressing or its components

Application

- Choose a dressing size to ensure that the dressing is 1½″ (3 cm) larger than the wound area.
- Remove the release paper from the back, being careful to minimize finger contact with the adhesive surface.
- Hold the dressing over the wound, and line up the center of the dressing with the center of the wound. Place the dressing directly over the wound.
- For difficult-to-dress areas, such as heels or the sacrum, a supplementary securing device, such as tape, may be required.
- Discard any unused portion of the product after dressing the wound.

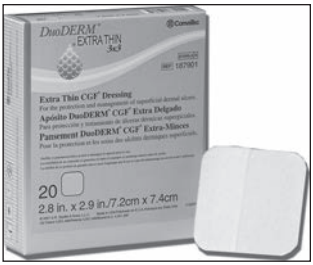
Removal

- Dressing may remain in place up to 7 days. The dressing should be changed when clinically indicated or when strike-through occurs. The wound should be cleaned at each dressing change.
- Press down gently on the skin, and carefully lift one corner of the dressing until it no longer adheres. Continue until all edges are free.

*See package insert for complete instructions for use.

DuoDERM Extra Thin Dressing*

ConvaTec



How supplied

DuoDERM Extra Thin Spots:
1¼ × 1½″; A6234
DuoDERM ExtraThin Dressing:
2″ × 4″, 2″ × 8″, 3″ × 3″, 4″ × 4″; A6234
4″ × 6″, 6″ × 6″; A6235
6″ × 7″ triangle; A6235

Action

DuoDERM Extra Thin dressing creates a moist environment that supports the healing process and autolytic debridement, and allows for nontraumatic removal. It acts as a barrier to help isolate the wound against bacterial and other contamination while intact and without leakage. This dressing is particularly suitable for use in areas subject to friction or those requiring contouring, such as elbows or heels.

Indications

To act as a protective dressing and manage superficial, dry to lightly exuding dermal ulcers and postoperative wounds

Contraindications

- Not for use on individuals who are sensitive to or who have had an allergic reaction to the dressings or their components

Application

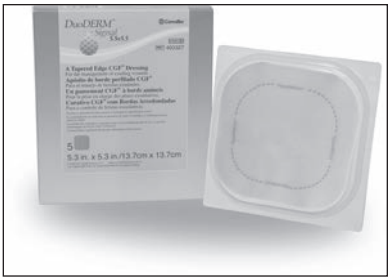
- Dressing is sterile; handle appropriately.
- Clean the wound and dry the surrounding skin to ensure that it's grease-free.
- Choose a dressing size that extends beyond the wound margin at least 1¼″ (3 cm).
- Minimize finger contact with the adhesive surface.
- Apply in a rolling motion; avoid stretching.
- Smooth into place, especially around the edges.
- Use tape to secure the edges, if necessary.
- For a heel or elbow, cut a slit about one third across each side of the dressing to make application easier.
- For a sacral ulcer, press the dressing into the anal fold. Depending on the location and depth of the ulcer, the triangle-shaped dressing can be applied in different directions.
- Obtain a bacterial culture of the wound site if infection develops, and start appropriate medical treatment, as ordered. Continue using the dressing as directed by the physician. Using an occlusive dressing in the presence of necrotic material may initially increase wound size and depth when the necrotic debris is cleaned away.

Removal

- Leave the dressing in place for up to 7 days unless it's uncomfortable or leaking or infection develops.
- Press down on the skin, and carefully lift an edge of the dressing. Continue lifting around the dressing until all edges are free.
- The wound should be cleaned at each dressing change. (It's unnecessary to remove all residual dressing material from the surrounding skin.)

*See package insert for complete instructions for use.

DuoDERM Signal Sterile Dressing*



DuoDERM Signal

ConvaTec

How supplied

Shapes: 4.5″ × 7.5″ (oval); A6235
8″ × 9″ (sacral); A6236
7.5″ × 7.8″ (heel); A6235
6″ × 7″, 8″ × 9″; A6238

Squares: 4″ × 4″; A6237
5.5″ × 5.5″, 8″ × 8″; A6238

Action

DuoDERM Signal creates a moist environment that supports healing and autolytic debridement, and allows for nontraumatic dressing removal. An indicator line on the dressing helps to determine when to change the dressing. The dressing acts as a barrier to the wound against bacterial, viral, and other external contamination provided the dressing remains intact and there is no leakage.

Indications

Over-the-counter type used for minor abrasions, lacerations, minor cuts, minor scalds, burns; under a physician's supervision, for leg ulcers (venous stasis ulcers, arterial ulcers, and leg ulcers of mixed etiology), diabetic ulcers and pressure ulcers, sores (partial and full thickness), surgical wounds (postoperative left to heal by secondary intention, donor sites, dermatologic excisions), second-degree burns, traumatic wounds.

Contraindications

- Not for use on patients who are sensitive to or who have had an allergic reaction to the dressing or its components

Application

- Clean the wound surface and surrounding skin with SAF-Clens AF Dermal Wound Cleanser or normal saline solution, and dry the surrounding skin.
- Debride if necessary.
- Choose a dressing size and shape to ensure that the dressing is $1^1/_2$″ (3 cm) larger than the wound area.
- Hold the dressing by its corner, and pull back the release paper about halfway.
- Apply the dressing from the outside edge toward the wound, completely removing the paper backing.
- Mold the entire dressing gently but firmly into place.

Removal

- To remove the dressing, gently press down on the skin with one hand.
- Carefully peel up one edge of the dressing with the other hand.
- Continue until all edges are free.

*See package insert for complete instructions for use.

Exuderm OdorShield

Exuderm LP

Exuderm RCD

Medline Industries, Inc.

How supplied

Exuderm OdorShield

Wafer: 2″ × 2″, 4″ × 4″; A6234
6″ × 6″; A6235
8″ × 8″; A6236

Sacral: 3.6″ × 4″; A6234
6″ × 5″; A6235

Exuderm LP

Wafer: 4″ × 4″; A6234
6″ × 6″; A6235

Exuderm RCD

Wafer: 4″ × 4″; A6234
6″ × 6″; A6235
8″ × 8″; A6236

Action

Exuderm reacts with wound exudate to create a moist healing environment while absorbing wound exudate. Exuderm OdorShield has a smooth satin backing, tapered edge, no-residue formula plus added odor management via cyclodextrins. Exuderm Satin has a tapered-edge, low-profile, translucent appearance. The smooth satin backing resists rollup. Exuderm LP's low-profile design is used to protect against skin breakdown or to dress superficial wounds. Exuderm Regulated Colloidal Dispersion (RCD) is used to manage and absorb exudate with minimal meltdown. All Exuderm dressings provide a protective, occlusive barrier, facilitating granulation or autolytic debridement, if necessary.

Indications

To manage dermal ulcers, leg ulcers, pressure ulcers (stages 2 to 4), partial-thickness wounds, minor abrasions, first- and second-degree burns, donor sites, or wounds with slough or necrosis

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the application site with normal saline solution or another appropriate cleanser, such as Skintegrity Wound Cleanser. Dry the surrounding area to ensure that it's free from any greasy substance.
- Select the appropriate-sized dressing to allow $1\frac{1}{4}$″ to $1\frac{1}{2}$″ (3 to 4 cm) for attachment to healthy periwound skin.

Exuderm Odorshield, Exuderm LP, Exuderm RCD

- Remove the paper carrier from the dressing.
- Center Exuderm over the site, and apply to skin using a rolling motion.
- Smooth the dressing into place, especially around the edges, and hold for 5 seconds to maximize adhesive qualities.
- For traditional hydrocolloids, such as Exuderm RCD, "picture framing" (taping down all sides with a skin-friendly tape, such as Medfix) can help prevent rollup.

Removal

- Dressing may remain in place for 2 to 7 days, depending on the amount of wound drainage. If the dressing begins to lift or leak, change it immediately.
- An adhesive remover may be used to loosen the dressing.
- Carefully press down on the skin, and lift an edge of the dressing. Continue around the dressing until all edges are free.
- Remember that the wound should be cleaned at each dressing change.

NEW PRODUCT

MEDIHONEY

Derma Sciences, Inc.

How supplied

Paste: 0.5-oz tube, 1.5-oz tube, 3.5-oz tube; A6240

Action

MEDIHONEY is a special type of honey indigenous to New Zealand, called active *Leptospermum* (or Manuka) honey. Active *Leptospermum* Honey has been shown to have several properties that assist in promoting an optimal healing environment. It has a low pH that has been shown to help lower the overall pH of the wound environment, which is beneficial to chronic wounds. The honey is also highly osmotic, which assists in debridement and keeping the wound bed clean.

Indications

MEDIHONEY Dressing with Active *Leptospermum* Honey provides a moist environment conducive to wound healing and is indicated for lightly to moderately exuding wounds, such as diabetic foot ulcers; leg ulcers (venous stasis ulcers, arterial ulcers and leg ulcers of mixed etiology); pressure ulcers/sores (partial and full thickness); first and second-degree partial thickness burns; donor sites; and traumatic and surgical wounds; can be used as a cornerstone for wound bed preparation, and throughout all the phases of wound healing.

Contraindications

- Contraindicated for third-degree burns
- Not for use on patients with a known sensitivity to alginates or honey

Application

- Prior to application, cleanse the wound area as necessary.
- Remove the cap from the tube and then remove the sterile seal before using. For deeper or tunneled wounds, remove the applicator tip from its packaging and screw it onto the nozzle of the tube.
- Apply MEDIHONEY Dressing with Active *Leptospermum* Honey either directly to the wound bed, or onto a suitable primary dressing such as an alginate or gauze pad.
- Use an appropriate secondary dressing (such as hydrocolloid, foam, thin film, or island/composite) to cover the MEDIHONEY Dressing. See package inserts of secondary cover dressings for complete instructions for use.

Removal

- Dressing change frequency will depend on the condition of the patient as well as the level of wound exudate.
- Reapply when the secondary dressing has reached its absorbent capacity or as directed by a wound care professional.
- Moisten with sterile saline if the wound bed appears dry before removal of the dressing.
- Remove the dressing from the wound bed gently.
- Cleanse the wound bed prior to application of new dressing.

NEW PRODUCT

MEDIHONEY Gel

Derma Sciences, Inc.

How supplied

Tube: 0.5-oz tube, 1.5-oz tube; A6240

Action

MEDIHONEY is a special type of honey indigenous to New Zealand, called active *Leptospermum* (or Manuka) honey. MEDIHONEY Gel contains 80% Active *Leptospermum* Honey and 20% natural gelling agents providing a more viscous formulation maintaining its properties at the site of the wound. Active *Leptospermum* Honey has been shown to have several properties that assist in promoting an optimal healing environment. It has a low pH that has been shown to help lower the overall pH of the wound environment, which is beneficial to chronic wounds. The honey is also highly osmotic, which assists in debridement and keeping the wound bed clean.

Indications

MEDIHONEY Dressing with Active *Leptospermum* Honey provides a moist environment conducive to wound healing and is indicated for lightly to moderately exuding wounds, such as diabetic foot ulcers; leg ulcers (venous stasis ulcers, arterial ulcers and leg ulcers of mixed etiology); pressure ulcers/sores (partial and full thickness); first- and second-degree partial thickness burns; donor sites; and traumatic and surgical wounds; can be used as a cornerstone for wound bed preparation, and throughout all the phases of wound healing.

Contraindications

- Contraindicated for third-degree burns
- Not for use on patients with a known sensitivity to alginates or honey

Application

- Prior to application, cleanse the wound area as necessary.
- Remove the cap from the tube and then remove the sterile seal before using. For deeper or tunneled wounds, remove the applicator tip from its packaging and screw it onto the nozzle of the tube.
- Apply Medihoney Gel with Active *Leptospermum* Honey either directly to the wound bed, or onto a suitable primary dressing such as an alginate or gauze pad.
- Use an appropriate secondary dressing (such as hydrocolloid, foam, thin film, or island/composite) to cover the MEDIHONEY Gel. See package inserts of secondary cover dressings for complete instructions for use.

Removal

- Dressing change frequency will depend on the condition of the patient as well as the level of wound exudate.
- Reapply when the secondary dressing has reached its absorbent capacity or as directed by a wound care professional.
- Moisten with sterile saline if the wound bed appears dry before removal of the dressing.
- Remove the dressing from the wound bed gently.
- Cleanse the wound bed prior to application of new dressing.

NEW PRODUCT

MEDIHONEY Honeycolloid

Derma Sciences, Inc.

How supplied

Nonadhesive Dressing: 2″ × 2″; A6234
4″ × 5″; A 6235
Adhesive Dressing: 2″ × 2″ (3.5″ × 3.5″ with adhesive border); A6237
4.5″ × 4.5″ (6″ × 6″ with adhesive border); A6238

Action

MEDIHONEY is a special type of honey indigenous to New Zealand, called active *Leptospermum*(or Manuka) honey. Active *Leptospermum* Honey has been shown to have several properties that assist in promoting an optimal healing environment. It has a low pH that has been shown to help lower the overall pH of the wound environment, which is beneficial to chronic wounds. The honey is also highly osmotic, which assists in debridement and keeping the wound bed clean.

Indications

MEDIHONEY Dressing with Active *Leptospermum* Honey provides a moist environment conducive to wound healing and is indicated for lightly to moderately exuding wounds, such as diabetic foot ulcers; leg ulcers (venous stasis ulcers, arterial ulcers and leg ulcers of mixed etiology); pressure ulcers/sores (partial and full thickness); first and second-degree partial thickness burns; donor sites; and traumatic and surgical wounds; can be used as a cornerstone for wound bed preparation, and throughout all the phases of wound healing.

Contraindications

- Contraindicated for third-degree burns
- Not for use on patients with a known sensitivity to alginates or honey

Application

- Prior to application, cleanse the wound area as necessary.
- There may be increased levels of exudates upon initial use of the dressing. In the case of increased levels of exudates, protect the periwound skin with a skin protectant barrier and add an absorptive cover dressing.
- Use an appropriately sized dressing. The dressing may be cut to size (with sterile scissors) to fit within the wound margins. The dressing may be conformable to the wound if pre-warmed to room temperature prior to use.
- For deep wounds, place the dressing within the wound bed and ensure that the dressing does not overlap the wound margins.
- Use an appropriate secondary dressing (such as hydrocolloid, foam, thin film, or island/composite) to cover the MEDIHONEY Honeycolloid Dressing with Active *Leptospermum* Honey.

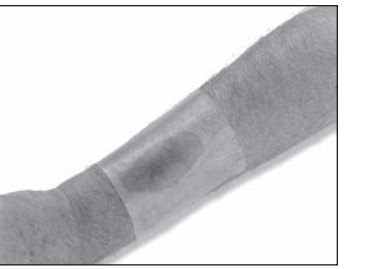
Removal

- Dressing change frequency will depend on the condition of the patient as well as the level of wound exudate.

- Reapply when MEDIHONEY Honeycolloid Dressing with Active *Leptospermum* Honey or the secondary dressing has reached its absorbent capacity or as directed by a wound care professional.
- Moisten with sterile saline if the wound bed appears dry before removal of the dressing.
- Remove the dressing from the wound bed gently.
- Cleanse the wound bed prior to application of new dressing.

MPM Excel Hydrocolloid Wound Dressing

MPM Medical, Inc.



How supplied

Pad: 2″ × 2″, 3.6″ × 4″, 4″ × 5″, 6″ × 6.5″

Action

MPM Excel Hydrocolloid Wound Dressings are thin and transparent with a foam top, allowing the wound to be viewed through the dressing. They protect the wound from the outside environment and assist the body in healing by maintaining a moist environment.

Indications

To manage pressure ulcers (stages 1 to 3) and leg ulcers

Contraindications

- Contraindicated for infected wounds
- Contraindicated for stage 4 wounds
- Contraindicated for third-degree burns

Application

- Select a dressing that overlaps the wound by 1″ (2.5 cm).
- Clean the wound, and dry the periwound skin.
- Apply the dressing directly over the wound. The dressing is self-adherent.

Removal

- Change the dressing every 2 to 5 days, when exudate begins to leak from the edges.
- Lift one corner, and then gently remove entire dressing.

PrimaCol Bordered Hydrocolloid Dressing

Derma Sciences, Inc.

How supplied

Wafer: 2″ × 2″, 4″ × 4″, 6″ × 6″, 8″ × 8″

Action

PrimaCol Bordered Hydrocolloid Dressing provides a moist healing environment and protects the wound from outside contaminants. In contact with wound fluid, it produces a soft mass, allowing nontraumatic removal. PrimaCol Bordered Hydrocolloids don't require a secondary dressing.

Indications

To manage minimally to moderately exuding partial-thickness wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or normal saline solution. Dry the skin adjacent to the wound.
- Choose a dressing that allows the hydrocolloid pad to extend 1″ (2.5 cm) beyond the wound margins.
- Place the dressing directly on the wound without stretching the dressing.
- Smooth the film border to ensure secure adherence.

Removal

- Carefully lift an edge of the dressing, and continue lifting around the entire perimeter of the dressing until all of the adhesive edge is free.

PrimaCol Hydrocolloid Dressing

Derma Sciences, Inc.

How supplied

Wafer: 4 × 4″, 6″ × 6″, 8″ × 8″

Action

PrimaCol Hydrocolloid Dressing provides a moist healing environment and protects the wound from outside contaminants. In contact with wound fluid, it produces a soft mass, allowing nontraumatic removal.

Indications

To manage minimally to moderately exuding partial- and full-thickness wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or normal saline solution. Dry the skin adjacent to the wound.
- Choose a dressing that extends 1″ (2.5 cm) beyond the wound margins.
- Place the dressing directly on the wound without stretching the dressing.

Removal

- Carefully lift an edge of the dressing, and continue lifting around the entire perimeter of the dressing until all of the adhesive edge is free.

PrimaCol Specialty Hydrocolloid Dressing

Derma Sciences, Inc.

How supplied

Wafer: Heel, elbow, and sacrum

Action

PrimaCol Specialty Hydrocolloid Dressing provides a moist healing environment and protects the wound from outside contaminants. In contact with wound fluid, it produces a soft mass, allowing nontraumatic removal. PrimaCol Specialty Hydrocolloids are designed for difficult-to-dress areas, such as the sacrum, the heels, and the elbows.

Indications

To manage minimally to moderately exuding, partial-thickness wounds; also used for difficult-to-dress areas, such as bony prominences

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or normal saline solution. Dry the skin adjacent to the wound.
- Choose a dressing that allows the hydrocolloid pad to extend 1″ (2.5 cm) beyond the wound margins.
- Place the dressing directly on the wound without stretching the dressing.
- Smooth the film border to ensure secure adherence.

Removal

- Carefully lift an edge of the dressing, and continue lifting around the entire perimeter of the dressing until all of the adhesive edge is free.

PrimaCol Thin Hydrocolloid Dressing

Derma Sciences, Inc.

How supplied

Wafer: 2″ × 2″, 4″ × 4″, 6″ × 6″

Action

PrimaCol Thin Hydrocolloid Dressing provides a moist healing environment and protects the wound from outside contaminants. In contact with wound fluid, it produces a soft mass, allowing nontraumatic removal. PrimaCol Thin is a transparent hydrocolloid, which facilitates wound inspection.

Indications

To manage superficial and minimally exuding partial-thickness wounds; also used for difficult-to-dress areas, such as bony prominences

Contraindications

- Contraindicated for third-degree burns

Application

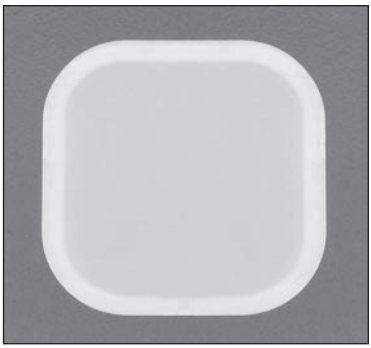
- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Dry the skin adjacent to the wound.
- Choose a dressing that extends 1″ (2.5 cm) beyond the wound margins.
- Place the dressing directly on the wound without stretching the dressing.

Removal

- Carefully lift an edge of the dressing, and continue lifting around the entire perimeter of the dressing until all of the adhesive edge is free.

Procol Hydrocolloid Dressing

DeRoyal



How supplied

Wafer: 2″ × 2″, 4″ × 4″; A6237
6″ × 6″; A6238
Procol X-Thin: 2″ × 2″, 4″ × 4″; A6237
6″ × 6″; A6238

Action

Procol is a self-adherent, hydrocolloid wound dressing that creates a moist environment conducive to local wound healing. It protects against wound dehydration, acts as a bacterial barrier, and helps to control wound drainage. Procol's matrix formulation helps reduce the residue left in the wound and also helps avoid damaging newly formed tissue during dressing changes.

Indications

For use as a primary or secondary dressing to manage dermal ulcers, superficial wounds, lacerations, abrasions, first- and second-degree burns, donor sites, and postoperative wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound site with normal saline solution.
- If necessary, cut Procol Hydrocolloid Dressing to the desired size.
- Remove the dressing's release liner, and apply the exposed side to the wound.
- Because the dressing adheres to the skin around the wound, extra tape isn't necessary.

Removal

- Gently lift edges, and peel the dressing off.

REPLICARE Hydrocolloid Dressing

REPLICARE Thin Hydrocolloid Dressing

REPLICARE Ultra Advanced Hydrocolloid Alginate Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

REPLICARE

Wafer: $1\frac{1}{2}'' \times 2\frac{1}{2}''$, $4'' \times 4''$; A6234
$6'' \times 6''$; A6235
$8'' \times 8''$; A6236

REPLICARE Thin

Wafer: $2'' \times 2\frac{3}{4}''$; A6234
$3\frac{1}{2}'' \times 5\frac{1}{2}''$, $6'' \times 8''$; A6235

REPLICARE Ultra

Wafer: $4'' \times 4''$; A6234
$6'' \times 6''$; A6235
$8'' \times 8''$; A6236
Sacral dressing: $7'' \times 8''$; A6235

Action

These products support the creation and maintenance of a moist wound environment, which has been established as the optimal environment for management of the wound. They provide physical separation between the wound and external environments to help prevent bacterial contamination of the wound.

REPLICARE

REPLICARE is a hydrocolloid dressing that contains a dense concentration of absorbent material in a thin dressing for superior absorption in the management of exuding wounds. RepliCare's cohesive properties keep the wound free from dressing residue. With the one-handed application system, the product won't stick to gloves. REPLICARE has a waterproof film exterior that helps prevent bacterial contamination. The top film can be wiped clean easily.

REPLICARE Thin

REPLICARE Thin is a hydrocolloid dressing made from a polyurethane film with a thin layer of absorbent colloid. REPLICARE Thin maintains a moist wound environment that assists in promoting autolytic debridement while managing low levels of exudate.

REPLICARE Ultra

REPLICARE Ultra is an advanced hydrocolloid dressing with alginate, which offers superior exudate management and increased absorption capability. REPLICARE Ultra's improved design provides better evaporation through an adaptable

polyurethane top film that regulates moisture vapor transmission rate. This allows excess moisture to evaporate while maintaining the proper moist wound environment. The top film is waterproof, easy to clean, and aids in the prevention of bacterial contamination. Unique microthin edges and enhanced adhesive offer better adherence, reduced leakage potential, and reduced chance of edge roll. REPLICARE Ultra can remain in place for up to 7 days for convenience, fewer dressing changes, and a reduction in nursing costs. In addition, it's offered in a sacral design to conform to the difficult to dress sacral region.

Indications

REPLICARE

For exudate absorption and management of partial- to full-thickness wounds such as ulcers (venous, arterial, diabetic); pressure sores; donor sites; surgical incisions and excisions; and first- and second-degree burns

REPLICARE Thin

For exudate absorption and management of partial- to full-thickness wounds such as ulcers (venous, arterial, diabetic); pressure sores; donor sites; surgical incisions and excisions; and first- and second-degree burns

REPLICARE Ultra

Under a physician's supervision, for stage 1 through stage 4 wounds with light to moderate exudate, such as pressure ulcers, leg ulcers, superficial and partial-thickness burns, superficial wounds, donor sites, and skin abrasions

Contraindications

REPLICARE

- Contraindicated for use on third-degree or full-thickness burns

REPLICARE Thin

- Contraindicated for use on third-degree burns

REPLICARE Ultra

- Not to be continued if any signs of irritation (reddening, inflammation), maceration (overhydration of the skin), hypergranulation (excess tissue), or sensitivity (allergic reactions) appear; consult a health care professional
- Not to be used if packaging is open or damaged
- Not to be reused
- Not for use on ulcers resulting from infection, such as tuberculosis, syphilis, and deep fungal infections; lesions in patients with acute vasculitis, such as periarteritis nodosa, systemic lupus erythematosus, and cryoglobulinemia; or third-degree burns
- Must be removed before radiation therapy

Application

REPLICARE

- Cleanse the wound with saline solution or an appropriate wound cleanser. Cleanse and dry the periwound skin. If the periwound skin is particularly friable, it may be protected from trauma by applying Skin-Prep.
- Choose a dressing large enough to cover the wound with 1″ (2.5 cm) of overlap on all sides of the wound. Remove the printed backing paper, exposing the adhesive surface.

- Center the dressing over the wound, and press the edges firmly to the surrounding skin. Remove the small plastic application tab from the underside of the dressing, and press all the sides firmly to the skin.

REPLICARE Thin

- Cleanse the wound with saline solution or an appropriate wound cleanser. Cleanse and dry the periwound skin. If the periwound skin is particularly friable, it may be protected from trauma by applying Skin-Prep.
- Choose a dressing large enough to cover the wound with 1″ of overlap on all sides of the wound. Remove the printed backing paper, exposing the adhesive surface.
- Center the dressing over the wound, and press the edges firmly to the surrounding skin. Remove the small plastic application tab from the underside of the dressing, and press all the sides firmly to the skin.

REPLICARE Ultra

The following are designed to act as general guidelines and should only be used under the supervision of a health care professional.

- Cleanse the wound using sterile saline or a recommended commercial brand of wound cleanser such as Dermal Wound Cleanser. Gently pat dry the skin around the wound. Skin-Prep is recommended to protect the periwound skin.
- Choose a dressing that allows for 1/2″ to 1″ (1.25 to 2.5 cm) overlap of the wound.
- Remove the protective paper, exposing the adhesive surface. Use the clear, plastic handle to ensure aseptic application.
- Place the adhesive side to the wound, and remove the handle.
- During the body's normal healing process, unnecessary material is removed from the wound, which will make the wound appear larger after the first few dressing changes. If the wound continues to get larger after the first few dressing changes, discontinue use and consult a health care professional.

Removal

REPLICARE, REPLICARE Thin

- Change the dressing every 4 days or when transparent or leaking.
- Support the dressing with one hand while using the other hand to pull the edges laterally (parallel to the skin surface) away from the center.

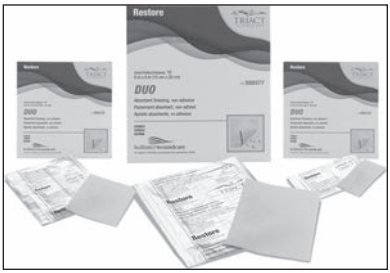
REPLICARE Ultra

- As REPLICARE Ultra absorbs wound exudate, a gel is formed. When the gel reaches the upper film surface of the dressing, the dressing becomes white or opaque. Maximum absorbency is reached when the dressing becomes opaque and the exudate extends ½″ (1.25 cm) from the edges of the dressing.
- To remove the REPLICARE Ultra dressing, lift one corner of the dressing and gently pull the dressing away from the wound. To aid in removal of the dressing, Remove Adhesive Remover may be used.
- Gently cleanse the wound with tap water, sterile saline, or recommended commercial brand wound cleanser such as Dermal Wound Cleanser.
- Follow package instructions for applying a fresh dressing.

NEW PRODUCT

Restore Duo Absorbent Dressing with TRIACT Technology

Hollister Wound Care



How supplied

Dressing: 2″ × 4″; A6234
4″ × 5″; A6235
4″ × 8″; A6236

Action

The proprietary TRIACT technology is comprised of a nonocclusive polyester mesh impregnated with a polymer matrix containing hydrocolloid particles and a petrolatum-based formulation. Upon contact with wound exudates, the hydrocolloid particles combine with the matrix to form a lipido-colloidal gel, providing a moist environment that promotes healing. Consisting of nonadhesive contact dressing, removal of Restore Duo Absorbent Dressing is virtually pain-free and helps minimize damage to newly formed surrounding skin. The Absorbent pad provides optimal drainage for small quantities of exudate, protecting the peri-wound skin from maceration.

Indications

Indicated for low-exuding acute and chronic wounds, including minor cuts, abrasions, scalds and burns, leg ulcers, diabetic ulcers, pressure ulcers, traumatic wounds, second-degree burns, postoperative wounds, and skin tears

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Cleanse the wound using sterile saline solution or an appropriate wound cleanser.
- If an antiseptic has previously been used, rinse the wound carefully with normal saline before applying Restore Duo Absorbent Dressing.
- Choose a dressing size that ensures that the dressing will cover the entire wound.
- Remove the protective tabs from the dressing.
- Apply the dressing directly to wound with the TRIACT mesh toward the wound.
- Hold in place using a fixing bandage.

Removal

- Wash hands and put on gloves.
- Remove the secondary dressing and the Restore DUO dressing and dispose of properly.
- Cleanse the wound bed following your facility's protocol.
- Reapply dressing, if necessary.
- Remove gloves and wash hands after completing the procedure.

Note: The dressing may be left in place for a maximum of 7 days. The frequency of dressing changes for Restore DUO Absorbent dressing depends on the clinical presentation of the wound (such as the amount of exudate and healing progression).

Restore Extra Thin Hydrocolloid Dressing*

Hollister Wound Care

How supplied

Sheet: 4″ × 4″; A6234
6″ × 8″; A6235
8″ × 8″; A6236

Action

Restore Extra Thin is a sterile, occlusive dressing. The flexible outer layer helps isolate the wound against bacterial and viral human immunodeficiency virus (HIV-1) and hepatitis B virus (HBV) contaminants and other external contamination such as urine and feces while the dressing remains intact without leakage. The self-adhesive dressing helps maintain a moist environment for wound healing. Disposable wound measuring guide included.

Indications

To protect skin from friction injury and to manage superficial wounds with minimal or no exudate

Contraindications

- Not for use on patients with active vasculitis or ulcers involving muscle, tendon, or bone
- Contraindicated on patients with deep systemic infections
- Contraindicated on patients with signs of active local infection at the wound site (erythema, cellulitis, or purulent discharge)

Application

- To ensure attachment to healthy skin, the dressing should extend at least 1″ (2.5 cm) beyond the wound edge. Dressings may be overlapped or cut to accommodate the wound site.
- Remove the printed release paper from the patient side of the dressing. Center the dressing over the wound site. Press the dressing to the skin and smooth it to remove all wrinkles.

Removal

- Carefully lift an edge of the dressing, and peel away from the skin. The dressing should be left in place until one or more of the following occurs: leakage of exudate, loosening of the edges of the dressing, tenderness or signs of infection, 7 days have elapsed, or there is no longer a clinical need for the dressing.

*See package insert for complete instructions for use.

Restore Hydrocolloid Dressing

Hollister Wound Care

How supplied

Dressing: 4″ × 4″ without tapered edges; A6234
6″ × 8″ without tapered edges; A6235
8″ × 8″ without tapered edges; A6236
4″ × 4″ with tapered edges; A6234
6″ × 6″ with tapered edges, 6″ × 8″ with tapered edges; A6235
8″ × 8″ with tapered edges; A6236
With tapered edges, triangle-shaped 17 in^2, with tapered edges, triangle-shaped 26.5 in^2; A6235

Action

Restore Hydrocolloid Dressings are sterile, occlusive dressings. The flexible outer layer helps isolate the wound against bacterial and human immunodeficiency virus (HIV-1) and hepatitis B virus (HBV) contaminants and other external contamination such as urine and feces while the dressing remains intact without leakage. The self-adhesive inner layer maintains a moist wound environment while absorbing excess wound exudate to prevent fluid pooling. Disposable wound measuring guide included.

Indications

For use on dermal ulcers including full-thickness wounds, diabetic ulcers, pressure ulcers, leg ulcer management, superficial wounds, second-degree burns, and donor sites; partial- and full-thickness wounds; moist to moderately exudative wounds

Contraindications

- Not for use on third-degree burns

Application

- Rinse or irrigate the wound area. The skin should be clean and dry for secure application. To ensure attachment to healthy skin, the dressing should extend at least 1″ (2.5 cm) beyond the wound edge. Dressings may be overlapped or cut to accommodate the size of the wound.
- Partially remove the release paper from the dressing, exposing the center of the dressing. Do not remove the paper completely at this point.
- Center the adhesive side of the dressing over the wound site. Be careful not to touch the adhesive side of the dressing (side applied to the wound).
- Remove the remaining pieces of the release paper from the dressing, and press the dressing margins to the skin.
- If clinical signs of infection are present, appropriate medical treatment should be initiated. Management of the wound with Restore Hydrocolloid Dressings may be continued at the discretion of the clinician.

Removal

- Carefully lift an edge of the dressing while pressing gently down on the skin.
- Continue this procedure around the wound bed until all edges of the dressing are free. Wash the wound area to remove any residual materials. Remove excess moisture, and apply a new dressing. The dressing should be left in place (not more than 7 days) unless it is uncomfortable, leaking, or there are clinical signs of infection.

*See package insert for complete instructions for use.

Restore Hydrocolloid Dressing with Foam Backing*

Hollister Wound Care

How supplied

Sheet: 4″ × 4″; A6234
6″ × 8″; A6235
8″ × 8″; A6236

Action

Restore Hydrocolloid dressings are sterile, occlusive dressings with foam backing. The heat-activated, self-adhesive inner layer maintains a moist environment while absorbing excess wound exudate. Restore Hydrocolloid Dressing with Foam Backing is ideal for low-friction areas with moderate exudate. Product includes a disposable wound measuring guide.

Indications

For use on light to moderately exuding dermal ulcers and partial-thickness wounds; also for venous stasis ulcers, superficial wounds, pressure ulcers (stages 1 and 2), arterial ulcers, diabetic ulcers, surgical incisions, and traumatic wounds

Contraindications

- Not for use on patients with active vasculitis, infection, or stage 3 or 4 pressure ulcers

Application

- To ensure attachment to healthy skin, the dressing should extend at least 1″ (2.5 cm) beyond the wound edge. Dressings may be overlapped or cut to accommodate the wound site.
- Remove the release paper from the dressing. Center the dressing over the wound, being careful to minimize touching the adhesive side. Press the dressing in place. Initial tack may be improved by warming the dressing with your hands prior to application or after dressing is in place.

Removal

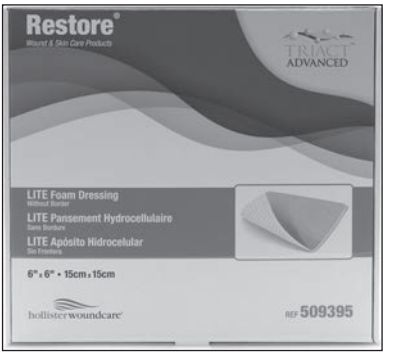
- Carefully lift an edge of the dressing while pressing down on the skin adjacent to the edge. Continue this procedure around the wound until all of the edges are free of the skin. Gently lift the dressing off the wound.
- Gently rinse or irrigate the wound as needed, remove excess moisture, and apply a new dressing.

*See package insert for complete instructions for use.

NEW PRODUCT

Restore LITE Foam Dressing without Border with TRIACT ADVANCED Technology

Hollister Wound Care



How supplied

Dressing: 2.5″ × 2.5″; A6209
4.5″ × 4.5″; A6210
6″ × 6, 6″ × 8″; A6210

Action

In the presence of exudate, the hydrocolloid particles in the TRIACT ADVANCED Technology polymer matrix form a lipido-colloid gel at the interface between the wound and the dressing. This results in virtually pain-free dressing changes for the patient, maintenance of a moist environment that promotes healing, gel formation in contact with the wound, and minimized trauma, such as pain and bleeding, which may be experienced during dressing removal. The backing is soft, flexible and very conformable to allow the dressing to be easily shaped to the anatomical contours of the wound. The super-absorbent foam pad allows containment of exudate and protects the periwound skin from maceration.

Indications

Indicated in the treatment of moderate to heavily exuding acute and chronic wounds, including pressure ulcers, diabetic ulcers, leg ulcers, surgical wounds, donor sites, partial-thickness burns, minor cuts, abrasions, scalds; recommended in the treatment of wounds in which the surrounding skin is fragile, friable, or damaged; suitable for use under compression bandages/wraps

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Cleanse the wound in accordance to established procedures.
- Carefully dry the periwound tissue.
- Select the appropriate dressing size to ensure the central pad will cover the entire wound.
- The Restore LITE Foam Dressing without Border can be cut with the release liner in place in order to optimize placement over wounds on heels, elbows, etc.
- Remove the protective tabs from the dressing.
- Apply the micro-adherent side of the dressing to the wound.
- Secure the dressing using a bandage or a tape.
- The dressing can be applied under compression.

Removal

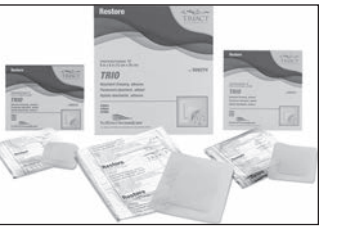
- Wash hands and put on gloves.
- Remove secondary dressing.
- Remove Restore LITE Foam Dressing without Border.
- Irrigate wound base using Restore Wound Cleanser or sterile saline.
- Reapply dressing if necessary.
- Remove gloves and wash hands after completing procedure.

Note: Restore LITE Foam Dressing without Border may be left in place for up to 7 days. Dressing change frequency will depend on patient condition and the level of exudate.

NEW PRODUCT

Restore Trio Absorbent Dressing with TRIACT Technology

Hollister Wound Care



How supplied

Dressing: 3″ × 3″ with 2″ × 2″ pad; A6237
4″ × 5″ with 2″ × 3″ pad; A6237
6″ × 8″ with 3.5″ × 6″ pad; A6238

Action

The proprietary TRIACT technology is comprised of a nonocclusive polyester mesh impregnated with a polymer matrix containing hydrocolloid particles and a petrolatum-based formulation. Upon contact with wound exudates, the hydrocolloid particles form a lipido-colloidal gel, providing a moist environment that promotes healing. Consisting of nonadhesive contact dressing, removal of Restore Trio Absorbent Dressing is virtually pain-free and helps minimize damage to newly formed surrounding skin. The Absorbent pad provides optimal drainage for small quantities of exudate, protecting the periwound skin from maceration. The backing is flexible and comfortable, and conforms to a variety of wound types and body contours.

Indications

Indicated for low-exuding acute and chronic wounds, including minor cuts, abrasions, scalds and burns, leg ulcers, diabetic ulcers, pressure ulcers, traumatic wounds, second-degree burns, and postoperative wounds

Contraindications

- Should not be used on individuals who are sensitive to or who have had an allergic reaction to the dressing or one of its components

Application

- Cleanse the wound using sterile saline solution or an appropriate wound cleanser.
- If an antiseptic has previously been used, rinse the wound carefully with normal saline before applying Restore Trio Absorbent Dressing.
- Choose a dressing size that ensures that the dressing will cover the entire wound.
- Remove the protective tabs from the dressing.
- Apply the dressing directly to wound.

Removal

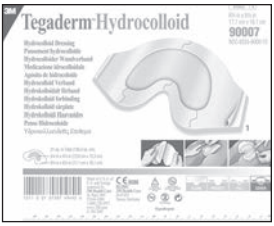
- Wash hands and put on gloves.
- Remove the secondary dressing and Restore Trio dressing, and dispose of properly.
- Cleanse the wound bed following your facility's protocol.
- Reapply dressing, if necessary.
- Remove gloves and wash hands after completing the procedure.

Note: The dressing may be left in place for a maximum of 7 days. The frequency of dressing changes for Restore Trio Absorbent dressing depends on the clinical presentation of the wound (e.g., amount of exudate and healing progression).

3M Tegaderm Hydrocolloid Dressing

3M Tegaderm Hydrocolloid Thin Dressing

3M Health Care



How supplied

3M Tegaderm Hydrocolloid Dressing

Oval: $2^3/_4$″ × $3^1/_2$″ (gel pad size); A6237
4″ × $4^3/_4$″ (gel pad size); A6238
$5^1/_2$″ × $6^3/_4$″ (gel pad size); A6238
Square: 4″ × 4″ (gel pad size); A6234
6″ × 6″ (gel pad size); A6235
Sacral: $6^3/_4$″ × $6^3/_8$″ (gel pad size); A6238

3M Tegaderm Hydrocolloid Thin Dressing

Oval: $2^3/_4$″ × $3^1/_2$″ (gel pad size); A6237
4″ × $4^3/_4$″ (gel pad size); A6238
$5^1/_2$″ × $6^3/_4$″ (gel pad size); A6238
Square: 4″ × 4″ (gel pad size); A6234

Action

3M Tegaderm Hydrocolloid Dressing supports wound management in two ways. First, the inner layer of hydrocolloid adhesive rapidly absorbs exudate—providing significantly higher absorbency during the first 48 hours than the leading competitive hydrocolloid. In addition to excellent absorbency, the breathable outer film layer provides a consistently high rate of moisture vapor transmission, reducing the potential for skin maceration. Together, these features ensure an optimal moist wound environment, minimize the chance for damage to healthy peri-wound skin, and provide cost-effective wear time for up to 7 days. The dressings also offer protection from the contaminants: The outer film barrier protects the wound and surrounding skin from contaminants and body fluids.

Indications

Tegaderm Hydrocolloid Dressing is indicated to manage partial- and full-thickness dermal ulcers, superficial wounds, abrasions, first- and second-degree burns, and donor sites. Tegaderm Hydrocolloid Thin Dressing is indicated for partial- and full-thickness dermal ulcers, leg ulcers, superficial wounds, abrasions, first- and second-degree burns, donor sites, and to protect at-risk, undamaged skin or skin beginning to show signs of damage from friction or shear.

Contraindications

- None known

Application

- Clip excess hair at the wound site, thoroughly clean the wound and surrounding skin, and allow the skin to dry.
- If the patient's skin is easily damaged or drainage is expected to go beyond the wound edge, a skin protectant or a skin barrier film, such as 3M Cavilon No-Sting Barrier Film may be applied.
- Select a dressing that extends 1″ (2.5 cm) beyond the wound edge.

Oval dressing

- Remove the paper liner from the dressing by lifting and pulling one of the square end tabs marked "1," exposing the adhesive surface. Minimize contact with the border or the adhesive side of the dressing.
- Center the dressing over the wound. Then, gently press the adhesive side against the wound. Press from the center outward, and avoid stretching the dressing or the skin.
- Smooth the film edges to ensure good adherence.
- Remove the top delivery film by lifting one of the center tabs marked "2," and pulling it toward the edge of the dressing. Smooth down the dressing edges as you remove the film. Remove the other side of the top film in the same way.
- Gently tear off the square end tabs marked "1" at the perforations in a downward direction and discard. Avoid lifting the film edge while removing the tabs. Secure the entire film edge by pressing firmly.

Square dressing

- Remove the top liner from the back of the dressing. Tegaderm Hydrocolloid Thin dressing may be cut to size before removing its top liner.
- Peel the dressing from its paper liner, minimizing contact with the dressing adhesive surface.
- Center the dressing over the wound, and gently press the adhesive side against the wound. Press from the center outward, and avoid stretching the dressing or the skin.
- Apply tape firmly around the edges of the dressing.

Sacral dressing

- Before removing the printed liner, fold the dressing in half.
- Hold the tabs together, and remove the printed liner on one half of the dressing until the adhesive is exposed.
- Continue to remove the printed liner from the other half until the adhesive surface is completely exposed.
- While still holding both tabs, position the dressing over the wound, tilting the dressing toward the anal area. Spread the buttocks to get better placement. Secure the dressing notch in the anal region first to minimize risk of incontinence contamination or wrinkling.
- Gently press the adhesive side of the dressing down from the center outward. Avoid stretching the dressing or the skin.
- Remove the dressing frame, starting at the top and pulling down. Don't lift the film edge. Reinforce and smooth the dressing from the center outward.
- Repeat until all sections of the frame are removed.

Removal

- The dressing should be changed if it's leaking, falling off, or has been on the wound for 7 days.
- Carefully lift the dressing edges from the skin. For easy removal, apply tape to the edge of the dressing, and use the tape to lift.
- Continue lifting the edges until all are free from the skin surface.
- Remove the dressing slowly, folding it over itself. Pull carefully in the direction of hair growth.
- Note that it isn't unusual for wounds to have an odor. This may be noticed when the dressing is removed or when leakage occurs. The odor should disappear after the wound is cleaned.

Triad Hydrophilic Wound Dressing

Coloplast Corp.

How supplied

Tube: 2.5 oz, 6 oz; A6240

Action

Triad Hydrophilic Wound Dressing is a zinc oxide-based hydrophilic paste that gently adheres to moist, exuding wounds and spreads evenly over areas inaccessible to conventional dressings. It's noncytotoxic and promotes autolytic debridement.

Indications

To manage pressure ulcers (stages 2 to 4), venous stasis ulcers, partial- and full-thickness wounds, superficial wounds, scrapes, and first- and second-degree burns. May be used on tunneling wounds; wounds with minimal, moderate, or heavy drainage; wounds with serosanguineous drainage; and red, yellow, or black wounds.

Contraindications

- Contraindicated for third-degree burns
- Contraindicated for infected wounds

Application

- Clean the wound using a wound cleanser or normal saline solution.
- Fill the wound bed with the dressing, and apply a lighter layer on the periwound area. Cover this with a secondary dressing.
- For an open skin tear, apply a thin layer of dressing over it, then cover it with petroleum-impregnated gauze or a nonadherent dressing, and secure.
- For necrotic tissue, cover all the tissue and periwound skin with a thin layer of the dressing. Use a cover dressing if desired.

Removal

- If the dressing has dried out, spray with a wound cleanser or normal saline solution. Then, cover with gauze moistened with cleanser or normal saline solution, and allow it to remain for 2 to 3 minutes before removing the dressing.
- If the dressing is moist, spray with a wound cleanser or normal saline solution. Then, gently remove the dressing.

Ultec Pro Alginate Hydrocolloid Dressing

Covidien

How supplied

Wafer: 4″ × 4″, 6″ × 6″, 8″ × 8″, 2½″ × 3½″ with adhesive island, 4″ × 4″, 4″ × 5″ sacral (both with adhesive island); A6237
6″ × 6″, 6″ × 7″ sacral (both with adhesive island); A6238

Action

Ultec Hydrocolloid Dressings are pressure-sensitive adhesive dressings that absorb exudate and interact with it to form a soft gel. The gel helps form and maintain a seal against bacterial contamination, which allows the dressings to remain in place for up to 5 days and to minimize contamination from urine and feces. Ultec Pro Alginate Hydrocolloid Dressing's alginate/hydrocolloid formulation also helps prevent exudate from macerating periwound skin.

Indications

To manage a wide range of wound types, to relieve pressure at potential ulcer sites, and to prevent skin breakdown. May be used on pressure ulcers; partial- and full-thickness wounds; wounds with minimal to moderate drainage; surgical sites; and red, yellow, or black wounds. May also be used as a secondary dressing over wound fillers

Contraindications

- Contraindicated for ulcers involving muscle, tendon, or bone
- Contraindicated for use in infected wounds

Application

- Clean the wound site.
- Choose a dressing that overlaps the wound by at least ½″ (1.25 cm), and apply using a clean technique. Avoid stretching the dressing.
- Press the dressing gently, forming it to the wound area and to any skin folds or creases.

Removal

- Change the dressing as directed or at least weekly. The dressing may be changed more often if exudate leaks or if the occlusive seal breaks.
- Lift and slowly pull in the direction of hair growth.
- If removal is difficult, soak the edges with sterile water, or utilize an adhesive remover such as Webcol adhesive remover wipes.

NEW PRODUCT

XTRASORB Hydrogel Colloidal Sheet

Derma Sciences, Inc.

How supplied

Nonadhesive Dressing: 2.3″ × 2.3″; A6234
4.3″ × 4.3″; A6235
8″ × 8″; A6236

Adhesive Dressing: 3″ × 3″; A6237
6″ × 6″; A6238

Action

XTRASORB HCS Wound Dressing is a hybrid dressing combining hydrogel and hydrocolloid technology, with an additional super absorbent polymer for added fluid handling capability. The dressing consists of a water/glycerin component to help hydrate dry to lightly exuding wounds, and a sodium carboxymethylcellulose (CMC)/super absorbent polymer (SAP) component to help absorb moderate amounts of exudates. On dry to lightly exuding wounds, the hydrating dressing is cooling and soothing upon application. On moderately exuding wounds, the CMC/SAP forms a hydrophilic gel that locks exudates into the dressing. XTRASORB HCS is available in the form of both a borderless and a bordered "island" dressing, both backed by an integral PU film barrier that provides a barrier to external contaminants. On the bordered version, this PU film extends beyond the center wound pad, creating a skin-friendly adhesive border to aid fixation. The dressing has been formulated and designed to encourage wound bed preparation, granulation and subsequent epithelialization of chronic wounds, while minimizing the risk of infection by acting as a bacterial barrier. The dressings help to provide an environment for optimally balanced moist wound healing by protecting against wound dehydration while also absorbing excess wound exudates. The unique gelling action of the CMC/SAP is designed to lock wound fluid within the dressing, helping to reduce the risk of maceration.

Indications

May be used for the management of acute and chronic, non-infected or mildly infected wounds; may be used on dry, lightly exuding, and moderately exuding wounds, including pressure ulcers, venous leg ulcers, arterial ulcers, diabetic foot ulcers, post-op wounds, traumatic wounds, donor sites

Contraindications

- Known hypersensitivity to the product itself or to its components, including glycerin and sodium carboxymethylcellulose
- Not for use on heavily bleeding wounds or third-degree burns

Application

- XTRASORB HCS dressing can be placed directly onto the surface of the wound. The bordered version will be held in place by its adhesive nature. When using the borderless version, while there is some inherent tack and adhesion by the dressing, secondary fixation is recommended.

- Prepare the wound site by cleansing as needed, and dry the surrounding skin.
- Remove the sterile dressing from the package.
- To apply the dressing, first remove part of the white plastic liner, exposing the adhesive/tacky portion of the dressing.
- Allow the dressing pad to completely cover the wound and extend onto healthy tissue approximately ½″ to ¾″ (10 to 15 mm) depending on the level of exudate.
- Position and smooth into place while removing the second half of the white plastic liner.
- In the case of the bordered dressing, once the dressing is securely in place, peel away the top liner from the dressing. The material is pre-cut to aid with this process.
- In the case of the nonbordered dressing, secure in place either by using an appropriate secondary dressing such as a conforming bandage or by tape.
- Check the wound regularly. The dressing should be changed as often as the condition of the wound dictates, but as a general rule, the dressing should be replaced after 3 to 7 days. In the treatment of a moderately exuding wound, it will be necessary to change the dressing more frequently.

Removal

- Dressing change frequency will depend on the condition of the patient as well as the level of wound exudate.
- If difficulty is experienced on removing the dressing, it should be irrigated or soaked with water or sterile saline solution.
- Cleanse the wound bed prior to application of new dressing.

HYDROGELS

Action

Hydrogels are water- or glycerin-based amorphous gels, impregnated gauzes, or sheet dressings. Because of their high water content, some can't absorb large amounts of exudate. Hydrogels help maintain a moist healing environment, promote granulation and epithelialization, and facilitate autolytic debridement.

Indications

Hydrogel dressings may be used as primary dressings (amorphous and impregnated gauzes) or as primary or secondary dressings (sheets). They may also be used to manage partial- and full-thickness wounds, deep wounds (amorphous, impregnated gauzes), wounds with necrosis or slough, minor burns, and tissue damaged by radiation.

Advantages

- Are soothing and reduce pain
- Rehydrate the wound bed
- Facilitate autolytic debridement
- Fill in dead space (amorphous, impregnated gauzes)
- Provide minimal to moderate absorption
- Are applied and removed easily from the wound
- Can be used when infection is present

Disadvantages

- Are not usually recommended for wounds with heavy exudate
- Dehydrate easily if not covered
- Some require secondary dressing
- Some may be difficult to secure
- Some may cause maceration

HCPCS code overview

The HCPCS codes normally assigned to hydrogel wound covers without an adhesive border are:
A6242—pad size < 16 in^2
A6243—pad size > 16 in^2 but ≤ 48 in^2
A6244—pad size > 48 in^2

The HCPCS codes normally assigned to hydrogel wound covers with an adhesive border are:
A6245—pad size < 16 in^2
A6246—pad size > 16 in^2 but ≤ 48 in^2
A6247—pad size > 48 in^2

The HCPCS code normally assigned to hydrogel wound fillers is:
A6248—gel, per fluid ounce

The HCPCS codes normally assigned to gauze dressings impregnated with hydrogel without an adhesive border are:
A6231—pad size < 16 in^2
A6232—pad size > 16 in^2 but ≤ 48 in^2
A6233—pad size > 48 in^2

AmeriDerm Wound Gel Dressing with Vitamin E and Aloe Vera

AmeriDerm Laboratories, Ltd.

How supplied

Tube:	3 oz; A6248
Spray bottle:	8 oz; A6248

Action

AmeriDerm Wound Gel is a greaseless hydrogel dressing used for the maintenance of a moist healing environment.

Indications

For dressing and management of stasis ulcers, pressure ulcers (stages 1 to 4), first- and second-degree burns, cuts and abrasions, skin irritations, postoperative incisions, and skin conditions associated with peristomal care

Contraindications

- Not for use in those with sensitivity to the gel or its components

Application

- Flush wound with AmeriDerm Skin Cleanser.
- Apply AmeriDerm Wound Gel liberally to cover involved areas. Apply as often as necessary. If gauze is used as a wound covering, moisten first with AmeriDerm Skin Cleanser.

Removal

- Flush with AmeriDerm Skin Cleanser.

AmeriGel Hydrogel Saturated Gauze Dressing

Amerx Health Care Corp.

How Supplied

Pad: 2″ × 2″; A6231

Action

AmeriGel Gauze Dressing contains Oakin (an oak extract), meadowsweet extract, zinc acetate, polyethylene glycol 400 and 3350, and water, impregnated into a nonwoven gauze sponge and individually foil wrapped. Broad-spectrum antimicrobial-antifungal (bactericidal) against 51 microbes, including MRSA and VRE. AmeriGel maintains a moist wound environment, assists in debriding, and provides an antimicrobial barrier at the wound site.

Indications

Stages 1 to 4 pressure ulcers, lower-extremity ulcerations of mixed vascular etiologies, diabetic skin ulcers, first- and second-degree burns, postsurgical incisions

Contraindications

- Contraindicated in patients who are sensitive or allergic to any ingredient

Application

- Irrigate wound with Amerigel Wound Wash or with saline wound wash, and blot dry.
- Place the AmeriGel gauze pad over the wound so that it covers the wound bed and overlaps onto the periwound skin.
- Cover with appropriate secondary dressing.

Removal

- Remove dressings and irrigate with Amerigel Wound Wash or saline wound wash daily.

AmeriGel Wound Dressing

Amerx Health Care Corp.

How supplied

Tube: 1 oz; A6248
Daily Dressing Packets

Action

AmeriGel Wound Dressing contains Oakin (an oak extract), meadowsweet extract, zinc acetate, polyethylene glycol 400 and 3350, and water. Broad-spectrum antimicrobial-antifungal (bactericidal) against 51 microbes, including MRSA and VRE. AmeriGel maintains a moist wound environment, assists in debriding and provides an antimicrobial barrier at the wound site.

Indications

Stages 1 to 4 pressure ulcers, lower-extremity ulcerations of mixed vascular etiologies, diabetic skin ulcers, first- and second-degree burns, postsurgical incisions

Contraindications

- Contraindicated in patients who are sensitive or allergic to any ingredient

Application

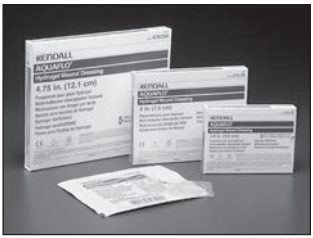
- Irrigate wound with Amerigel Wound Wash or saline wound wash, and blot dry.
- Apply a thin layer of AmeriGel to the wound bed and overlap onto the peri-wound skin.
- Cover with appropriate secondary dressing.

Removal

- Remove secondary dressing and irrigate with Amerigel Wound Wash or saline wound wash daily.

Aquaflo Hydrogel Wound Dressings

Coviden



How supplied

Disk: 3″, 4¾″

Action

Aquaflo Hydrogel Wound Dressings offer superior fluid management and can be used on mildly to moderately exuding wounds. These glycerin-based dressings maintain an optimal moist healing environment by allowing evaporation to occur readily even as the dressings are absorbing exudate.

Indications

To manage partial- to full-thickness wounds, dermal ulcers, diabetic leg ulcers, donor sites, first- and second-degree burns, and incisions

Contraindications

- Contraindicated for heavily draining wounds

Application

- Clean the wound with normal saline solution or an appropriate wound cleanser.
- Cut the dressing to shape, if desired.
- Apply the dressing and secure it.

Removal

- Gently lift edge and peel dressing away.

Aquasite Amorphous Hydrogel

Derma Sciences, Inc.

How supplied

Amorphous hydrogel: 1 fl oz

Action

Aquasite Amorphous Hydrogels are clear, preserved hydrogels used to fill wound space and provide a moist healing environment. These products are capable of absorbing small to moderate amounts of exudate and provide a soothing, cooling, pain-reducing effect. A secondary dressing is required to secure the dressing in place.

Indications

For use on partial- and full-thickness wounds with minimal to moderate drainage

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution.
- Dry the skin adjacent to the wound.
- Squeeze the desired amount of Aquasite Amorphous Hydrogel into the wound bed.
- Cover with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- Remove remaining Aquasite Amorphous Hydrogel.
- Clean the wound according to facility policy.

Aquasite Impregnated Non-Woven Hydrogel

Derma Sciences, Inc.

How supplied

Gauze: 2″ × 2″, 4″ × 4″, 4″ × 8″

Action

Aquasite Impregnated Non-Woven Hydrogel, a sterile hydrogel impregnated into a special nonwoven sponge, is used to fill wound space and provide a moist healing environment. It's capable of absorbing small to moderate amounts of exudate, and it provides a soothing, cooling, pain-reducing effect. A secondary dressing is required to secure the dressing in place.

Indications

For use on partial- and full-thickness wounds with minimal to moderate drainage

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Dry the skin adjacent to the wound.
- Place Aquasite Impregnated Non-Woven Hydrogel into the wound bed. Pack deeper wounds loosely to avoid excess pressure on delicate wound tissue.
- Cover with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- Remove the gauze and remaining hydrogel.
- Clean the wound according to facility policy.

Aquasite Sheet Hydrogel

Derma Sciences, Inc.

How supplied

Sheet: 2″ × 2″, 2″ × 3″, 4″ × 4″, 6″ × 8″, 12″ × 12″, 12″ × 24″

Action

Aquasite Sheet Hydrogels are clear sheets of sterile hydrogel used to provide a moist healing environment and absorb small to moderate amounts of exudate. The products provide a soothing, cooling, pain-reducing effect. A secondary dressing is required to secure the dressing in place.

Indications

For use on partial- and full-thickness wounds with minimal to moderate drainage

Contraindications

- Contraindicated for third-degree burns
- Contraindicated for deep, tunneling wounds

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Dry the skin adjacent to the wound.
- Choose a dressing that extends at least 1″ (2.5 cm) beyond the wound margins.
- Position Aquasite Sheet Hydrogel directly on the wound.
- Secure with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- Remove the Aquasite Sheet Hydrogel.

Aquasorb Hydrogel Wound Dressing

DeRoyal

How supplied

Sheet: 2½″ × 2½″; 3¾″ × 3¾″; A6242
3¾″ × 4½″; 3¾″ × 6″; A6243
7½″ × 7½″; A6244

Sheet with border: 2½″ × 2½″ gel, $^{5}/_{8}$″ film or tape border; A6245
3¾″ × 4¼″ gel, 1½″ film or tape border; A6246

Action

Aquasorb Hydrogel Wound Dressings are nonadherent, transparent dressings that incorporate a gel matrix with a semipermeable film. They allow for moisture vapor transmission, which provides a moist healing environment and protects against wound dehydration. The products act as a bacterial barrier, absorb drainage from the wound, and provide a cool, pain-relieving cover.

Indications

For use as primary dressings to manage leg ulcers, pressure ulcers (stages 1 to 4), superficial wounds, lacerations, cuts, abrasions, donor sites, and first- and second-degree burns; also on partial- and full-thickness wounds, infected and noninfected wounds, wounds with moderate to heavy drainage, and red, yellow, or black wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean excess exudate from the wound.
- Cut the sheet to the desired size, if necessary.
- Remove the release liner, and apply the dressing to the wound.
- Secure the dressing, if necessary.

Removal

- Leave the dressing in place for up to 7 days, unless patient discomfort, exudate leakage, or infection occurs.
- Lift the edge of the dressing carefully, and then peel off.

CarraDres Clear Hydrogel Sheet

Medline Industries, Inc.

How supplied

Sheet: 4″ × 4″; A6242

Action

CarraDres Clear Hydrogel Sheets consist of 89.5% water combined with a crosslinked polyethylene matrix in sterile hydrogel polymer sheets especially formulated for managing partial- and full-thickness wounds. The hydrophilic dressings absorb at least three times their weight in water, serum, and blood. The products have a high specific heat to provide a cooling effect; the sheets may be refrigerated for maximum cooling.

Indications

To dress and manage pressure ulcers (stages 1 to 4), venous stasis ulcers, first- and second-degree burns, cuts, abrasions, skin irritations, radiation dermatitis, diabetic ulcers, foot ulcers, postsurgical incisions, and skin conditions associated with peristomal care. May also be used on partial- and full-thickness wounds, tunneling wounds, infected and noninfected wounds, wounds with moderate exudate, wounds with serosanguineous drainage, and red, yellow, or black wounds

Contraindications

- None known

Application

- Flush the wound with a suitable cleanser, such as CarraKlenz, UltraKlenz, or MicroKlenz.
- Remove dressing's blue backing, and apply moist side of the dressing to the wound bed.
- Cover with a secondary dressing.

Removal

- Change dressing according to the wound condition and amount of exudate or as directed by the physician.
- The dressing may remain in place 3 to 5 days.
- Gently lift to remove.

Carrasyn Gel Wound Dressing

Carrasyn Spray Gel Wound Dressing

Carrasyn V

Medline Industries, Inc.

How supplied

Carrasyn Gel Wound Dressing

Tube: 3 oz; A6248

Carrasyn Spray Gel Wound Dressing

Bottle: 8 oz; A6248

Carrasyn V

Tube: 3 oz; A6248

Action

All three products provide the moist environment necessary for healing and autolytic debridement. All three are nonoily hydrogels. Carrasyn V is a thicker, more viscous version of Carrasyn Gel Wound Dressing.

Indications

All three products manage pressure ulcers (stages 1 to 4), venous stasis ulcers, first- and second-degree burns, cuts, abrasions, skin irritations, and skin conditions associated with peristomal care. They may also be used on partial- and full-thickness wounds, tunneling wounds, infected and noninfected wounds, wounds with serosanguineous drainage, and red, yellow, or black wounds. Carrasyn Spray Gel Wound Dressing may be used on wounds with moderate drainage. Carrasyn Gel Wound Dressing and Carrasyn V also manage radiation dermatitis, diabetic ulcers, foot ulcers, postsurgical incisions, and wounds with low exudate

Contraindications

- Contraindicated in patients with known sensitivity to aloe vera extract

Application

- Flush the wound with a suitable wound cleanser, such as CarraKlenz, UltraKlenz, or MicroKlenz.

Carrasyn Gel Wound Dressing and Carrasyn V (when a thicker formulation of gel is desired)

- Apply a generous amount of gel to the wound area in a layer about ¼″ (0.5 cm) thick.
- If using gauze as a secondary dressing, moisten it first.
- If using CarraSmart Film Transparent Dressing as the secondary dressing, dry the periwound tissue first. Use a skin barrier wipe on any intact skin under the film.

Carrasyn Spray Gel Wound Dressing

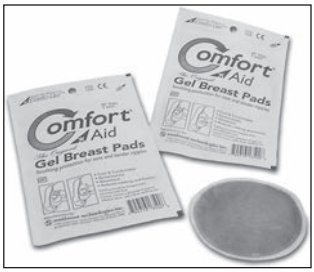
- Adjust the nozzle setting on the bottle to either spray or stream.
- Apply a generous amount of gel, about ¼″ (0.5 cm) thick, to the wound and wound margins.
- Apply spray gel as often as needed, usually daily.
- If using gauze as a cover dressing, moisten it first.

Removal

- Change all hydrogel dressings as often as needed, usually daily.
- Flush wound with normal saline solution or an appropriate wound cleanser, such as CarraKlenz, UltraKlenz, or MicroKlenz.

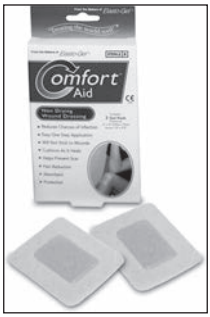
Comfort-Aid

Southwest Technologies, Inc.



How supplied

Sheet with adhesive border: overall size, 3″ × 4″ (7.5 cm × 10 cm); gel size, 1.5″ × 2.5″



Action

Comfort-Aid is designed to provide effective management of a wide variety of wounds and to protect the skin and newly formed tissue. The gel's high glycerin content facilitates the natural wound-healing process. Glycerin is a main component in every fat molecule and is a natural moisturizing agent. Comfort-Aid provides cool, soothing relief when applied to an open wound. It will not dry out and is bacteriostatic and fungistatic.

Indications

To manage first- and second-degree burns, cuts, abrasions, rashes, radiation skin reactions, surgical incisions, foot and leg ulcers, pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, wounds with moderate drainage, wounds with serosanguineous drainage, and red, yellow, or black wounds

Contraindications

- Contraindicated for highly exuding wounds that may require packing with additional dressing or other highly absorbent material

Application

- Clean the wound with normal saline solution or an appropriate wound cleanser.
- Remove the sterile gel dressing from the package.
- Remove protective cover to expose gel and adhesive.
- Apply the dressing to the wound, being sure that the gel fully covers the wound area.
- Gently press the adhesive border to assure a watertight seal.
- Change dressing as needed (if leaking occurs and/or the dressing becomes highly saturated with exudate).
- Consult physician if signs of infection occur (such as redness, swelling or fever).

Removal

- Change the dressing when it's saturated with exudate.

CURASOL Gel Wound Dressing

Healthpoint Biotherapeutics

How supplied

Nonsterile tube: 1 oz, 3 oz; A6248
Impregnated gauze: 4″ × 4″

Action

CURASOL Gel Wound Dressing is a clear, viscous hydrogel that protects the wound from foreign contaminants and provides a moist healing environment.

Indications

To manage pressure ulcers (stages 1 to 4), stasis ulcers, diabetic ulcers, foot ulcers, postoperative wounds, first- and second-degree burns, cuts, abrasions, and minor irritations of the skin

Contraindications

None provided by the manufacturer

Application

- Clean the wound with ALLCLENZ Wound Cleanser.
- Apply 1/8″ to 1/4″ (0.3 to 0.5 cm) of CURASOL Gel onto the wound bed. If using CURASOL Gel Wound Dressing, loosely pack it into the wound.
- Cover with a secondary dressing.

Removal

- Remove the secondary dressing.
- Flush CURASOL Gel from the wound bed with ALLCLENZ Wound Cleanser during each dressing change.

DermaGel Hydrogel Sheet

Medline Industries, Inc.

How supplied

Sheet: 4″ × 4″; A6242

Action

DermaGel Hydrogel Sheet is a bacteriostatic and fungistatic semi-occlusive hydrogel dressing that is soft and flexible and creates a moist healing environment. It won't liquefy into the wound, and it absorbs about five times its own weight in exudate.

Indications

To manage leg ulcers, pressure ulcers (stages 1 to 4), superficial wounds, lacerations, cuts, abrasions, donor sites, partial- and full-thickness wounds, infected and noninfected wounds, and wounds with light to moderate drainage

Contraindications

- Contraindicated for patients with known hypersensitivity to glycerin

Application

- Clean the application site with normal saline solution or an appropriate wound cleanser, such as Skintegrity Wound Cleanser. Dry the surrounding area to ensure that it's free from greasy substances.
- Select the appropriate size dressing for the wound. Be sure it will cover the entire wound area.
- Remove the clear plastic cover from the dressing, and apply the pad to the wound. Leave the cloth backing in place.
- Tape the edges of the dressing to keep it in place, or use an elastic net to secure it without adhesive.
- If waterproofing is desired, cover with a transparent film.

Removal

- Change the dressing every 2 to 5 days, depending on the amount of drainage.
- Carefully press down on the skin, and lift an edge of the dressing. Continue around the dressing until all edges are free.
- Remember to clean the wound with each dressing change.

Dermagran Hydrophilic Wound Dressing

Derma Sciences, Inc.

How supplied

Tube:	3 oz (amorphous); A6248
Sterile impregnated gauze:	2″ × 2″, 4″ × 4″; A6231 4″ × 8″; A6232

Action

Dermagran Hydrophilic Wound Dressing contains a zinc-nutrient formulation and provides a primary cover or filler, absorbs mild exudate, and creates a mildly acidic environment that's conducive to wound healing.

Indications

To manage skin ulcers (diabetic, venous stasis), pressure ulcers (stages 1 to 4), surgical incisions, and superficial injuries such as partial-thickness burns, superficial lacerations, cuts, or abrasions

Contraindications

- None provided by the manufacturer

Application

- Clean the wound.
- Choose an appropriate size Dermagran Hydrophilic Wound Dressing.
- Place dressing directly into the wound.
- Cover with an appropriate dressing, and secure in place.

Removal

- Change dressing once daily or as directed by the physician.
- Remove the dressing, and clean the wound.

Dermagran Zinc-Saline Hydrogel

Derma Sciences, Inc.

How supplied

Tube: 3 oz; A6248

Action

Dermagran Zinc-Saline Hydrogel is an amorphous hydrogel that contains zinc-nutrient formulation and balanced pH technology. It provides a primary cover or filler for wound deficiencies that absorbs wound exudate and creates a moist environment for granulation tissue formation.

Indications

To manage pressure ulcers (stages 1 to 4), venous stasis ulcers, partial-thickness thermal burns, surgical incisions, skin irritations, abrasions, and conditions associated with peristomal care

Contraindications

- None provided by the manufacturer

Application

- Obtain surgical consult, or consider sharp debridement of necrotic tissue.
- Clean the wound, and then wick out excessive moisture using a gauze sponge.
- Apply a generous layer of Dermagran Zinc-Saline Hydrogel to entire wound bed.
- Cover with an appropriate secondary dressing, such as DermaSite or DermaFilm.

Removal

- Change the dressing once daily or as directed by the physician.
- Remove the dressing.
- Clean the area with Dermagran Wound Cleanser or other appropriate wound cleanser.

DermaSyn

DermaGauze

DermaRite Industries, LLC

How supplied

DermaSyn

Tube: 3 oz; A6248
Spray: 8 oz; A6248

DermaGauze

Sterile pad: 2″ × 2″, 4″ × 4″; A6231

Action

DermaSyn hydrogel dressings and DermaGauze hydrogel-impregnated gauze dressings provide a primary cover or filler for wounds and promote a moist healing environment. Their primary purpose is to fill in dead space associated with sinus tracts and undermining or deep wounds.

Indications

To manage partial-thickness dermal wounds, including pressure ulcers, venous ulcers, diabetic ulcers, and arterial ulcers. Used for tunneling wounds, noninfected wounds, and wounds with minimal or moderate drainage

Contraindications

- Contraindicated for third-degree burns
- Infected wounds

Application

- Clean the wound.
- Using either the tube or the spray, apply a layer of DermaSyn hydrogel directly into the wound bed. For deep wounds and packing material, use DermaGauze and pack it loosely into the wound.
- Cover with an appropriate secondary dressing.

Removal

- Remove the secondary dressing.
- During each dressing change, irrigate the wound bed with DermaKlenz or Safe Wash saline.

Elasto-Gel

Elasto-Gel Plus

Southwest Technologies, Inc.

How supplied

Elasto-Gel

Sheet without tape:

2″ × 3″ (5 cm × 7.5 cm); A6242
4″ × 4″ (10 cm × 10 cm); A6242
5″ × 5″ (12.7 cm × 12.7 cm); A6243
6″ × 8″ (15 cm × 20 cm); A6243
8″ × 16″ (20 cm × 40 cm); A6244
12″ × 12″ (30 cm × 30 cm); A6244

Elasto-Gel Plus

Sheet with tape:

4″ × 4″ (10 cm × 10 cm) island; A6246
4″ × 4″ (10 cm × 10 cm) tape not affixed; A6242, bill tape separately
2″ × 3″ (5 cm × 7.5 cm) tape not affixed; A6242, bill tape separately
8″ × 8″ (20 cm × 20 cm) horseshoe-shaped tape affixed; A6247

Action

Elasto-Gel absorbs exudate and seals, protects, and cushions the wound. It permits water vapor transmission and is bacteriostatic and fungistatic. It also reduces odor, acts as a thermal barrier, and reduces pressure.

Indications

To manage first- and second-degree burns, cuts, abrasions, rash, radiation skin reactions, surgical incisions, foot and leg ulcers, pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, wounds with moderate drainage, wounds with serosanguineous drainage, and red, yellow, or black wounds. Used to prevent skin breakdown and to pad tracheostomy and pressure ulcer sites; also used under casts and splints and on heels and elbows

Contraindications

- Contraindicated for highly exuding wounds that may require packing

Application

- Clean wound with normal saline solution or suitable wound cleanser. Select the appropriate size dressing or cut one to the desired size or shape. It should extend 1″ to 2″ (2.5 to 5 cm) beyond the wound opening. Leave the clear plastic film on the gel while cutting.
- Remove the clear plastic film, and apply the exposed gel directly on the wound. Don't remove the white fabric backing.
- Secure dressing with tape, elastic or gauze wrap, or stretch netting.
- If the dressing is exposed to moisture, protect it from contamination with a waterproof covering, such as the tape supplied with the dressing.

Removal

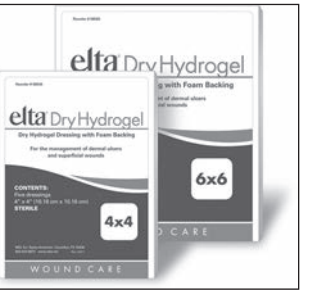
- Change the dressing when it's saturated with exudate.

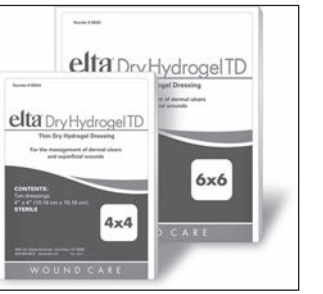
NEW PRODUCT

Elta Dry Hydrogel

Elta Dry Hydrogel TD

SteadMed Medical





How supplied

Elta Dry Hydrogel TD Dressing
Sterile sheet: 4″ × 4″, A6242
6″ × 6″; A6243
Elta Dry Hydrogel Dressing
Sterile pad: 4″ × 4″; A6242
6″ × 6″; A6243

Action

Elta Dry Hydrogel TD Dressing is a sterile, semiocclusive dressing made of a combination of super-thin layers. An adhesive layer bonds the dressing to intact skin around the wound to keep it in position until removal. The middle layer is an absorbent hydrogel that transfers exudate away from the wound and captures it to maintain a moist environment. The outermost layer is a semipermeable polyurethane film that allows moisture vapor to escape, reduces friction, and provides a smooth, easy-to-clean surface.

Elta Dry Hydrogel Dressing is a sterile, semi-occlusive, multilayered dressing. Its adhesive layer bonds to intact skin to keep the dressing in position until removal. An absorbent hydrogel layer transfers exudate away from the wound and captures it to maintain a moist environment. A foam layer provides a pathway for the escape of moisture vapor and also makes the dressing soft and pliable, cushioning the wound. The outermost layer is a semipermeable polyurethane film that reduces friction and provides a smooth, easy-to-clean surface.

Indications

To manage partial- and full-thickness wounds, pressure ulcers (stages 1 to 4), and arterial and venous stasis leg ulcers; to aid in the prevention of skin breakdown; also indicated for use on postsurgical wounds, laparoscopic and biopsy sites, suture and drainage tube sites, minor abrasions, lacerations, and partial- and full-thickness dermatologic sites

Contraindications

- Contraindicated for ulcers resulting from infection, such as tuberculosis or syphilis, or deep fungal infections
- Not for use on third-degree burns

Application

- Clean the wound area thoroughly with normal saline solution or a similar wound-cleansing solution to ensure that the wound is free from foreign debris.
- Ensure that the surrounding skin is clean and dry and free from greasy material.
- Allow at least 1¼″ (3.2 cm) perimeter around the wound site for attachment.
- Grasping the dressing tab, position the dressing over wound site with tab sides downward.
- Peel away the tab from one side of dressing, and roll the dressing over the wound site.
- Remove the other tab.
- Secure the dressing by gently applying pressure to ensure that the wound surface comes in contact with the dressing.
- Framing the sides of the dressing with 1″ (2.5 cm) hypoallergenic tape may improve wear time. Don't overlap dressings.
- Check the dressing daily for leakage or other problems.

Removal

- The dressing may be left in place for up to 1 week.
- To remove, gently press down on the skin, and carefully free the dressing edges one at a time.

NEW PRODUCT

Elta Hydrogel Impregnated Gauze

SteadMed Medical

How supplied

Sterile foil pouch: 2″ × 2″, 4″ × 4″; A6231

Action

Elta Hydrogel Impregnated Gauze maintains a moist healing environment for 24 hours and absorbs moderate exudate. The dressings are kept in place by their viscous glycerin base.

Indications

For use on dry to moderately exudative wounds (stages 1 to 4); may also be helpful in tunneling wounds

Contraindications

- None provided by the manufacturer

Application

- Apply dressing appropriate to the size of the wound bed.
- Cover with an appropriate dressing.

Removal

- Gently lift the dressing away from the wound.
- Clean the wound with saline solution or wound cleanser.

NEW PRODUCT

Elta Hydrovase Wound Gel

SteadMed Medical

How supplied

Bellows bottle: 1 oz; A6248

Action

Elta Hydrovase Wound Gel with Protease Technology controls moisture delivery by maintaining a moist wound environment without macerating the wound. Elta's protease formulas, enhanced with Pro-N9, destroy proteins that inhibit healing while preserving beneficial cytokines in damaged tissue. The product contains 10% glycerin for moisture retention, and its high viscosity allows it to stay in place. Absorbs dry to moderate exudate.

Indications

To keep the wound bed moist for 24 hours

Contraindications

- None provided by the manufacturer

Application

- Apply ¼″ (0.5 cm) layer of gel to wound bed.
- Cover with an appropriate dressing.

Removal

- Gently lift the dressing away from the wound site.
- Spray the wound with wound cleanser to lift away necrotic tissue, and clean the wound.

NEW PRODUCT

Elta Wound Gel

SteadMed Medical

How supplied

Bellows bottle: 1 oz; A6248
Squeeze tube: 4 oz; A6248

Action

Elta Wound Gel maintains a moist wound environment for 24 hours. It's kept in place by its viscous glycerin base.

Indications

For use on dry to moderately exudative stage 1 to 4 wounds

Contraindications

- None provided by the manufacturer

Application

- Apply ¼″ (0.5 cm) layer of gel to wound bed.
- Cover with an appropriate dressing.

Removal

- Gently lift the dressing away from the wound site
- Spray the wound with wound cleanser to cleanse the wound.

FlexiGel Hydrogel Sheet Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

Sheet 2″ × 2″, 4″ × 4″; A6242
4″ × 8″; A6243

Action

FlexiGel Hydrogel creates and maintains a moist wound environment, which has been established as the optimal environment for the management of the wound. It provides physical separation between the wound and external environments to assist in preventing bacterial contamination of the wound. It's made with a polyacrylaride matrix with embedded hydrophilic polysaccharide particles, is moisture vapor permeable, absorbs up to five times its own weight, creates a cooling, soothing effect on superficial wounds, and is transparent for easy monitoring. Either side of dressing can be used.

Indications

For exudate absorption and the management of partial- to full-thickness wounds, such as ulcers (venous, arterial, diabetic); pressure sores; donor sites; surgical incisions; surgical excisions; and first- and second-degree burns

Contraindications

- Contraindicated for third-degree burns

Application

- Cleanse wound.
- Apply a skin preparation to the periwound skin.
- Apply FlexiGel Sheet dressing (cut to fit wound, if necessary).
- Secondary dressing is required. Roll gauze or OpSite film may be used. *Note:* A film dressing will decrease evaporation, holding more moisture over the wound bed. A gauze dressing allows for evaporation over wounds that are very moist.

Removal

- Change every 3 to 5 days based on drainage.

Hypergel Hypertonic Saline Gel

Mölnlycke Health Care

How supplied

Tube: 5 g (.17oz), 15 g (.50 oz); A6248

Action

Hypergel is a water-based hypertonic saline gel that softens and debrides necrotic tissue (eschar). The 20% sodium chloride gel hydrates and creates a hypertonic environment, thus promoting autolytic debridement.

Indications

To soften and remove dry and moist necrotic eschar on pressure ulcers (stages 3 and 4), partial- and full-thickness wounds, tunneling wounds, noninfected wounds, wounds with minimal drainage (if eschar is still present), wounds with serosanguinous or purulent drainage (if eschar is still present), and black wounds. Treatment is discontinued when the wound is covered with less than 25% eschar.

Contraindications

- Not recommended for ulcers with no devitalized (dead) tissue
- Not recommended for wounds that have compromised arterial blood supply

Application

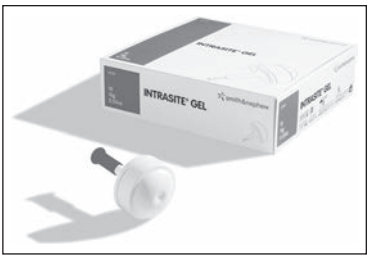
- Gently irrigate or flush the wound with normal saline solution, if necessary, and blot excess saline solution with absorbent gauze.
- Unscrew and remove cap and distance ring. Reapply the cap to the tube, and twist it firmly back on to break the seal of the tube.
- Unscrew the cap and apply a light coating (dime thickness) to the dry necrotic eschar. Avoid applying it to intact skin. (*Note:* Hypergel is not a wound filler; it's designed to coat the wound surface.)
- Pack deep wounds with suitable material.
- Cover with Alldress or other cover dressing.

Removal

- Change the dressing every 24 hours or when drainage is visible through the cover dressing.

INTRASITE Gel Hydrogel Wound Dressing

Smith & Nephew, Inc.
Wound Management



How supplied

Applipaks: 8 g, 15 g, 25 g; A6248

Action

INTRASITE Gel is an amorphous hydrogel that gently rehydrates necrotic tissue, facilitating autolytic debridement, while being able to loosen and absorb slough and exudate. It can also be used to provide the optimum moist wound management environment during the later stages of wound closure. It's nonadherent and doesn't harm viable tissue or the skin surrounding the wound. This makes INTRASITE Gel ideal for every stage in the wound management process.

Indications

INTRASITE Gel is used to create a moist wound environment for the treatment of conditions such as minor burns, superficial lacerations, cuts and abrasions (partial-thickness wounds), and skin tears. Under the direction of a health care professional, INTRASITE Gel is used to create a moist wound environment for the management of venous ulcers (leg ulcers), surgical incisions, diabetic foot ulcers, and pressure ulcers (including stage 4). INTRASITE creates a moist wound environment, which assists in autolytic debridement of wounds covered with necrotic tissues

Contraindications

- Contraindicated in patients who are sensitive to INTRASITE Gel or any of its ingredients
- Should be used with care in the vicinity of the eyes and in deep wounds with narrow openings (e.g., fistulas) where removal of the gel may be difficult
- For external use only; not to be taken internally

Application

- Prepare the wound site. Remove the secondary dressing. Irrigate the wound with sterile saline solution to clean the site.
- Prepare the pack. Remove the blue protective cap from the nozzle. Swab the snap-off tip and nozzle of the pack with a suitable antiseptic swab. Snap the patterned tip off the nozzle.
- Introduce INTRASITE Gel into the wound. Keeping the nozzle tip clear of the wound surface, gently press the bowl of the pack to dispense gel into the wound. Smooth INTRASITE Gel over the surface of the wound to a depth of about 5 mm (0.2″). Discard any unused gel.
- Dress the wound. Cover with a secondary dressing of choice, for example:
  - Necrotic stage: Site Flexigrid Moisture Vapour Permeable Adhesive Film Dressing
  - Sloughy stage: Allevyn Hydrocellular Hydrophillic Wound Dressing/Melolin Low-Adherent Absorbent Dressing
  - Granulating stage: Allevyn/Melolin/OpSite Flexigrid

Removal

- INTRASITE Gel can be removed from the wound by rinsing with sterile saline solution.
- On necrotic and sloughy wounds, it's recommended that the dressing be changed at least every 3 days.
- On clean granulating wounds, the frequency of dressing changes depends on the clinical condition of the wound and the amount of exudate produced.

MacroPro Wound Gel with Oat Beta-Glucan

Brennen Medical, LLC

How supplied

Tube: 25 g (.9 oz), 85 g (3 oz); A6248

Action

MacroPro Wound Gel is a soothing, viscous gel composed of a natural complex carbohydrate derived from oats. It creates a moist healing environment that supports autolytic debridement of wounds with scattered areas of necrosis and slough.

Indications

To help manage superficial and partial-thickness burns; pressure ulcers, venous, diabetic, and arterial ulcers; donor graft sites; superficial through full-thickness wounds such as surgical wounds, minor abrasions and lacerations; and skin irritations

Contraindications

- Contraindicated in patients with a known allergy to plants such as gum oat

Application

- Clean the wound with sterile water, normal saline, or according to facility guidelines. Dry the surrounding skin.
- Apply MacroPro Wound Gel sufficiently to cover entire area of the wound up to a depth of ¼″ (6 mm).
- Cover gel and wound with an appropriate secondary dressing.
- Secure secondary dressing in place with tape or a net dressing retainer.
- Carefully monitor wound progress.
- MacroPro Gel applications may be repeated every 24 to 48 hours when used on sloughy, necrotic wounds, or within 7 days when used on clean, granulating wounds.

Removal

- Remove secondary dressing and discard.
- Gently clean the wound.
- Repeat application of MacroPro Wound Gel as needed.

NEW PRODUCT

Microcyn Dermatology HydroGel

Oculus Innovative Sciences

How supplied

Bottle: 1. 76 oz, 4 oz

Action

Microcyn Dermatology HydroGel relieves pain and itch in postsurgical sites, including Mohs and skin cancer surgeries, reducing symptoms of inflammation due to irritation. Microcyn Dermatology HydroGel is antibiotic-free and steroid-free; does not facilitate bacterial resistance;
safe to use around nose, mouth, and eyes.

Indications

Intended for dermatology indications, including itch and pain relief associated with dermal irritation, sores, injuries, and ulcers of dermal tissues

Contraindications

- No contraindications

Application

- After cleansing or debridement, apply a thin layer of Microcyn Dermatology HydroGel over the affected region. If required, apply a nonstick gauze dressing or moistened gauze pad over the treated area.

Removal

- Nonirritating, noncytotoxic and nonsensitizing to skin and eyes; no special handling precautions required and no special disposal requirements. No rinsing required.

NEW PRODUCT

Microcyn Skin & Wound HydroGel

Oculus Innovative Sciences

How supplied

Tube: 3 oz

Action

Because of its proprietary and patented formulation, Microcyn Skin & Wound HydroGel is not affected by the presence of wound fluid, blood and granulation tissue, thus promoting an optimal wound healing environment. It contains hypochlorous acid, a compound similar to those naturally produced on demand by neutrophils in the body's immune system when pathogens are encountered. Due to its nontoxic nature, Microcyn Skin & Wound HydroGel can be used in all stages of wound healing and is an ideal foundation for wound bed preparation.

Indications

Intended for the management of exudating wounds such as leg ulcers, pressure ulcers, diabetic ulcers, first- and second-degree burns, and mechanically or surgically debrided wounds

Contraindications

- No contraindications

Application

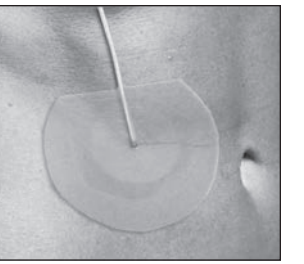
- Clean or debride wound with Microcyn Skin and Wound Care with preservatives.
- Apply Microcyn HydroGel to wound.
- Bandage appropriately and change dressing appropriately two to three times a week until healing begins.

Removal

- No rinsing required. Dressing may be removed easier by first saturating with Microcyn Skin and Wound Care spray.

MPM CoolMagic Sheet Hydrogel Dressing

MPM Medical, Inc.



How supplied

Sheet: 3¾″ × 3¾″; A6242
6″ × 8″; A6243
8″ × 12″; A6244

Action

MPM CoolMagic is a semi-occlusive sterile hydrogel polymer sheet consisting of 90% water and 10% crosslinked polyethelene oxide matrix. Hydrophyllic and absorptive, absorbing three times its weight, MPM CoolMagic is excellent for reducing pain from burns and skin reactions to radiation.

Indications

For use on partial-thickness wounds, such as pressure ulcers, vascular and diabetic ulcers, abrasions, skin tears, and first- and second-degree burns

Contraindications

- Contraindicated for use on third-degree burns, infected wounds, and full-thickness wounds

Application

- Clean the wound with MPM Wound and Skin Cleanser or saline solution, and dry.
- Remove red backing by gripping extended edge and pulling back.
- Apply exposed hydrogel to wound bed, allowing for overlap on intact skin.
- MPM CoolMagic Dressing may be left in place for up to 3 days.

Removal

- Carefully remove dressing and clean with MPM Wound and Skin Cleanser.
- Reapply in accordance with your protocol.

MPM Excel Gel

MPM Hydrogel

MPM Medical, Inc.

How supplied

Tube: 1 oz, 3 oz; A6248

Action

MPM Excel Gel has an aloe vera and glycerin base that maintains a moist environment, promotes healing, and facilitates autolytic debridement.

Indications

To manage pressure ulcers (stages 2 to 4), venous stasis ulcers, partial- and full-thickness wounds, superficial wounds, first- and second-degree burns, and tunneling wounds

Contraindications

- Not recommended for draining wounds

Application

- Clean wound with MPM Wound Cleanser or normal saline solution.
- Apply MPM Excel Gel to the wound in a layer 1/8″ to 1/4″ (0.3 to 0.5 cm) thick.
- Cover with a secondary dressing.

Removal

- Change dressing daily.
- Flush the wound with MPM Wound Cleanser or normal saline solution.
- Gently remove the dressing.

MPM GelPad Hydrogel Saturated Dressing

MPM Medical, Inc.

How supplied

Sterile pad: 2″ × 2″, 4″ × 4″; A6231
8″ × 4″; A6232
10″ × 6″; A6233

Action

MPM GelPad Hydrogel Saturated Dressing is saturated with stabilized aloe vera hydrogel and provides a primary cover for wounds. It creates a moist environment that facilitates wound healing and autolytic debridement.

Indications

To manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, first- and second-degree burns, tunneling wounds, infected and noninfected wounds, and red, yellow, or black wounds; excellent for wound packing

Contraindications

- Not recommended for draining wounds

Application

- Clean the wound with MPM Wound Cleanser or normal saline solution.
- Apply the dressing to the wound, or loosely pack the wound with the dressing.
- Secure with an appropriate secondary dressing.

Removal

- Change the dressing daily.
- Remove the secondary dressing.
- Flush the wound with MPM Wound Cleanser or normal saline solution.

MPM Regenecare with Lidocaine (2%)

MPM Medical, Inc.

How supplied

Tube: 3 oz; A6248

Action

MPM Regenecare is the first wound gel containing lidocaine, collagen, aloe vera, and vitamin E that maintains a moist environment, promotes healing, facilitates autolytic debridement, and reduces wound pain.

Indications

To manage pressure ulcers (stages 2 to 4), venous stasis ulcers, partial- and full-thickness wounds, secreting dermal lesions, superficial wounds, first- and second-degree burns, and tunneling wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with MPM Wound Cleanser or normal saline solution.
- Apply MPM Regenecare with lidocaine to the wound in a layer ¼″ (0.5 cm) thick.
- Cover with a secondary dressing.

Removal

- Change hydrogel dressing daily.
- Remove the dressing.
- Flush the wound with MPM Wound Cleanser or normal saline solution.

Normlgel 0.9% Isotonic Saline Gel

Mölnlycke Health Care

How supplied

Tube: 5 g (.17oz), 15 g (.50oz) (single dose); A6248

Action

Normlgel is a moisture-donating gel that helps maintain an optimum environment for healing.

Indications

May be used in granulating and open wounds with light to moderate exudate including pressure ulcers, diabetic ulcers, superficial first- and second-degree burns, lower-extremity ulcers, open surgical wounds, and wounds covered with dry fibrin

Contraindications

- None provided by the manufacturer

Application

- Irrigate or flush the wound gently with normal saline or nonirritating solution, if necessary. Gently blot excess moisture with absorbent gauze.
- Unscrew and remove cap and distance ring. Reapply the cap to the tube, and twist it firmly back on to break the seal of the tube.
- Unscrew the cap and apply a thin coat of the gel to the wound, being careful not to apply the gel over the periwound skin.
- If the wound is deep, pack it lightly with gauze impregnated with Normlgel.
- Apply a cover dressing, such as Alldress or Mepilex Border. Avoid covering with gauze because this will promote wound drying.

Removal

- Change cover dressing every 48 hours or when drainage is visible through the dressing.

Purilon Gel

Coloplast Corp.

How supplied

Accordion pack: 8 g, 15 g, 25 g; A6248

Action

Purilon Gel is a sterile, clear, cohesive, amorphous hydrogel with hydrating and absorbing properties that provide fast and effective autolytic debridement of necrotic tissue, while maintaining a moist wound environment.

Indications

To treat necrotic and sloughy wounds, such as leg ulcers and pressure ulcers; may be used throughout the healing process to provide a moist healing environment in all types of wounds; may also be used with medical supervision on infected wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Clean the wound with Sea-Clens wound cleanser or normal saline solution. Gently dry the skin around the wound.
- Remove the label from the accordion pack by pulling the corner, as indicated on the package. Swab the nozzle below the snap-off tip with a suitable antiseptic; remove the tip.
- Gently press the base of the accordion pack to apply Purilon Gel to the wound, in a layer no higher than the periwound skin.
- Cover with a secondary dressing.

Removal

- For necrotic and sloughy wounds, change Purilon Gel at least every 3 days. For clean wounds, change Purilon Gel according to the amount of exudate.
- To remove the gel from the wound, rinse with a wound cleanser or normal saline solution.

RadiaDres Gel Sheet

Medline Industries, Inc.

How supplied

Sheet: 4″ × 4″; A6242

Action

RadiaDres Gel Sheet is a wound dressing consisting of a hydrogel with a matrix to form a solid gel sheet for radiation-related skin reactions. It facilitates the formation of a moist wound healing environment while preventing bacteria and foreign matter from entering the wound. The RadiaDres Gel Sheet may be refrigerated for maximum cooling effect.

Indications

For management of pressure ulcers (stages 1 to 4), partial-thickness draining and nondraining wounds, first- and second-degree burns, radiation reactions, and noninfected wounds

Contraindications

- Contraindicated for infected wounds

Application

- Before application, thoroughly cleanse the wound with an appropriate wound cleanser. Gently dry the skin surrounding the wound.
- Peel open package and remove RadiaDres Gel Sheet using a clean technique.
- Grab the tabbed edges of the pink polyethylene film backing to remove. Discard the backing.
- Apply uncovered hydrogel side to wound. RadiaDres Gel Sheet may overlap intact skin if desired.
- The dressing may be trimmed or overlapped, if preferred, to more closely approximate the wound size and shape.

Removal

- To remove, carefully lift an edge of the dressing while gently pressing against the skin.
- Change as often as necessary until the wound is healed. May be left on up to 3 days.
- Before applying a new dressing, cleanse the wound with a suitable cleanser.

RadiaGel

Medline Industries, Inc.

How supplied

Tube: 3 oz; A6248

Action

RadiaGel is a hydrogel wound dressing in a nonoily preparation, especially formulated for the management of radiation dermatitis.

Indications

To condition the skin before radiation therapy and to manage skin reactions after radiation therapy; may also be used to manage radiation-induced dermatitis

Contraindications

- Contraindicated in patients who are hypersensitive to components of the dressing

Application

Pretherapy

- Clean the skin with a suitable cleanser.
- Massage a small amount of RadiaGel into the skin 2 or 3 times daily to condition the skin. Begin as far in advance of therapy as possible.

During therapy

- Continue to massage a small amount of RadiaGel into the skin 3 or 4 times daily throughout the entire treatment period.
- Clean the affected area with a suitable cleanser by spraying it onto the desired area.
- Gently pat affected area with a soft gauze. No rinsing is required.
- Follow with the appropriate topical preparation, such as a thin layer of RadiaGel to intact skin, or a 1/8″ to 1/4″ (0.3 to 0.5 cm) layer of gel to areas of ulceration.
- Cover with appropriate nonadhering dressing, such as RadiaDres Gel Sheet. Remove the red film backing from the sheet, and gently press it in place over the area of ulceration or reaction.

Removal

- Change dressing according to the wound condition and amount of exudate or as directed by the physician.
- Rinse away any remaining gel with gentle irrigation.

Restore Hydrogel Dressing*

Hollister Wound Care, LLC

How supplied

Amorphous/tube:	3 oz; A6248
Impregnated gauze sponge, sterile:	4″ × 4″; A6231
Impregnated gauze strip, sterile:	2″ × 3.5 yards; A6266

Action

Amorphous Restore Hydrogel Dressing maintains a moist healing environment. Restore Hydrogel Impregnated Gauze Sponges and Packing Strips fill in dead space associated with sinus tracts and undermining or deep wounds.

Indications

For maintenance of a moist environment in pressure ulcers, stasis ulcers, first- and second-degree burns, skin tears, cuts, and abrasions

Contraindications

- For external use only
- Not for contact with eyes

Application

- Cleanse wound if indicated.

Amorphous Restore Hydrogel Dressing

- Apply to the wound to a minimum depth of ¼″ (5 mm). Cover with a secondary dressing and secure.

Restore Hydrogel Impregnated Gauze Sponges and Strips

- Apply sponge or strip to the wound. Cover with a secondary dressing, and secure with tape or other appropriate material.

Removal

- Remove tape securing the secondary dressing to the skin, and lift away the dressing. Gently remove Restore Hydrogel Gauze Sponge or Packing Strip. Cleanse wound, if indicated, before applying new dressing.
- Change the dressing every 24 to 72 hours or as required to maintain a moist environment.
- If condition worsens or doesn't improve within 7 days, consult a physician.

*See package insert for complete instructions for use.

SAF-Gel Hydrating Dermal Wound Dressing*

ConvaTec

How supplied

Tube: 3 oz; A6248

Action

SAF-Gel Hydrating Dermal Wound Dressing is an alginate-containing wound gel designed to create an optimal moist environment to support the wound healing process.

Indications

To manage chronic wounds, pressure ulcers (stages 1 to 4), stasis ulcers, first- and second-degree burns, cuts, abrasions, and skin tears

Contraindications

- None provided by the manufacturer.

Application

- Clean the wound with normal saline solution or an appropriate cleansing solution, such as SAF-Clens AF Dermal Wound Cleanser, Chronic Wound Cleanser, or Shur-Clens Skin Wound Cleansing Solution.
- Apply $^{1}/_{8}$″ to $^{1}/_{4}$″ (0.3 to 0.5 cm) layer of SAF-Clens AF Dermal Wound Cleanser Hydrating Dermal Wound Dressing to cover the entire wound surface.
- Cover with an appropriate secondary dressing.

Removal

- Change the dressing daily or when the wound begins to dry out.

*See package insert for complete instructions for use.

Skintegrity Amorphous Hydrogel

Skintegrity Hydrogel Impregnated Gauze

Medline Industries, Inc.

How supplied

Bellows bottle:	1 oz; A6248
Tube:	4 oz; A6248
Impregnated gauze:	2″ × 2″, 4″ × 4″; A6231

Action

Skintegrity Hydrogel dressings are greaseless and maintain a moist healing environment. Skintegrity Hydrogel Impregnated Gauze is a compression-saturated gauze sponge, which ensures thorough hydration. A special formulation balances viscosity and hydration, added aloe vera aids healing, and the greaseless formulation irrigates easily from the wound bed.

Indications

To manage pressure ulcers (stages 2 to 4), partial- or full-thickness wounds, venous stasis ulcers, first- and second-degree burns, cuts, abrasions, skin irritations, postoperative incisions, infected and noninfected wounds, and wounds with no drainage or light drainage

Contraindications

- Contraindicated in patients who are hypersensitive to components of the gel

Application

- Clean the wound with normal saline solution or appropriate wound cleanser, such as Skintegrity Wound Cleanser.
- Dry the periwound skin.

Skintegrity Amorphous Hydrogel

- Apply a generous layer of hydrogel to all wound surfaces.
- Cover with an appropriate secondary dressing, such as Stratasorb composite dressing or bordered gauze.
- Repeat every 72 hours or as necessary to maintain a moist wound bed.

Skintegrity Hydrogel Impregnated Gauze

- Unfold the hydrogel gauze pad and loosely pack it in the wound bed, filling any undermining and tunneling areas.
- Cover with an appropriate secondary dressing, such as Stratasorb composite dressing or bordered gauze.
- Change the dressing every 72 hours or as necessary to maintain a moist wound bed.

Removal

- Carefully remove the secondary dressing and irrigate the wound bed with normal saline solution or appropriate wound cleanser, such as Skintegrity Wound Cleanser. Dry the periwound skin.
- If the dressing has dried to the wound edge or the base of the wound, moisten with Skintegrity Wound Cleanser or normal saline solution until it loosens, then remove it.

SOLOSITE Wound Gel

SOLOSITE Gel Conformable Wound Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

SOLOSITE Wound Gel

Tube: 3 oz; A6248
Push-button applicators: 2 oz, 7 oz; A6248

SOLOSITE Gel Conformable Wound Dressing

Gel pad: 2″ × 2″, 4″ × 4″; A6231

Action

SOLOSITE Wound Gel

SOLOSITE is a hydrogel wound dressing with preservatives. It can donate moisture to rehydrate nonviable tissue. It absorbs exudate while retaining its structure in the wound. It rehydrates and helps deslough dry eschar, absorbs exudate, and assists autolytic debridement. It is nonirritating, nonsensitizing, gentle to fragile granulation tissue.

SOLOSITE Gel Conformable Wound Dressing

SOLOSITE Gel Conformable is designed to keep the gel in intimate contact with the wound bed. It's ideal for packing into and around the sides of the wound. While wound gels alone tend to pool at the base of deeper wounds, leaving portions of the wound bed uncovered, SOLOSITE Gel Conformable maintains close contact between the wound surface and the gel. It keeps gel in intimate contact with wound surface, absorbs excess exudate, creates a moist wound healing environment, which may promote desloughing, meets USP requirements for cytotoxicity, and is nonsensitizing.

Indications

Used to create a moist wound environment for the treatment of minor conditions such as minor burns, superficial lacerations, cuts and abrasions (partial-thickness wounds), and skin tears; under the direction of a health care professional, used to create a moist wound environment for the management of venous ulcers (leg ulcers), surgical incisions, diabetic foot ulcers, and pressure ulcers (including stage 4); creates a moist wound environment, which assists in autolytic debridement of wounds covered with necrotic tissues

Contraindications

SOLOSITE Wound Gel

- For external use only
- If condition worsens or doesn't improve within 7 days, consult a physician

SOLOSITE Gel Conformable Wound Dressing

- Contraindicated for the management of full-thickness burns

Application

SOLOSITE Wound Gel

- Cleanse the wound with saline or an appropriate wound cleanser.
- Apply SOLOSITE Gel to cover the wound bed ¼″ (5 mm) thick and cover with a gauze, foam, or transparent film dressing.

SOLOSITE Gel Conformable Wound Dressing

- Gently and thoroughly cleanse the wound area of necrotic (damaged) tissue or dressing residue with sterile saline or other appropriate wound cleanser.
- Remove pouch from outer packaging.
- Tear open pouch using notched opening.
- Remove dressing from pouch and carefully unfold dressing.
- Carefully place dressing in the wound so that the entire wound bed is covered.
- Don't overlay the dressing on the healthy skin surrounding the wound because this could lead to maceration (overhydration) of the healthy skin.
- Secure the dressing in place by placing a secondary dressing of the following type over the total wound area:
  - A transparent film such as OpSite or OpSite FLEXIGRID, especially where the wound is necrotic (full of damaged tissue) or sloughy (full of wound fluid)
  - A nonwoven, nonsensitizing (nonallergic) dressing such as CovRSite or retention tape such as Hypafix where there is little wound drainage
  - Gauze held in place with a conforming bandage, a net bandage, or a cohesive bandage such as Coban, where there are skin tears and an adhesive secondary dressing is inappropriate.
- If you're unsure of which secondary dressing to use, consult a health care professional.

Removal

- Change the dressing each day or as directed by the physician.

TenderWet Gel Pad

Medline Industries, Inc.

How supplied

TenderWet System and TenderWet Cavity System, preactivated with Ringer solution:
1.6″ or 2.2″ rounds, or 3″ × 3″ or 4″ × 5″ squares; A6242
3″ × 8″ rectangle (cavity-style only); A6243

Action

TenderWet is a wound dressing pad whose central component is an absorbent polymer gel. The covering layer is composed of a hydrophobic, knitted fabric that allows wound exudate to pass through to the absorptive gel layer while helping to prevent the dressing from adhering to the wound. The gel holds a significant amount of Ringer solution, providing a moist healing environment. The solution is released into the wound bed while the wound exudate is absorbed, providing an autolytic debriding process that helps remove necrotic tissue and debris while allowing tissue granulation to occur. The side of the TenderWet dressing with green stripes has a water-repellent layer, making this dressing appropriate for flat wounds or wounds with superficial depth. The cavity dressings have a symmetrical structure without a water-repellent layer. Both sides function equally, making it particularly suitable for packing deeper wounds.

Indications

To manage dry, light to moderately exuding, and partial- and full-thickness wounds, such as minor burns, superficial injuries, lacerations, cuts, abrasions, incisions or surgical wounds, and skin tears; also for chronic wounds, such as pressure ulcers (stages 2 to 4), lower-extremity ulcers, venous ulcers, arterial ulcers, diabetic ulcers, and ulcers of mixed etiology; may also be used on infected wounds

Contraindications

- Contraindicated for third-degree burns

Application

- Remove dressing from foil pouch and apply the white side of the TenderWet dressing to the entire surface of the wound. Make sure that the green stripes (on topper style) face away from the patient.
- Pack deeper wounds with TenderWet Cavity, which doesn't feature a water-repellent layer; it then can be covered with regular TenderWet if managing high levels of exudate.
- (*Note*: TenderWet must cover the edge of the wound. The white, soft tissue that forms around the wound edges is sometimes mistaken for maceration of the epidermis; in fact, it's a layer of squames or corneocytes. These harmless cells are nonviable and are usually sloughed off when bathing, scratching, or changing clothes.)

- Secure TenderWet by using a roll gauze, such as Sof-Form Conforming Gauze, or a six-ply roll bandage, such as Bulkee II. Or use a self-adherent cohesive bandage; an elastic net for adhesive-sensitive patients; a dressing retention tape, such as Medfix; a bordered gauze; or a waterproof, composite island dressing, such as Stratasorb.
- If the dressing dries out, rewet using Ringer solution.

Removal

- Change TenderWet within 24 hours. Depending on drainage, TenderWet Cavity dressings may need to be changed twice daily.
- Gently remove the secondary dressing and lift TenderWet out of the wound bed.

(*Note:* Don't reuse TenderWet; product is intended for single use only. Don't mechanically damage the TenderWet covering layer.)

3M Tegaderm Hydrogel Wound Filler

3M Health Care

How supplied

Tube: 15 g, 25 g; A6248

Action

3M Tegaderm Hydrogel Wound Filler is a sterile, nonpreserved, amorphous hydrogel wound dressing. The product helps provide a moist healing environment, helps prevent wound desiccation, assists with autolytic debridement by hydrating devitalized tissue, and fills dead space in full-thickness wounds.

Indications

3M Tegaderm Hydrogel Wound Filler is indicated for the management of nondraining to minimally draining dermal wounds, including pressure ulcers, venous ulcers, arterial ulcers, diabetic ulcers, dehisced surgical wounds, superficial partial-thickness burns, skin tears, abrasions, radiation, dermatitis, wounds exhibiting dry eschar and fibrinous slough, and malignant lesions; may be used with gauze to lightly pack tunneling or undermined chronic wounds

Contraindications

- None known

Application

- Clean skin and wound thoroughly.
- Protect periwound skin, as appropriate, using a barrier film, such as 3M Cavilon No Sting Barrier Film.
- Apply enough wound filler to cover the wound base and necrotic tissue, or saturate a sterile gauze pad with wound filler and place it in the wound.
- Cover with an appropriate secondary dressing.

Removal

- Gently lift off cover dressing and discard.
- Remove saturated gauze or irrigate gel from the wound. Monitor periwound skin for maceration.

TOE-AID Toe and Nail Dressing

Southwest Technologies, Inc.

How supplied

Tape: 1.25″ square affixed to a T-shape tape; A6245

Action

Because of its high glycerin content, TOE-AID assists in the natural wound-healing process. The soft gel pad provides a protective cushion to the injury, is highly absorbent, won't dry out, and is bacteriostatic and fungistatic. TOE-AID absorbent dressing is a uniquely formulated glycerin gel pad attached to a hypoallergenic, water-resistant, adhesive T-shaped tape.

Indications

To manage toe conditions ranging from toenail removal to toenail fungus and other toe injuries

Contraindications

- Contraindicated for highly exuding wounds that may require packing with additional dressing or other highly absorbent material

Application

- Prepare the wound site by cleaning the wound, as needed.

After toenail removal or on an open wound

- Fold the dressing under the toe first, and then overlap the tape to make a waterproof seal.
- Wrap one side of the dressing down around the toe, and then repeat with the other side of the dressing.
- Don't get the gel wet.

On intact skin or directly on toenail

- Make a waterproof seal to protect the gel from getting wet. The product may be worn in the shower if the tape is properly secured.

Removal

- Change the dressing if leaking occurs or the dressing becomes highly saturated with exudate. When applied to intact skin or directly to the toenail, the dressing may be left in place for up to 7 days.

NEGATIVE PRESSURE WOUND THERAPY

Actions

Negative pressure wound therapy (NPWT) systems include a vacuum pump, drainage tubing, and a dressing set. The pump may be stationary or portable, relies on AC or battery power, allows for regulation of the suction strength, has alarms to indicate loss of suction, and has a replaceable collection canister. The dressing sets may contain either foam or gauze dressing to be placed in the wound and an adhesive film drape for sealing the wound. The drainage tubes come in a variety of configurations depending on the dressings used or wound being treated.

Indications

NPWT is primarily intended for chronic wounds that have been resistant to other forms of wound care, and for minimizing scarring on acute wounds by promoting healing through granulation tissue formation and re-epithelialization ("secondary intention"). Therefore, it may be used as either a primary or secondary line of treatment, depending on the type of wound.

Note: The Centers for Medicare and Medicaid Services (CMS) partnered with the Agency for Healthcare Research and Quality (AHRQ) and commissioned a review of NPWT devices. AHRQ contracted with the ECRI Institute Evidence-based Practice Center to perform the review. To see the entire review document, go to http://www.ahrq.gov/clinic/ta/negpresswtd/npwtd02.htm (accessed September 6, 2011). Within the AHRQ review, they consider chronic wounds to be those wounds present for more than 30 days and acute wounds to be those present for less than 30 days. Diabetic foot ulcers, pressure ulcers, venous leg ulcers, and infected sternal wounds are the chronic wounds most often treated with NPWT. Surgical wounds, burn wounds and trauma wounds are the most common acute wounds treated with NPWT.

Contraindications

Contraindications to NPWT for chronic wounds include, but may not be limited to:

- Exposed vital organs (treatment may proceed after the organ has been covered by vicryl absorbable mesh).
- Inadequately debrided wounds; granulation tissue that will not form over necrotic tissue.
- Untreated osteomyelitis or sepsis within the vicinity of the wound.
- Presence of untreated coagulopathy.
- Necrotic tissue with eschar.
- Malignancy in the wound (negative pressure therapy may lead to cellular proliferation).
- Allergy to any component required for the procedure.

NPWT should be used cautiously when there is active bleeding, when the patient is on anticoagulants, when there is difficult wound hemostasis, or when placing the dressing in proximity to blood vessels.

In addition to information from CMS and AHRQ, the FDA has provided information regarding serious complications with Negative Pressure Wound Therapy Systems. To see the entire review document, go to http://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/PublicHealthNotifications/ucm190658.htm#.TwXd-zWFZh8.email.

Note: It is the clinician's responsibility to understand the actions, indications, advantages, disadvantages, and reimbursement information for each NPWT product prior to its use.

HCPCS codes overview

A6550 Wound care set, for negative pressure wound therapy electrical pump, includes all supplies and accessories
E2402 Negative pressure wound therapy electrical pump, stationary or portable
K0743 Suction pump, home model, portable, for use on wounds
K0744 Absorptive wound dressing for use with suction pump, home model, portable pad size 16 square inches or less
K0745 Absorptive wound dressing for use with suction pump, home model, portable pad size more than 16 square inches but less than or equal to 48 square inches
K0746 Absorptive wound dressing for use with suction pump, home model, portable, pad size greater than 48 square inches

Other related codes to consider:

A7000 Canister, disposable, used with suction pump, each

NEW PRODUCT

Engenex NPWT System*

ConvaTec

How supplied

Engenex Therapy Unit (*suction pump*): E2402
Bio-dome Easy Release Dressing Kit (*XL, L, M, S*), *Bio-dome Standard Dressing Kit* (*L, M, S*) *and other dressing kits:* A6550
Engenex Tunnel dressings (*L, S*)
Engenex Collection Canister: A7000

Action

The Engenex Negative Pressure Wound Therapy (NPWT) System consists of a battery-powered suction pump for the application of negative pressure wound therapy, a collection canister, and Bio-dome dressing kits. The contact surface of the dressing incorporates Bio-dome technology for enhanced tissue growth. Bio-dome dressings were developed to provide a wound contact surface that will maintain a void directly above the wound surface for unobstructed tissue growth. The void is specifically engineered to maintain its size and shape when under the influence of negative pressure and in the presence of bodily fluids. The dressing kits come in two types: (1) Standard, with a fibrous wound contact surface and (2) EasyRelease, with a non-adherent surface designed to reduce bioadhesion. The Bio-dome tunnel dressings are designed specifically to manage tract or tunnel wounds and are currently the only tunnel and sinus tract dressings available for NPWT. The Bio-dome construction enables the use of low, safe levels of suction of 75 mm Hg. This low setting works well in many cases.

The pump itself has visual indicators (colored lights) to indicate when therapy is being provided, a meter that counts and displays the hours of therapy actually provided and has the ability to compensate, and therefore deliver the required therapy, at low leakage levels (yellow light).

Indications

For the application of suction (negative pressure) to wounds to promote wound healing and for the removal of fluids, including wound exudate, irrigation fluids, body fluids, and infectious materials

Contraindications*

- Contraindicated where there is evidence of exposed arteries or veins in wound, fistula—unexplored or nonenteric, untreated osteomyelitis, malignancy, or necrotic tissue with eschar.
- Contraindicated for application directly to exposed blood vessels, organs, or nerves. Do not apply the Bio-dome wound dressing directly to exposed bowel surfaces.
- Contraindicated for any suction application that requires more than 10 LPM of free airflow.
- Warning indicated for patients at risk for bleeding or who are on an anticoagulant; care must be taken when applying suction in the vicinity of weakened

blood vessels or organs (e.g., sutured blood vessels, infected blood vessels, or blood vessels that have been exposed to radiation); exposed blood vessels, organs, tendons, ligaments and nerves should be covered with multiple layers of fine mesh non-adherent dressings.

Application*

- Note: Negative pressure should be applied for at least 22 of 24 hours per day. If suction will not be maintained for a period greater than 2 hours, the Wound Cover and Bio-dome Wound Dressing should be removed and a traditional dressing applied in its place. The hours meter on the unit only counts time when therapy, at the applied pressure setting, actually occurs using the Compliant Hours Monitoring Technology. A visual indicator will also show the status of the unit when switched on: Green (normal operation), Blue (possible occlusion), Red (High Leak) and Yellow (Low Leak—however therapeutic pressure is being delivered)
- Carefully inspect the wound, and treat per the order of the patient's physician and according to the institution's protocol and standards of practice for wound care. This should include proper hand washing and gloving practices. An appropriate skin preparation should be used to preserve the wound margins and prevent epithelial stripping. When bridging two wounds, be sure to protect the undamaged skin under the bridge with a cover dressing.
- Select the appropriate Bio-dome dressing, and cut the wound contact dressing just smaller than the size of the wound. The Bio-dome Surface must face the wound ("dimples down"). Carefully place the dressing in the wound. Do not force the wound dressing into cavity wounds. Always count and record the number and types of dressings used.
- When using multiple dressings, including the tunnel dressings and bridging, the neighboring dressings need to be in communication to allow optimal fluid movement from the wound. This communication is achieved by ensuring that there is sufficient overlap (approximately ½" is recommended) of dressings situated directly next to each other (consider extra overlap if patient movement/range of motion may cause dressings to lose communication).
- Prior to application of the cover, ensure that the skin around the wound is clean and dry. Use of a skin preparation layer may protect periwound skin and promote and prolong cover adhesion. Following the instructions for use, position the dressing over the wound and carefully apply, taking care to minimize folds and wrinkles. Use only the amount of film necessary to secure the dressing in place and maintain an optimal environment for NPWT.
- Cut a hole approximately 3 cm in size in the film cover at the location of the wound where the Tube Attachment Device (TAD) will be secured. It is permissible to cut into the wound packing when creating the hole.
- Remove the backing from the TAD. Place the screened portion of the TAD over the 3-cm hole that was cut in the cover. Make sure that the TAD is adequately secured to cover. Do not cover the vent on the TAD.
- Connect the TAD to the suction tubing of the Engenex canister. Connect the Engenex Canister to the Engenex Therapy Unit.
- Set the vacuum level per physician's orders, typically 75 mm Hg. Turn the pump to ON for continuous operation or INTER for intermitting suction per physician's orders.

Removal*

- The canister should be checked periodically and should be replaced whenever full or nearly full. Replace the canister after 5 days of use even if not full.
- The Bio-dome Wound Dressing, Wound Cover, and TAD should be replaced every 48 hours. For infected wounds, dressings should be replaced every 12 to 24 hours.
- Turn Off the Engenex Therapy Unit and disconnect the Engenex Canister from the TAD.
- Carefully remove the wound cover and all dressing materials from the wound.
  - Cleanse the wound and perform any necessary procedures as directed by the physician. Inspect the wound for the presence of infection, osteomyelitis or other potentially abnormal conditions, and report to the physician.
  - Dress the wound with fresh, sterile dressing materials as previously described, and set the Engenex Therapy Unit at the prescribed settings. If evidence suggests that there is an infection in the wound, pay strict adherence to physician orders and hospital policy. Discontinue use if appropriate.
- If the wound dressing is sticking to the wound or the patient is experiencing serious pain upon removal, try moistening the wound bed with saline to reduce adhesion or use saline-moistened, sterile cotton-tipped applicators to remove dressings that are sticking to the wound bed. Contact the physician to consider changing the orders to include more frequent dressing changes or titrating down the level of suction.
- Dispose of used dressing materials and canisters as medical waste.

*The narrative provided represents an overview; however, please refer to package inserts and Instructions for Use for complete product information. For more information, go to Convatec.com or call ConvaTec at 1-866-965-NPWT (6798).

NEW PRODUCT

ITI Black Foam Dressing Set

Innovative Therapies, Inc.

How supplied

Dressing Sets

Small:	1 dressing (10 × 8 × 3 cm), 1 suction tubing with SpeedConnect, 1 polyurethane drape; A6550; CPT 97605/97606
Medium:	1 dressing (20 × 12.5 × 3 cm), 1 suction tubing with SpeedConnect, 2 polyurethane drapes; A6550; CPT 97605/97606
Large:	1 dressing (25 × 15 × 3 cm), 1 suction tubing with SpeedConnect, 2 polyurethane drapes; A6550; CPT 97605/97606
Extra Large:	1 dressing (58.5 × 33 × 3 cm), 1 suction tubing with SpeedConnect, 5 polyurethane drapes; A6550; CPT 97605/97606

Action

Used with the SVED pump, this set, available in four sizes, supports negative pressure wound therapy (NPWT) with simultaneous irrigation.

- ITI Black Foam Dressing: A hydrophobic, open-cell reticulated polyurethane foam evenly distributes negative pressure across the wound base and removes exudate and fluids.
- ITI Suction Tubing with SpeedConnect: An 8-foot (2.4 m) tube securely delivers negative pressure to the wound.
- ITI Polyurethane Drape: A clear, semiocclusive polyurethane film with adhesive covers the foam-filled wound.

Indications

For NPWT, apply ITI Black Foam Dressing directly to the wound bed when no structures are visible. Use to loosely fill undermined areas. Apply over closed suture lines and grafts (apply wound contact layer first). Use ITI Black Foam Dressing to layer over ITI White Foam or wound contact layer applied to the base of a wound. Secure with ITI Polyurethane Drape and use ITI Suction Tubing with SpeedConnect to connect to SVED Canister. For NPWT with simultaneous irrigation, add ITI Irrigation Tubing with SpeedConnect.

Contraindications

- Do not place black foam on intact skin or wound edges.
- Do not cut black foam while holding it directly over the wound.
- Do not apply directly over bone, tendon, or ligaments.
- Do not use in wound tunnels.

Application

- Carefully remove any previously applied dressings.
- Carefully inspect wound—visually and manually—to ensure complete foam removal. Consult prior documentation of number of pieces inserted.
- Thoroughly cleanse wound and all dead space. Flush a generous amount of irrigation solution across the surface and any dead space.
- Apply wound contact layer or ITI White Foam if indicated.

- Apply ITI Black Foam (designed to minimize fraying, can be cut, thin, and layered as needed). Loosely fill all dead space, but do not pack or tightly fill; extend black foam slightly higher than skin level; when filling undermined spaces, always leave a significant portion of the foam visible in the wound base so it is found during dressing removal.
- Document the number of pieces of foam used in the wound.
- Cover with ITI Polyurethane Drape.
- Apply ITI Suction Tubing with SpeedConnect to wound and attach to SVED Canister. (If prescribed, also apply ITI Irrigation Tubing with SpeedConnect.)
- Select SVED device therapy settings and begin therapy.
- Change dressings every 48 to 72 hours (more frequently for infected wounds) and replace SVED Canister at least twice a week.

Removal

- Gently stretch and lift the ITI Polyurethane Drape while using a gloved index finger to hold down intact skin.
- Remove all foam. To ensure all components have been removed from the wound, after removing the dressing: Carefully observe the visible wound base; gently sweep undermined or tunneled areas with a gloved finger if possible to manually check for a clean wound base; consult prior documentation and then count pieces of foam to be certain all previously inserted pieces have been removed.

NEW PRODUCT

ITI Bridging Set

Innovative Therapies, Inc.

How supplied

Set: 2 dressings (35 × 4 × 2.5 cm), 2 polyurethane drapes; A6550; CPT 97605/97606

Action

Used with the SVED pump providing negative pressure wound therapy with simultaneous irrigation, the large pores and low density of ITI Bridge Foam Dressings keep cells open and fluid moving.

Indications

To address multiple small wounds; to bridge one wound to another; to locate a tube away from a bony prominence that the patient is unable to offload—such as the sacrum or heel—or contours, or uneven skin surfaces; to employ two bridges, one for suction and the other for irrigation.

Contraindications

- ITI Bridge Foam Dressing should never touch intact skin; always drape the skin before placing a foam bridge over it
- Bridge foam should never directly contact the wound base; dressing must directly contact the foam covering/filling the wound
- Do not increase negative pressure in an effort to move more fluid across the bridge; increased pressure does not fix chronic blockage (consider, if medically advised, setting a lower pressure, setting an intermittent pressure, or adding irrigation)

Application

- Place the ITI polyurethane drape over periwound area.
- Measure length between two wounds or two wound areas.
- Cut, peel, and adhere ITI Bridge Foam Dressing to drape.
- Drape over and seal.

(Note: ITI Black Foam may be used to construct a bridge when the ITI Bridge Kit is unavailable. When cutting a bridge from ITI Black Foam, the bridge should be at least $1^1/_2$″ wide to prevent pore collapse when negative pressure is applied. For lower extremities, do not construct a bridge to create a circumferential dressing.)

Removal

- Gently stretch and lift the ITI Polyurethane Drape while using a gloved index finger to hold down intact skin.
- Remove the ITI Bridge Foam Dressing and all other foam. Ensure all components have been removed from the wound.

NEW PRODUCT

ITI Irrigation Tubing with SpeedConnect

Innovative Therapies, Inc.

How supplied

Irrigation tubing: 8 ft (2.4 m); A6550; CPT 97605/97606

Action

Used with the SVED pump, ITI Irrigation Tubing with SpeedConnect supports negative pressure wound therapy (NPWT) with simultaneous irrigation. Innovative Therapies Inc. is the only provider of NPWT with simultaneous irrigation. ITI Irrigation Tubing with SpeedConnect links the I.V. irrigation bag to the wound dressing, delivering a saline solution in a normal physiologic pH range or a topical wound treatment solution. The tube's 8-foot length, without inline or midline connections, supports sterile precautions.

Indications

Enables simultaneous irrigation during NPWT, delivering aqueous solutions over the wound bed; cleanses all areas in contact with foam, the wound base, and any tunnels or undermined areas; keeps the wound base moist and promotes tissue granulation; by cleansing the foam itself, helps maintain uniform pressure

Contraindications

- Unstable thoracic wounds or conditions where the fluid temperature could cause an adverse reaction
- Not for use with enzymatic debridement ointments, solutions containing hydrogen peroxide or alcohol, or canisters with a capacity over 500 mL

Application

- In addition to applying the ITI Suction Tubing with SpeedConnect, cut an additional 1.5 cm hole in the ITI polyurethane drape to accommodate irrigation therapy.
- Remove the paper backing from the ITI Irrigation Tubing with SpeedConnect and press the flange firmly onto the drape—centered over the hole.
- Connect the distal end's non-Luer lock to the irrigation bag.
- On the SVED, select irrigation mode (continuous or intermittent) and rate (typically 25 to 30 mL/hour).
- Before beginning NPWT, open clamps for suction tubing and irrigation tubing.
- When changing the SVED Canister, put a tubing cap on the ITI Irrigation Tubing with SpeedConnect to prevent leaking.

Removal

- Close tubing clamps.
- Turn off SVED pump.
- Remove flange from the ITI polyurethane drape.
- Remove the distal end's non-Luer lock to the irrigation bag.

NEW PRODUCT

ITI Polyurethane Drape

ITI SensiSkin Drape for Sensitive Skin

ITI Framing Drape

Innovative Therapies, Inc.

How supplied

Polyurethane drape: 33 × 25.5 cm; A6550; CPT 97605/97606
SensiSkin drape: 33 × 25.5 cm; A6550; CPT 97605/97606

Action

Use this clear, semiocclusive polyurethane film with adhesive to protect wound and periwound during negative pressure wound therapy (NPWT). ITI Polyurethane Drape is available as an individual item or as part of the ITI Black Foam Dressing Set. ITI SensiSkin Drape for Sensitive Skin is only available as an individual item.

Indications

Creates a tight seal to protect wound and periwound during NPWT with irrigation; ITI Polyurethane Drape is indicated for typical skin applications; ITI SensiSkin Drape for Sensitive Skin is indicated for patients with aging or fragile skin; ITI Framing Drape tightly seals against ITI Suction Tubing with SpeedConnect and ITI Irrigation Tubing with SpeedConnect

Contraindications

- For sensitive skin, consider ITI SensiSkin Drape for Sensitive Skin; other interventions for sensitive skin include skin barrier wipe, antifungal powder, ostomy powder, medical adhesive, steroid spray, therapy holiday

Application

- After applying foam to wound, cut a 1.5 cm hole in the drape
- Cover all foam plus approximately 2″ of surrounding skin.
- Remove the paper backing from the ITI Suction Tubing with SpeedConnect and press firmly onto the drape—centered over the hole. If irrigation prescribed, use same procedure with ITI Irrigation Tubing with SpeedConnect.
- The drape can be applied as a single piece or in strips. Strips can be overlapped. Use as needed to patch air leaks. It is highly recommended to frame SpeedConnects with the ITI Framing Drape.

Removal

- Gently stretch and lift drape while using a gloved index finger to hold down intact skin.
- Remove all foam. To ensure all components have been removed from the wound, after removing the dressing: Carefully observe the visible wound base; gently sweep undermined or tunneled areas with a gloved finger if possible to manually check for a clean wound base; consult prior documentation and then count pieces of foam to be certain all previously inserted pieces have been removed.

- If the drape does not release easily, or if the skin is very fragile, try one of the following: Apply a warm wet cloth to the skin as the drape is gently lifted; use a medical adhesive remover, then wash and rinse the skin thoroughly to remove any residue that might prevent the new drape from adhering; if the skin is extremely fragile, carefully cut away the drape only over the open wound to enable the dressing change, and layer a new drape over the old drape—by the next dressing change, the old drape should more readily release from the skin; consider premedication, use of a nonadherent prior to foam placement, or irrigation with a topical anesthetic agent such as 1% Lidocaine prior to dressing removal.

NEW PRODUCT

ITI Power Supply

Innovative Therapies, Inc.

How supplied

Power supply: E2402

Action

The ITI Power Supply connects the SVED pump to a standard 120 VAC, 60 Hz wall outlet.

Indications

Used to provide power to the SVED during bedside use; use to recharge the SVED's lithium battery (recharging requires 2 hours for 80% recharge; 3 hours for full recharge).

Contraindications

- Do not use any other manufacturer's power supply, which could result in serious electrical damage.

Application

- Plug the ITI Power Supply into a suitable 120 VAC, 60 Hz outlet.
- Insert the other end of the ITI Power Supply into the AC adaptor connector on the side of the SVED.

Removal

- Unplug the ITI Power Supply from the side of the SVED and then from the wall outlet.

NEW PRODUCT

ITI Suction Tubing with SpeedConnect

Innovative Therapies, Inc.

How supplied

Suction tubing: 8 ft (2.4 m); A6550; CPT 97605/97606

Action

Used with the SVED pump, ITI Irrigation Tubing with SpeedConnect supports negative pressure wound therapy (NPWT) with simultaneous irrigation. ITI Irrigation Tubing with SpeedConnect links the SVED canister to the wound dressing, removing wound exudate and irrigation fluid. The tube's 8-foot length, without inline or midline connections, supports sterile precautions. The adhesive flange end adheres around a hole cut in the drape. The distal end directly connects to the SVED canister.

Indications

Conveys negative pressure, sucking wound exudate and irrigation fluid to the SVED canister attached to the SVED pump

Contraindications

- General NPWT and irrigation contraindications

Application

- Cut a 1.5-cm hole in the ITI polyurethane drape.
- Remove the paper backing from the ITI Suction Tubing with SpeedConnect and press the flange firmly onto the drape, centered over the hole.
- Attach the flexible blue end to the suction port of the SVED canister.
- Before beginning NPWT, open clamps on both ends.
- At each dressing change, replace the ITI Suction Tubing with SpeedConnect.

Removal

- Close all tubing clamps.
- Turn off SVED pump.
- Remove flange from the ITI polyurethane drape.
- Detach the flexible blue end of the ITI Suction Tubing with SpeedConnect connector from the suction port of the SVED Canister.

NEW PRODUCT

ITI White Foam Dressing

Innovative Therapies, Inc.

How supplied

Two polyurethane foam dressings (9.5 × 9.5 × 0.5 cm); A6550; CPT 97605/97606

Action

Used with the SVED pump, ITI White Foam Dressing supports NPWT with simultaneous irrigation. ITI White Foam Dressing is a soft, hydrophilic open-cell polyurethane foam that protects and promotes granulation over bone, tendons, ligaments, and painful or fragile wound beds. Aiding fluid movement, ITI White Foam Dressing helps keep the wound interface moist.

Flexible wet or dry, ITI White Foam Dressing can be cut or rolled into the wound. Its combination of tensile strength and pliable construction readily addresses tunneling.

Indications

To loosely fill tunnels or tracts (first, ensure a fistula is not present); to assuage painful wounds; to treat wounds with fragile granulation tissue; recommended for wounds with exposed bone, tendons, or ligaments; excellent for flaps and grafts, helping prevent tissue from separating from the grafting site; may be used for burns.

Contraindications

- Always add a top layer of ITI Black Foam Dressing over ITI White Foam Dressing.
- Do not cut ITI White Foam Dressing while holding it directly over the wound.

Application

- Carefully remove any previously applied dressings.
- Carefully inspect wound—visually and manually—to ensure complete foam removal. Consult prior documentation of number of pieces inserted.
- Thoroughly cleanse wound and all dead space. Flush a generous amount of irrigation solution across the surface and any dead space
- Cut ITI White Foam Dressing as needed. Can be placed dry into the wound.
- Loosely fill all dead space within wounds; as needed, wrap thin strips in a wound contact layer before placing them in a tunnel (roll to fill a larger tunnel or space); when filling tunnels, always leave a significant portion of the foam visible in the wound base so it is found during dressing removal.
- Layer ITI Black Foam Dressing (available in the ITI Black Foam Dressing Set or as a separate item) over ITI White Foam Dressing.
- Document the number of pieces of foam used in the wound.
- Cover with ITI Polyurethane Drape.
- Apply ITI Suction Tubing with SpeedConnect to wound and attach to SVED canister. (If prescribed, also apply ITI Irrigation Tubing with SpeedConnect.)
- Select SVED device therapy settings and begin therapy.
- Change dressings every 48 to 72 hours (more frequently for infected wounds) and replace SVED canister at least twice a week.

Removal

- Gently stretch and lift the ITI Polyurethane Drape while using a gloved index finger to hold down intact skin.
- Remove all foam. To ensure all components have been removed from the wound, after removing the dressing: Carefully observe the visible wound base; gently sweep undermined or tunneled areas with a gloved finger if possible to manually check for a clean wound base; consult prior documentation and then count pieces of foam to be certain all previously inserted pieces have been removed.

NEW PRODUCT

Microcyn Negative Pressure Wound Therapy Solution

Oculus Innovative Sciences, Inc.

How supplied

Bottle: 990 mL

Action

Laboratory proven in-solution inactivation of bacteria and spores including MRSA, VRE, pseudomonas and acinetobacter. Nonfoaming and safe to use around nose, mouth and eyes. No mixing, dilution, or rinsing required. May decrease the viscosity to a viscous exudate and help facilitate its removal.

Indications

Intended for the irrigation and management of wounds via negative-pressure wound therapy systems; within pH ranges of 6 to 7.8 desired for optimum negative-pressure wound therapy.

Contraindications

- None known

Application

- Use as you would saline in treatment of postsurgical wounds.

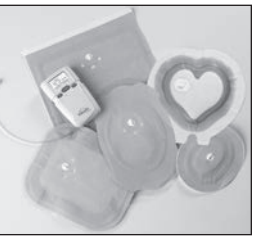
Removal

- Nonirritating, noncytotoxic and nonsensitizing to skin and eyes.
- No special handling precautions required and no special disposal requirements.
- No rinsing required.

NEW PRODUCT

NPD 1000 Negative Pressure Wound Therapy System

Kalypto Medical



Action

The Kalypto Medical Wounds Kits are designed as a one-piece, peel-and-stick dressing that "wicks and locks" exudate way from the wound, eliminating the need for a canister, and accelerating application time. The NPD 1000 is an effective 8-oz NPWT pump that is battery-operated (3 AA) with single-button operation and two pressure modes, created to make NPWT convenient for patients and caregivers.

Indications

The NPD 1000 NPWT System is intended for the application of suction to remove a small amount of fluid from the wound bed, including wound exudate and infectious material, which may promote wound healing; treats venous and arterial insufficiency ulcers, diabetic foot ulcers, pressure ulcers, other chronic wounds and dehisced surgical wounds.

Contraindications

- Do not apply to wounds where there is evidence of exposed arteries/veins in wound, for example fistula, unexplored or nonenteric, untreated osteomyelitis, malignancy of the wound, and necrotic tissue with eschar

Application

- Clip hair and clean wound according to facility protocol.
- Adequately clean and dry periwound area.
- Use a skin preparation, wipe, and let dry.
- Attach pigtail tubing to wound kit, ensure pad is directly over wound and the port is facing toward the pump.
- Press kit gently into wound, secure the gasket with gentle pressure and secure adhesive layer.
- Attached wound kit to pump. On the pump, set the prescribed treatment and press on.

Removal

- First dressing change within 48 hours and future changes based on drainage remaining contained.

NEW PRODUCT

Prevena Incision Management System

KCI

How supplied

Prevena Incision Management System unit:	5.75″ × 2.75″ × 1″; weighs 0.5 lb
Prevena Incision Dressing:	356 mm × 203 mm CPT Codes 97605, 97606

Action

The Prevena Incision Management System* consists of a single-use therapy unit, canister, and dressing that is applied over clean, closed sutured or stapled incisions in a simple peel-and-place process. The dressing has a built-in pressure indicator and a skin interface layer with 0.019% ionic silver, which wicks fluid from the skin surface. Prevena Incision Dressing is an integrated one-piece dressing comprised of a polyurethane film with acrylic adhesive that provides adhesion of the dressing to the skin surrounding the incision and a polyurethane shell that encapsulates the foam bolster and interface layer, providing a closed system. The dressing is uniquely designed to be skin-friendly over clean, closed surgical incisions. The Prevena 125 Therapy Unit delivers negative pressure that is preset to deliver -125 mm Hg to the incision site. The system also contains a sterile Prevena 45-mL Canister for collection of incision exudate and Prevena Patch Strips, which may be used to help seal leaks around the dressing.

Indication

The Prevena Incision Management System is marketed in the United States as a device that is intended to manage the environment of surgical incisions (sutured or stapled) that continue to drain following sutured or stapled closure by maintaining a closed environment and removing exudate via the application of negative pressure wound therapy.

Contraindications

- Should not be used on patients with sensitivity to silver.
- Should not be placed over drains or wires. Improper placement/cuts made to the dressing to accommodate drains or wires can lead to leak alerts.
- Should not be used to treat open or dehisced surgical incisions or patients who have excessive amounts of exudate from the incision area that may exceed the 45-mL Canister limit. V.A.C. Therapy should be considered for treatment of these wounds or incisions.
- Is not appropriate for all incisions. It may not be effective in addressing complications associated with ischemia to the incision or incision area, untreated or inadequately treated infection, inadequate hemostasis of the incision, or cellulitis of the incision area.

Application

- Open the sterile dressing package and remove dressing and patch strips using aseptic technique. Do not use if package has been torn or if sterile seal has been compromised.

- Gently peel back the center strip on the back of the dressing, exposing the pull tabs and adhesive.
- Center and apply the dressing over the closed wound or incision, ensuring that the adhesive will not contact or cover the surgical closure. Orient the dressing on the patient to eliminate sharp bends/kinks in the tubing. Remove the remaining bottom adhesive covers by grasping the bottom tabs and gently pulling. Firmly press around the dressing to ensure a good seal where the adhesive contacts the skin. Remove top stabilization layers.
- Remove the Prevena 45-mL Canister from the sterile package. Do not use if package has been torn or if sterile seal has been compromised. Connect the dressing tubing to the canister tubing by twisting the connectors until they lock.
- Insert the canister into the Prevena 125 Therapy Unit, and slide inward until canister clicks. Canister is fully inserted when the side tabs are flush with the body of the therapy unit. Therapy can now begin (see **Beginning Therapy** section below).

Beginning therapy

- To begin therapy, press and hold the ON/OFF button for **2 seconds**; an audible beep will confirm that therapy is on. A green LED on the front of the unit indicates that therapy is on. ***NOTE:*** Pressing the ON/OFF button begins the 192-hour (8-day) life cycle of the therapy unit. Turning the therapy unit off stops the life cycle counter. Turning the therapy unit on for purposes other than delivering therapy reduces the life cycle of the therapy unit. It is not recommended to press the ON/OFF button until therapy is ready to begin. To turn therapy unit off, press and hold ON/OFF button for **5 seconds**.
- With therapy on, assess the dressing to ensure integrity of the seal.
  - The dressing should have a wrinkled appearance and the foam bolster should be compressed.
  - The Pressure Indicator on the dressing should be in the collapsed position.
- Place the therapy unit into the Prevena Carrying Case. Make sure that the display is visible through the opening in the carrying case when the front flap is lifted. The Prevena Carrying Case has an integrated belt loop and a separate adjustable strap to allow for versatile positioning. ***CAUTION:*** *Do not wear strap around neck.*

Duration of therapy

- Therapy should be continuous for a minimum of 2 days and up to a maximum of 7 days.
- Therapy unit will automatically time-out after 192 hours (8 days) of cumulative run time.
- Patients should be instructed not to turn therapy off unless:
  - advised by the treating physician
  - bleeding develops suddenly or in large amounts during therapy
  - there are serious signs of allergic reaction or infection
  - the canister is full of fluid
  - batteries need to be changed
  - system alerts must be addressed.
- Patient should be instructed to contact the treating physician if:
  - bleeding develops
  - signs of infection are present

  - therapy unit turns off and cannot be restarted before therapy is scheduled to end
  - canister becomes full of fluid.
- At end of therapy, patient should return to treating physician for dressing removal.

Indicators and alerts

- **Visual Alerts:** Flashing LEDs cannot be turned off or paused by the user. Visual alerts will only stop when the alert condition has been corrected.
- **Audible Alerts:** Repeated beeps (which in some cases will increase in volume) can be temporarily muted (paused) by pressing the ON/OFF button once. The audible alert will recur after 60 minutes unless the alert condition has been corrected.

Removal (dressing)

Note: If dressing is lifted to observe wound, do not re-adhere the same dressing; a new dressing must be applied.

Warning: Dressings should always be removed in-line with the sutures and ***never*** across the sutures.

- Turn Prevena Therapy Unit off by pressing and holding the ON/OFF button for 5 seconds.
- Gently stretch the drape/dressing horizontally to release the adhesive from the skin. Do not peel vertically. Remove the drape/dressing in-line with the sutures, ***never*** across the sutures.
- Clean any residual adhesive with alcohol swab.
- If a new dressing is to be applied:
  - Ensure that area is clean, using an alcohol swab or antiseptic wipe.
  - Allow skin to completely dry before applying.
  - Follow Dressing Application instructions from above.

*See Prevena Incision Management System Clinician Guide (Instructions for Use) for complete information regarding safety and application instructions.

NEW PRODUCT

RENASYS Negative Pressure Wound Therapy System

Smith & Nephew, Inc.
Wound Management

How supplied

Pumps: RENASYS EZ Plus & RENASYS GO
Dressing kits: RENASYS-F/P Foam Dressing Kits with Port (Sizes: Small, Medium, Large)
RENASYS-F Foam Dressing Kit (Size: X-Large)
RENASYS-G/P Gauze Dressing Kit with Port (Size: Small, Medium, Large)
RENASYS-G Channel Drain Kit (Size: Medium)
RENASYS-F/AB Abdominal Dressing Kit
RENASYS High Output Fistula Kit
Canisters: RENASYS EZ Plus Sealed Canisters w/ Solidifier (size: 800 mL, 250 mL)
RENASYS Go Sealed Canister w/ Solidifier (Size: 800 mL, 300 mL)

Action

To be used in conjunction with Smith & Nephew Negative Pressure Wound Therapy (NPWT) systems to deliver negative pressure to the wound; indicated for patients who would benefit from a suction device, particularly as the device may promote wound healing

RENASYS-F/AB Abdominal Dressing Kit

The RENASYS-F/AB Abdominal Dressing Kit is intended for use in conjunction with RENASYS EZ and RENASYS EZ Plus devices and canisters as a complete Negative Pressure Wound Therapy (NPWT) System for managing open abdominal wounds with NPWT.

Indications

NPWT is appropriate for use in chronic, acute, and traumatic wounds; sub-acute and dehisced wounds; ulcers (such as pressure or diabetic); partial-thickness burns; flaps and grafts

RENASYS-F/AB Abdominal Dressing Kit

RENASYS-F/AB is indicated for temporary bridging of abdominal wall openings where primary closure is not possible and/or repeat abdominal entries are necessary. It is intended to be used in open abdominal wounds with exposed viscera, including but not limited to abdominal compartment syndrome. The use of RENASYS-F/AB is intended for use in the acute hospital setting (trauma, general and plastic surgery wards) and should be ideally applied in the operating room theater.

Contraindications

- The use of NPWT is contraindicated for the following: nonenteric, unexplored fistulae; untreated osteomyelitis; malignancy in the wound (with the exception of palliative care to enhance quality of life); presence of necrotic tissue with eschar; exposed arteries veins, foam, organs or nerves; anastomotic sites

RENASYS-F/AB Abdominal Dressing Kit

- The use of RENASYS-F/AB is contraindicated for the following: nonenteric, unexplored fistulae untreated osteomyelitis; malignancy in the wound (with the exception of palliative care to enhance quality of life); when vital organs and structures are not covered with the Organ Protection Layer (OLP); presence of necrotic tissue with eschar; patients with ongoing or high potential for hemorrhage and/or enteric leak (*Note:* Never place exposed foam in contact with exposed bowel, arteries, veins or nerves. Utilize the OPL at all times when using the RENASYS-F/AB with the RENASYS NPWT system.)

Application

Gauze Kits

- Cleanse the wound.
- Apply skin prep to periwound area.
- Cut and apply nonadherent layer to wound bed (if required).
- Moisten gauze with saline, fluff gauze into wound (do not overpack).
- Apply transparent film.
- Cut hole in transparent film (1/4″ diameter) and apply port.
- Connect port tubing to canister.
- Activate the RENASYS pump device on CONTINUOUS or INTERMITTENT mode.
- A finished dressing should be firm to the touch.
- Recommended pressure is between 80 and 120 mm Hg (physician preference).

Foam Kits

- Cleanse the wound.
- Cut foam to slightly smaller than wound dimensions (do not cut over the wound).
- Apply foam to wound and cover with transparent film.
- Cut hole in transparent film (1/4″ diameter) and apply port.
- Connect port tubing to canister.
- Activate the RENASYS pump device on CONTINUOUS or INTERMITTENT mode.
- A finished dressing should be firm to the touch.
- Recommended pressure is between 80 and 120 mm Hg (physician preference).

RENASYS-F/AB Abdominal Dressing Kit

- Hemostasis must be achieved prior to dressing application.
- Apply Organ Protection Layer (OPL) over viscera and tuck into paracolic gutters.
- Size pre-shaped foam and place on top of open abdomen.
- Apply transparent film.
- Cut hole in transparent film (1/4″ diameter) and apply port.
- Connect port tubing to canister.
- Activate the RENASYS EZ Plus or RENASYS EZ pump device on CONTINUOUS mode, beginning with 80 mm Hg.
- A finished dressing should be firm to the touch.
- Recommended pressure is between 80 and 120 mm Hg (physician preference).

Removal

- Dressing changes for RENASYS Foam kits are every 48 hours.
- Dressing changes for RENASYS Gauze kits are every 72 hours.
- Canisters changes weekly or when required.

RENASYS-F/AB Abdominal Dressing Kit

- Dressings should be changed every 48 hours, or more frequently, based on continual monitoring of patient condition.

NEW PRODUCT

SNaP Wound Care System

Spiracur, Inc.

How supplied

Cartridge:	125 mm Hg, 100 mm Hg, 75 mm Hg
Gauze dressing kit:	10 cm × 10 cm, 15 cm × 15 cm
Strap:	Small (18″), Medium (21″), Large (24″)

Action

The wound care arena has recently experienced an influx of powered Negative Pressure Wound Therapy (NPWT) systems that provide clinicians with a multitude of choices, each fairly similar to the next. Spiracur is breaking the mold of "me too" products by creating a new category of chronic wound management by combining the ease, simplicity, and cost savings of Advanced Wound Care with the proven efficacy of NPWT. The SNaP Wound Care System is the first FDA cleared non-powered, single-use NPWT device. The SNaP System provides the same level of negative pressure therapy as existing NPWT technologies but requires no electric or battery power and is 100% disposable. By creating negative pressure using high energy springs and pistons rather than batteries and motors, Spiracur has been able to reduce the entire negative-pressure generating mechanism and exudate canister to the size of a smart phone. Single pressure settings and small canister sizes also mitigate known safety risks of powered NPWT such as exsanguination.

Indications

The SNaP Wound Care System is indicated for patients who would benefit from wound management via the application of negative pressure, particularly as the device may promote wound healing through the removal of excess exudate, infectious material, and tissue debris. The SNaP Wound Care System is indicated for removal of small amounts of exudate from the following types of wounds:

- chronic
- acute
- traumatic
- subacute
- dehisced
- partial-thickness burns
- ulcers (such as diabetic, venous, or pressure)
- surgically closed incisions
- flaps and grafts.

Contraindications

Do not place the SNaP Wound Care System over:

- actively infected wounds
- inadequately drained wounds
- necrotic tissue such as eschar or adherent slough
- exposed blood vessels, anastomotic sites, organs, tendons, or nerves
- wounds containing malignancy
- fistulas

- untreated osteomyelitis
- actively bleeding wounds.

Application

- Prepare the wound bed and periwound skin per institutional protocol and irrigate wound bed thoroughly with normal saline.
- If necessary for the particular wound, apply a skin protectant to the surrounding skin.
- If necessary for the particular wound, cut a single layer of nonadherent gauze to size of wound and place on wound bed.
- Loosely pack the wound with foam or saline-moistened gauze. Do not tightly pack the wound.
- Place a SNaP Wound Care Dressing over the wound and seal. Ensure that the center opening of the port of the dressing is placed over the gauze or foam. Ensure that a minimum of 1 cm of intact skin around the wound is adhered to the dressing to maintain a proper seal.
- Cut the dressing tubing to the desired length.
- Fully insert the tube fitting into the tubing.
- Connect the SNaP Wound Care Cartridge to the tube fitting using both hands.
- To activate the cartridge, remove the activation/reset key from the cartridge by pressing the activation tabs on its side and pulling it out.
- Secure the SNaP Wound Care Cartridge to the patient's extremity or belt using the SNaP Wound Care Strap.
  - When the strap is placed around an extremity, take care to ensure that the Strap is not placed too tightly as this may cause discomfort or potentially decrease blood flow to the extremity.
- Check Negative Pressure Operation. The SNaP Wound Care System is working properly if **Green** capacity indicator is both visible and stationary in the chamber window; dressing has a "sucked down" appearance; dressing feels hard to the touch.
- Regular visual inspection of the SNaP Wound Care System is recommended so that any loss in negative pressure delivery can be recognized in a timely manner. ***Note:*** At a minimum the SNaP Wound Care Cartridge should be inspected once every 8 hours.

Removal

The dressing should be replaced twice a week until the clinical goal of therapy has been met. To remove:

- Remove SNaP Cartridge by gently pulling from the strap clip. Set aside.
- Grasp one corner of the hydrocolloid, press down on the skin and gently lift, simultaneously stretching the hydrocolloid away from the tissue. Continue this technique around the dressing until all edges are free from the skin.
- Dispose of all used dressing materials and the SNaP Cartridge per facility protocol. The SNaP Wound Care System is completely disposable.
- Cleanse wound per facility protocol and reapply as necessary.

NEW PRODUCT

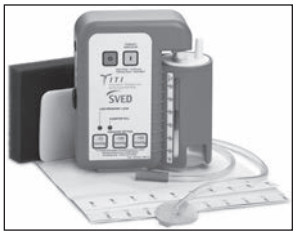
SVED

SVED Carrying Case

SVED Bed Bracket

I.V. Pole Adaptor for Bed Bracket

Innovative Therapies, Inc.



How supplied

Pump with irrigation: 7.5″ × 2.5″ × 6.8″, 1.9 lb; E2402
Carrying case: E2402
Bed bracket and I.V. Pole Adaptor

Action

Pump with Irrigation

The SVED is the centerpiece of the ITI Wound Treatment System (also comprising dressings, canisters, and accessories). The SVED is the only negative pressure wound therapy (NPWT) device on the market that can deliver NPWT with simultaneous irrigation – providing aqueous solutions to the wound without tube changes or therapy interruption. A single touch selects pressure settings (–70 mm Hg, –120 mm Hg, or –150 mm Hg), mode (continuous or intermittent), and a safety lockout. The SVED weighs less than 2 lb and comes with a carrying case for portable use. When fully charged, the SVED's internal lithium battery supplies up to 18 hours of operation, depending on pressure setting and integrity of seal.

Carrying Case

A comfortable carrying case for the SVED pump, which weighs less than 2 lb, enables ambulatory patients to continue NPWT while sitting or walking. When fully charged, the SVED's internal lithium battery supplies 10 to 18 hours of operation, depending on pressure setting and integrity of seal.

Bed Bracket

The SVED Bed Bracket provides a stable platform for attaching the SVED NPWT device to the patient's bed frame.

I.V. Pole Adaptor

Used with the SVED Bed Bracket, this adaptor attaches the bed bracket to an I.V. pole.

Indications

Pump with Irrigation

FDA cleared for NPWT and simultaneous irrigation for chronic, acute, traumatic, subacute, and dehisced wounds; diabetic ulcers and pressure ulcers; flaps and grafts; irrigation employs saline or topical wound treatment solutions

Carrying Case

Used for ambulatory and home health patients; patients or caregivers must be instructed to keep track of time off AC power; if less than two hours of power left, the SVED's red switch flashes and the SVED beeps—patients or caregivers must understand how to respond to these signals

Bed Bracket

For bedside provision of NPWT with irrigation

I. V. Pole Adaptor

For attaching the bed bracket to an I.V. pole

Contraindications

NPWT

- Contraindicated for exposed organs, anastomotic sites, and nerves; malignancy in the wound, untreated osteomyelitis, nonenteric and unexplored fistulas, or necrotic tissue with eschar present
- Not for use with infants or other patients with low fluid volume
- Not for use with patients at high risk of bleeding
- Use with caution with wound infection, anticoagulant therapy

Irrigation Therapy

- Contraindicated for instable thoracic wounds or conditions where the fluid temperature could cause an adverse reaction
- Do not use with solutions containing hydrogen peroxide or alcohol, enzymatic debridement ointments, or canisters with a capacity over 500 mL.

Bed Bracket

Same as general NPWT and irrigation contraindications

Application

Pump with Irrigation

- Apply NPWT components (ITI Black Foam Dressing, ITI White Foam Dressing, ITI Polyurethane Drape, and ITI Suction Tubing with SpeedConnect) to the wound. If using simultaneous irrigation, also apply ITI Irrigation Suction Tubing with SpeedConnect.
- Place a SVED Canister in the receptacle at the right of the SVED: Slide the SVED Canister into the holder and press upwards until the SVED Canister locks into place. Always use a new canister with a new patient.
- For the ITI Suction Tubing with SpeedConnect and the ITI Irrigation Tubing with SpeedConnect: Inspect the adhesive tubing flanges to ensure that they are properly connected to the drape and dressing.
- Connect the distal end of the ITI Suction Tubing with SpeedConnect to the blue tapered port of the SVED Canister. Gently twist and push the connector on just enough to secure and seal it.
- Check that the clamp is open.
- If the ITI Irrigation Tubing with SpeedConnect is used: Connect the distal end's non-Luer lock to the irrigation bag. Make sure the clamp on the ITI Irrigation Tubing with SpeedConnect remains closed until therapy begins.

- Plug the SVED's AC adapter into a suitable 120 VAC, 60 Hz outlet. Insert the other end of the adapter into the AC adaptor connector on the side of the SVED. Place the SVED at or below wound level.
- To begin therapy, press the green ON switch. Check to verify it is illuminated.
- Select the therapy level: Press the appropriate PRESSURE SETTING button for –70 mm Hg, –120 mm Hg (default), or –150 mm Hg. (To lock or unlock the setting: Press and hold the selected therapy level for three seconds. The SVED beeps three times.). If the lock-out feature is not employed, the device defaults to –120 mm Hg when it is turned off then on.
- To change from continuous to intermittent mode (or vice versa): Press the appropriate pressure button *and* the red OFF button. Release when the SVED beeps (once for continuous pressure, twice for intermittent pressure). The SVED retains the most recent setting after power down. (You can lock or unlock mode setting, the same as described above for pressure setting.)
- As negative pressure builds, the dressing becomes concave. Verify this response.
- If irrigation is used, unclamp the Irrigation SpeedConnect and adjust flow rate using the ITI Irrigation Flow Regulator.
- Check dressing for vacuum or fluid leaks. Repair with additional drape as needed. Note that some fluid in the ITI Suction Tubing with SpeedConnect is normal.

Bed Bracket and I.V. Pole Adaptor

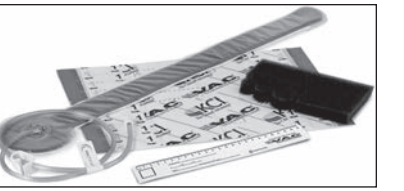
- Slide the SVED device into the bed bracket.
- Hang the bed bracket onto a bed or using the I. V. pole adaptor, attach it to an I.V. pole.

Removal

- Press the SVED's red OFF button.
- Close tubing clamps for the ITI Suction Tubing with SpeedConnect and, if used, the ITI Irrigation Tubing with SpeedConnect.
- Remove the ITI Suction Tubing with SpeedConnect connector from the top of SVED Canister.
- Press SVED Canister release button and withdraw canister from bottom of unit. If simultaneous irrigation is used, while a canister is being changed, put a tubing cap on the ITI Irrigation Tubing with SpeedConnect to prevent leaking.
- Remove all NPWT and irrigation components.
- Dispose of all components according to local, state, and federal regulations as well as institutional protocols.

V.A.C. Dressings

KCI



How supplied

Foam: Variety

Action

V.A.C. GranuFoam Dressing is a black, polyurethane foam dressing with a reticulated open-cell design that provides uniform distribution of pressure at the wound site. The 400- to 600-micron pore size foam assists in promotion of granulation tissue formation and aids in wound contraction. It is a hydrophobic (moisture repelling) foam, which enhances exudate removal.

The V.A.C. GranuFoam Silver Dressing is also a reticulated, open-cell polyurethane foam that has been microbonded with metallic silver via a proprietary metallization process. During V.A.C. Therapy, exposure of the dressing to wound fluid results in oxidation of metallic silver to ionic silver, allowing the continuous, sustained release of silver ions that acts as an effective barrier to bacterial penetration.

V.A.C. WhiteFoam Dressing is a polyvinyl alcohol foam with a dense, open pore design and a high tensile strength, ideal for use in tunnels and undermining. It is hydrophilic (or moisture retaining) and premoistened with sterile water. Its characteristics help to reduce the likelihood of adherence to the wound base. It can be used to assist in minimizing discomfort, over fresh split-thickness skin grafts, or in situations where hypergranulation responses are likely. The higher density of V.A.C. WhiteFoam dressing requires a minimum pressure setting of –125 mm Hg.

V.A.C. Simplace Dressings are designed to simplify the V.A.C. Therapy dressing placement process. The dressing uses the same black polyurethane foam as the V.A.C. GranuFoam Dressing, and there are fewer steps for faster application. This spiral cut foam is simple to size, as it can be easily torn manually; scissors may not be necessary. The Simplace design allows for easy bridging and is proven to actively promote formation of granulation tissue.

The V.A.C. GranuFoam Bridge Dressing allows for application of negative pressure wound therapy (NPWT) to those wounds, such as sacral wounds, wounds on the foot, or wounds requiring offloading or compression therapy, which because of their anatomical location, require that the SensaT.R.A.C. Pad be placed at a remote location. It also helps improve mobility, allowing patients to resume activities of daily living and facilitates patient transition to a nonacute care setting. It

is also packaged as V.A.C. GranuFoam Bridge XG dressing to simplify the bridging of large wounds.

Indications

These foams are indicated for use with the V.A.C. family of NPWT systems to help promote formation of granulation tissue in chronic, acute, traumatic, subacute and dehisced wounds, partial-thickness burns, pressure and diabetic ulcers, flaps, and grafts. For optimal pressure distribution, it is recommended to use a V.A.C. GranuFoam Dressing over V.A.C. WhiteFoam. These foam dressings should only be used with appropriate V.A.C. Therapy products.

Contraindications

- Do not place directly on exposed blood vessels, anastomotic sites, exposed organs, or nerves.
- Contraindicated on patients with malignancy in the wound, untreated osteomyelitis, nonenteric and unexplored fistulas, necrotic tissue with eschar present, and those with sensitivity to silver (V.A.C. GranuFoam Silver Dressing only).
- For complete listing of all contraindications, warnings, and precautions, please refer to V.A.C. Therapy Clinical Guidelines.

Application

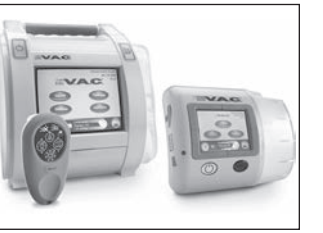
- V.A.C. Dressings, tubings, and drape are packaged sterile and are latex free.
- The decision to use clean versus sterile/aseptic technique is dependent on wound pathophysiology, physician/clinician preference, and institutional protocol.
- Do not place any foam dressing into blind or unexplored tunnels. The V.A.C. WhiteFoam Dressing may be more appropriate for use with explored tunnels and undermining.
- Do not force foam dressings into any area of the wound, as this may damage tissue, alter delivery of negative pressure, or hinder exudate removal.
- Always count the total number of pieces of foam used in the dressing, and document that number on the drape and in the patient's chart. Also, document the dressing change date on the drape.
- Consult a physician, and review all V.A.C. Therapy Instructions for Use and the V.A.C. Therapy Clinical Guidelines before use.

Removal

- V.A.C. Dressings should be changed routinely every 48 to 72 hours but no less than 3 times per week for noninfected wounds, with frequency adjusted by clinician, as appropriate.
- Infected wounds must be monitored often and very closely; for these wounds, dressings may need to be changed more often than 48 to 72 hours; the dressing change intervals should be based on a continuing evaluation of the wound condition and the patient's clinical presentation, rather than a fixed schedule.
- Always replace all disposable components with new sterile dressing components.
- For complete information regarding dressing removal, please refer to the V.A.C. Therapy Clinical Guidelines.

V.A.C. Therapy

KCI



How supplied

V.A.C. ATS Therapy Unit, V.A.C. Freedom Therapy Unit, InfoV.A.C. Therapy Unit, ActiV.A.C. Therapy Unit; E2402

V.A.C. Via Therapy unit

V.A.C. Dressing kits (small, medium, large, etc.); A6550

Other V.A.C. Dressing kit components; A6550

V.A.C. Canister with or without Isolyser; A6551

Action

V.A.C. Therapy is the controlled application of subatmospheric pressure to a wound using a therapy unit utilizing intermittent, continuous, or dynamic pressure control to convey negative pressure to a specialized wound dressing to help promote formulation of granulation tissue. The wound dressing is a resilient, open-cell foam surface dressing (such as GranuFoam) that assists in granulation tissue formation and is sealed with an adhesive drape. Specially-engineered Therapeutic Regulated Accurate Care (T.R.A.C.) technology enhances patient safety by regulating pressure at the wound site. Specifically, the open cells of the foam enable equal distribution of the negative pressure across the surface of the wound, while tubing transfers accumulated fluids to a specially designed V.A.C. canister.

Indications

The ActiV.A.C., InfoV.A.C., V.A.C. ATS, V.A.C. Freedom, and V.A.C. Via Therapy Systems are integrated wound management systems for use in acute, extended, and home care settings.

They are intended to create an environment that promotes wound healing by secondary or tertiary (delayed primary) intention by preparing the wound bed for closure, reducing edema, promoting granulation tissue formation and perfusion, and by removing exudate and infectious material. They are indicated for patients with chronic, acute, traumatic, subacute, and dehisced wounds, partial-thickness burns, ulcers (such as diabetic, pressure, or venous insufficiency), flaps, and grafts.

The V.A.C. GranuFoam Silver Dressing is an effective barrier to bacterial penetration and may help reduce infection in the above wound types.

Contraindications

- Not for use on direct contact with exposed blood vessels, anastomotic sites, organs, or nerves
- Not for use if there is a malignancy in the wound
- Not for use with untreated osteomyelitis
- Not for use with nonenteric and unexplored fistulas
- Not for use with necrotic tissue with eschar (may be used after debridement of necrotic tissue and complete removal of eschar)
- Not for use on patients with a sensitivity to silver (V.A.C. GranuFoam Silver Dressing only)
- Please refer to V.A.C. Therapy Clinical Guidelines for complete listing of contraindications, warnings, and precautions.

Application

- Never leave a V.A.C. Dressing in place without active V.A.C. Therapy for more than 2 hours. If negative pressure is off for more than 2 hours in a 24-hour period, remove old V.A.C. Dressing and irrigate the wound. Either apply new V.A.C. Dressing from an unopened sterile package and restart V.A.C. Therapy or apply an alternative dressing, such as wet to moist gauze, as approved during times of extreme need by treating clinician.
- Always use a V.A.C. Dressing from an unopened sterile package. V.A.C. Dressing components are disposable and are for single use only. They aren't to be reused.
- Remove and discard previous dressing per institution protocol. Thoroughly inspect wound to ensure all pieces of dressing components have been removed.
- Debride all necrotic, nonviable tissue, including bone, eschar, or hardened slough, as prescribed by the physician.
- Perform thorough wound and periwound area cleaning per physician order or institution protocol prior to each dressing application.
- Ensure adequate hemostasis has been achieved.
- Protect vessels, organs, and nerves by covering them with natural tissues or several layers of fine-meshed, nonadherent dressing that form a complete barrier between the structures and the foam dressing.
- Consult a physician if bone fragments and/or sharp edges are present in the wound area, as these must be eliminated prior to dressing application.
- Clean and dry periwound tissue. Use of a skin preparation product to protect periwound tissue may also improve adhesion and assist with the integrity of the dressing seal.
- Assess wound dimensions and pathology, including the presence of undermining or tunnels.
- Use V.A.C. WhiteFoam Dressing with explored tunnels and undermining. Do not place any foam dressing into blind/unexplored tunnels.
- Cut foam dressing to dimensions that will allow the foam to be placed gently into the wound, but not overlap onto intact skin.
- Do not cut the foam over the wound, as fragments may fall into the wound.
- Gently place foam into wound cavity, ensuring contact with all wound surfaces.
- Do not force foam dressing into any area of the wound.
- Ensure foam-to-foam contact for even distribution of negative pressure.
- Always note the total number of pieces of foam used in the dressing and document on the drape and in the patient's chart.
- Superficial or retention sutures should be covered with a single layer of nonadherent dressing prior to drape placement.
- Trim and place the V.A.C. Drape to cover the foam dressing and an additional 3- to 5-cm border of intact periwound tissue.
- V.A.C. Drape may be cut into multiple pieces or strips for easier handling.
- Choose SensaT.R.A.C./T.R.A.C. Pad application site. Give particular consideration to fluid flow, tubing positioning to allow for optimal drainage, and avoiding placement over bony prominences or within creases in the tissue.
- Pinch the drape, and cut a 2.5-cm hole (not a slit) through the drape. The hole should be large enough to allow for removal of fluid and/or exudate through the SensaT.R.A.C./T.R.A.C. Pad. It's not necessary to cut into the foam.
- Apply SensaT.R.A.C./T.R.A.C. Pad.

- Remove V.A.C. Canister from sterile packaging and insert into the V.A.C. Therapy Unit until it locks into place. If canister is not fully engaged, V.A.C. Therapy Unit will alarm.
- Connect SensaT.R.A.C./T.R.A.C. Pad tubing to canister tubing, and ensure that the clamp on each tube is open. Position clamps away from patient.
- Turn on power to the V.A.C. Therapy Unit, and select the prescribed therapy setting. Refer to the V.A.C. Therapy Clinical Guidelines for specific recommendations.
- Initiate V.A.C. Therapy. Assess dressing to ensure seal integrity. The dressing should be collapsed.
- V.A.C. GranuFoam and V.A.C. GranuFoam Silver Dressings should have a wrinkled appearance. There should be no hissing sounds.
- If there is any evidence of nonintegrity, check SensaT.R.A.C./T.R.A.C. Pad and drape seals, tubing connections, and canister insertion, and ensure that clamps are open. Secure excess tubing to prevent interference with patient mobility.
- If a leak source is identified, patch with additional drape to ensure seal integrity.
- Multiple layers of the V.A.C. Drape may decrease the moisture vapor transmission rate, which may increase the risk of maceration, especially in small wounds, lower extremities, or load-bearing areas.
- For complete application instructions, please refer to the V.A.C. Therapy Clinical Guidelines.

Removal

- V.A.C. Dressings should be changed routinely every 48 to 72 hours but no less than 3 times per week for noninfected wounds, with frequency adjusted by clinician, as appropriate.
- Infected wounds must be monitored often and very closely; for these wounds, dressings may need to be changed more often than 48 to 72 hours; the dressing change intervals should be based on a continuing evaluation of the wound condition and the patient's clinical presentation, rather than a fixed schedule.
- To remove the dressing, raise the tubing connectors above the level of the therapy unit.
- Tighten the clamp on the dressing tubing.
- Separate the canister tubing and dressing tubing by disconnecting the connector.
- Allow the therapy unit to pull the exudate in the canister tubing into the canister. Then tighten the clamp on the canister tubing.
- Press the THERAPY ON/OFF button to deactivate the pump.
- Wait for 15 to 30 seconds to allow for foam to decompress.
- Gently stretch the drape horizontally, and slowly pull up from the skin. Don't peel.
- Gently remove the foam from the wound. ***Note:*** If the dressing adheres to the wound base, consider introducing sterile water or normal saline into the dressing, waiting 15 to 30 minutes, then gently removing the dressing from the wound. Consider placing a single layer, wide-meshed nonadherent material prior to placement of the V.A.C. foam dressing to potentially reduce further adherence, or consider more frequent dressing changes.
- Count the number of foam pieces removed; correlate the count with the number of foam pieces previously placed.
- Thoroughly inspect wound to ensure that all pieces of dressing components have been removed.

- If the patient experiences pain during a dressing change, consider premedication, the use of a nonadherent interpost layer before foam placement, using V.A.C. WhiteFoam to dress the wound, or managing the discomfort as prescribed by the treating physician.
- Discard disposables per facility protocol.
- For complete information on dressing removal, please refer to the V.A.C. Therapy Clinical Guidelines.

SPECIALTY ABSORPTIVES

Action

Specialty absorptives are unitized, multilayered dressings that consist of highly absorptive layers of fibers, such as absorbent cellulose, cotton, or rayon. These dressings may or may not have an adhesive border.

Indications

Specialty absorptive dressings may be used as primary or secondary dressings to manage light to heavy drainage from partial- and full-thickness wounds, infected and noninfected wounds, and red, yellow, or black wounds.

Advantages

- Can be used as secondary dressing over most primary dressings
- Are semiadherent or nonadherent
- Are highly absorptive
- Are easy to apply and remove
- May have an adhesive border, making additional tape unnecessary

Disadvantages

- May not be appropriate as a primary dressing for undermining wounds

HCPCS code overview

The HCPCS codes normally assigned to specialty absorptive wound covers without an adhesive border are:
A6251—pad size <16 in^2
A6252—pad size >16 in^2 but <48 in^2
A6253—pad size >48 in^2

The HCPCS codes normally assigned to specialty absorptive wound covers with an adhesive border are:
A6254—pad size <16 in^2
A6255—pad size >16 in^2 but ≤48 in^2
A6256—pad size >48 in^2

Covaderm Adhesive Wound Dressing

DeRoyal

How supplied

Multilayered pad with fabric tape border: 2½″ × 2½″ with 4″ × 4″ tape, 2½″ × 4″ with 4″ × 6″ tape, 2″ × 5½″ with 4″ × 8″ tape, 2″ × 7½″ with 4″ × 10″ tape; A6254
2″ × 11″ with 4″ × 14″ tape; A6255

Action

Covaderm Adhesive Wound Dressing is an absorbent island dressing with a protective, air-permeable, adhesive fabric tape border for aseptic, one-step application. Rounded edges conform to jointed, curved, or irregular wound areas.

Indications

For use as a primary or secondary dressing to manage surgical incisions, superficial lacerations, and abrasions; may also be used as an all-purpose dressing

Contraindications

- None provided by the manufacturer

Application

- Peel back the edge of the folded release liner.
- Anchor the exposed edge of the tape to the skin, and then peel off the remaining release paper.
- Smooth all the tape edges onto the skin.

Removal

- Carefully lift the edges of the tape, and peel off the dressing.

CURITY Wet-Pruf Abdominal Pads

Covidien

How supplied

Sterile pad: 5″ × 9″, 7½″ × 8″, 8″ × 10″
Nonsterile pad: 5″ × 9″, 7½″ × 8″, 8″ × 10″, 12″ × 16″, 24″ × 8″, 12″ × 8″, 12″ × 10″

Action

CURITY Wet-Pruf Abdominal Pads are a secondary dressing that absorb excess wound fluid and protect the wound by cushioning it.

Indications

To prevent skin breakdown and to manage moderately to heavily exuding wounds; may also be used as part of a decreasing system for virtually any wound requiring fluid retention and cushioning

Contraindications

- Contraindicated for tunneling wounds

Application

- Choose a primary dressing based on wound type and apply it.
- Cover the primary dressing with a CURITY Wet-Pruf Abdominal Pad.
- Secure the abdominal pad with tape, bandage roll, or another appropriate product.

Removal

- Carefully remove the securing product.
- Remove the CURITY Wet-Pruf Abdominal Pad from the primary dressing.

DuPad Abdominal Pads, Open End

Derma Sciences, Inc.

How supplied

Sterile pad: 5″ × 9″, 8″ × 8″, 8″ × 10″, 8″ × 24″
Nonsterile pad: 5″ × 9″, 8″ × 8″, 8″ × 10″, 8″ × 12″, 10″ × 12″, 8″ × 24″, 10″ × 24″, 12″ × 16″, 8″ × 20 yd

Action

These highly absorbent cotton-filled sterile and nonsterile pads provide protection for heavily exuding wounds.

Indications

For use as a secondary dressing for highly exuding wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Dry the periwound skin.
- Apply an appropriate primary dressing.
- Cover the primary dressing with DuPad Abdominal Pad, and secure with tape, gauze roll, or other appropriate dressing.

Removal

- Gently remove all layers.

DuPad Abdominal Pads, Sealed End

Derma Sciences, Inc.

How supplied

Sterile pad: 5″ × 9″, 8″ × 8″, 8″ × 10″
Nonsterile pad: 5″ × 9″, 8″ × 8″, 8″ × 10″

Action

These highly absorbent cotton-filled pads provide cushioning to protect heavily exuding wounds. Sterile and nonsterile pads are available.

Indications

For use as a secondary dressing for highly exuding wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound with PrimaDerm Dermal Cleanser or saline solution. Dry the periwound skin.
- Choose an appropriate primary dressing.
- Cover the dressing with DuPad Abdominal Pad, and secure with tape, gauze roll, or other appropriate dressing.

Removal

- Gently remove all layers.

EXU-DRY

Smith & Nephew, Inc.
Wound Management

How supplied

Specialty dressing: Arm 6″ × 9″, Arm 9″ × 15″, Arm/Shoulder; A6253
Scalp/Face, Elbow/Knee/Heel, Boot/Foot L; A6252
Hand, Boot/Foot M/S; A6251
Neck, Buttocks, Leg, Burn Jacket/Vest; A6253
Slit disk: 3″; A6251
Slit tube: 2″ × 3″, 3″ × 4″; A6251
4″ × 6″; A6252
Disk: 2″, 3″, 3″ × 4″; A6251
4″ × 6″; A6252
6″ × 9″, 9″ × 15″, 15″ × 18″, 15″ × 24″, 20″ × 28″; A6253
Incision dressing: 3″ × 9″; A6252
Nonpermeable pad: 24″ × 36″, 36″ × 72″; A6253
Permeable sheet: 36″ × 72″; A6253
Pediatric specialty dressing: Scalp, Infant/Toddler Vest; A6252
Hand, Foot; A6251
Arm, Leg, Child Vest: 6″ × 9″, 9″ × 15″; A6253
Pad/sheet: 20″ × 28″ Crib Sheet (permeable), 20″ × 28″ Receiving Blanket, 24″ × 36″ Pad (nonpermeable); A6253

Action

EXU-DRY's highly absorptive properties may reduce the need for frequent dressing changes. The dressings are designed to minimize adherence and improve patient comfort. The antishear layer helps to minimize friction and shear. It may be used wet or dry.

Indications

To manage exudate in partial- and full-thickness wounds, such as burns and donor or skin graft sites

Contraindications

- None provided by the manufacturer

Application

- Select a dressing slightly larger than the wound.
- Place the dressing on the wound with the words "Use other side against wound" face up.
- Secure the dressing with gauze, tape, or netting.

Removal

- Remove the gauze, tape, or netting.
- Lift off the dressing.

MPM Woundgard Bordered Gauze Dressing

MPM Medical, Inc.

How supplied

Nonsterile dressing: 4″ × 4″, 6″ × 6″; A6254
6″ × 8″; A6255
Sterile dressing: 2″ × 2″, 4″ × 4″, 5″ × 5″, 6″ × 6″; A6254

Action

MPM Woundgard specialty absorptive dressing protects wound from the outside environment and helps the body maintain a moist healing environment.

Indications

To manage cuts, burns, abrasions, skin tears, pressure ulcers, and leg ulcers

Contraindications

- None provided by the manufacturer

Application

- Clean the wound of dirt, debris, and necrotic tissue, and make sure the peri-wound skin is dry.
- Remove the backing from the dressing, and apply the dressing to the wound.

Removal

- Gently peel the dressing away from the wound.

Multipad Non-Adherent Wound Dressing

DeRoyal

How supplied

Pad: 2″ × 2″, 4″ × 4″; A6251
4″ × 8″; A6252
7½″ × 7½″

Action

Multipad Non-Adherent Wound Dressing is a thick, multilayered, absorbent wound dressing that won't stick to the wound site or damage fragile granulation tissue. It's composed of a highly absorptive nonwoven pad between two wound contact layers.

Indications

To manage pressure ulcers (stages 2 to 4), partial- and full-thickness wounds, donor sites, tunneling wounds, infected and noninfected wounds, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Clean the wound, and then position the dressing over it.
- Secure the dressing with tape, roll gauze, or tubular elastic bandages if using it as a primary dressing.
- If using Multipad as a secondary dressing, apply the primary dressing or filler before securing Multipad to the wound.

Removal

- Remove any secondary dressing.
- Gently lift the dressing from the wound.

Sofsorb Wound Dressing

DeRoyal

How supplied

Pad: 3″ × 3″; A6251
4″ × 6″, 4″ × 6″ with drain slit; A6252
4″ × 9″, 6″ × 9″, 9″ × 15″, 15″ × 18″, 15″ × 24″; A6253

Action

Sofsorb Wound Dressing is a nonadherent, absorbent, multilayered, one-piece dressing used wet or dry to treat various wounds. The nonwoven layer permits passage of wound drainage into the absorbent pad and prevents it from returning. The center layer absorbs drainage. The cellulose layer wicks drainage horizontally along the pad to increase dressing capacity. The air-permeable backing provides strength and integrity.

Indications

For use as a postoperative dressing and as a primary or secondary dressing to manage burns, minor lacerations, abrasions, and heavily draining skin ulcers; may also be used on pressure ulcers (stages 2 to 4), partial- and full-thickness wounds, tunneling wounds, infected and noninfected wounds, wounds with heavy drainage, wounds with serosanguineous or purulent drainage, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Apply the dry dressing with the wound contact layer toward the wound surface.
- Alternatively, soak the dressing with normal saline solution or another topical solution. Squeeze out excess fluid, and then apply the dressing with the wound contact layer toward the wound surface.
- Secure with a stretch net dressing, roll gauze, or tape.

Removal

- Moisten with normal saline solution, if necessary.
- Carefully lift the dressing off the wound.

NEW PRODUCT

XTRASORB Classic

Derma Sciences, Inc.

How supplied

Nonadhesive dressing: 4″ × 5″; A6252
6″ × 9″; A6253

Action

XTRASORB is a flexible, soft, super absorbent dressing designed to manage moderately to heavily exuding wounds for a variety of etiologies. This multilayer dressing consists of a flexible nonadherent layer, a super absorbent polymer-based core, and a blue strike-though protective outer layer. The super absorbent core provides rapid, high-capacity absorption. As wound exudate enters the dressing, the super absorbent polymer binds the exudate and converts it to a gel, which is locked inside the dressing, away from the wound and the periwound skin. A moist interface remains at the wound site, providing an optimal environment conducive for healing.

Indications

XTRASORB is suitable as a primary dressing for partial-thickness wounds, and as a secondary dressing for full-thickness wounds, including pressure ulcers, venous leg ulcers, arterial ulcers, diabetic foot ulcers, postoperative wounds, donor sites, traumatic wounds, laparotomy wounds, fistulas, oncologic wounds, first- and second-degree burns

Contraindications

- Contraindicated for patients with a known hypersensitivity to the product itself or to its components, including the sodium polyacrylate super absorbent polymer.
- Not for use in tunneling wound pockets as the dressing can expand considerably when wound exudates are absorbed.
- Not for use on wounds with little to no exudates, as this may cause drying out of the wound.

Application

- Prior to application of XTRASORB dressing, cleanse the wound as usual with an appropriate wound cleanser or sterile saline, and pat dry the wound edges.
- Choose an XTRASORB dressing size so that the center absorbent core of the dressing overlaps the wound edges by approximately 2 cm. (*Note*: XTRASORB dressing cannot be cut to fit a certain wound size or shape.)
- Apply the white nonadherent side of the dressing onto the wound.
- Secure the dressing by completely covering with a suitable material such as an adhesive film, elastic net retainer dressing, or conforming bandage. Medical adhesive tape should not be used.

Removal

- XTRASORB dressing change frequency will be determined by the level of exudate of the wound. As a rule of thumb, the dressing is optimally changed when the thickness of the dressing has reached ¾″.
- Although the nonadherent layer is designed to prevent the dressing from sticking to the wound bed, if the dressing is difficult to remove, soak with sterile saline or water until it is easily removed.
- Remove the dressing from the wound bed gently. If some of the gel within the dressing is forced through the edges of the dressing and comes into contact with the wound, simply cleanse the gel away from the wound with a normal wound cleanser or sterile saline. The gel is nontoxic.
- Cleanse the wound bed prior to application of a new dressing.

SURGICAL SUPPLIES, MISCELLANEOUS

When the Statistical Analysis Durable Medical Equipment Regional Carrier and the four Durable Medical Equipment Regional Carriers (DMERCs) perform a Coding Verification Review and fail to reach a consensus coding decision, they sometimes assign the product or procedure to a general category. Therefore, various dissimilar products and procedures are usually assigned to this category. These products in this category don't have a universal definition, use guidelines, or have a rate on the DMERC Fee Schedule. Yet, each product listed under this category has an individual action, indication, contraindication, and application and removal process. It remains the clinician's responsibility to understand each product before using it.

When submitting claims for products or procedures in this category, the provider and supplier must check with the payer for the supporting documentation that's required.

HCPCS code overview

The HCPCS code normally assigned to miscellaneous surgical supplies is: A4649—surgical supplies, miscellaneous.

GlucanPro Cream with Oat Beta-Glucan

Brennen Medical, LLC

How supplied

Tube: 25 g (0.9 oz), 85 g (3 oz); A6250

Action

GlucanPro topical burn and wound cream combines oat beta-glucan with a gentle oil-in-water emulsion. GlucanPro Cream may be used in the management of partial-thickness burns; acute and chronic skin injuries; dermatologic disorders; and dry, irritated, and itchy skin. GlucanPro Cream may also aid in the autolytic debridement of wounds with scattered areas of necrosis and slough.

Indications

May be used to aid in the management of superficial abrasions, scrapes, cuts, and lacerations; minor burns and scalds; partial- and full-thickness wounds; and irritations of the skin; may also be used under the supervision of a health care professional for pressure ulcers; venous, diabetic, and arterial ulcers; partial-thickness burns, donor graft sites; and surgical wounds

Contraindications

- For external use only
- Not for use on patients with known allergies to plants such as gum oat or any of the ingredients

Application

- Clean the affected area.
- Apply GlucanPro liberally to the affected area one to three times daily.
- If desired, cover with a nonstick bandage.

Removal

- If applicable, remove secondary dressing and discard.
- Gently clean the wound.
- Repeat application of GlucanPro Cream as needed.

NEW PRODUCT

GlucanPro 3000

Brennen Medical, LLC

How supplied

Jar: 3.5 oz (99 g); 18 oz (510 g)

Action

GlucanPro 3000 is an occlusive, intensive moisture lock cream with oat beta-glucan. GlucanPro 3000 may be used in the management of partial-thickness burns; acute and chronic skin injuries; dermatologic disorders; and dry, irritated, and itchy skin. GlucanPro 3000 may also aid in the autolytic debridement of wounds with scattered areas of necrosis and slough.

Indications

May be used to aid in the management of superficial abrasions, scrapes, cuts, and lacerations; minor burns and scalds; partial- and full-thickness wounds; and irritations of the skin; may also be used under the supervision of a health care professional for pressure ulcers; venous, diabetic, and arterial ulcers; partial-thickness burns, donor graft sites; and surgical wounds

Contraindications

- For external use only
- Not for use on patients with known allergies to plants such as gum oat or any of the ingredients

Application

- Clean the affected area.
- Apply GlucanPro liberally to the affected area one to three times daily.
- If desired, cover with a nonstick bandage.

Removal

- If applicable, remove secondary dressing and discard.
- Gently clean the wound.
- Repeat application of GlucanPro 3000 as needed.

TRANSPARENT FILMS

Action

Transparent films are adhesive, semipermeable, polyurethane membrane dressings that vary in thickness and size. They're waterproof and impermeable to bacteria and contaminants, yet they permit water vapor to cross the barrier. These dressings maintain a moist healing environment, promoting formation of granulation tissue and autolysis of necrotic tissue.

Indications

Transparent films may be used as a primary or secondary dressing to prevent and manage stage 1 pressure ulcers, partial-thickness wounds with little or no exudate, and wounds with necrotic tissue or slough.

Advantages

- Retain moisture
- Are impermeable to bacteria and other contaminants
- Facilitate autolytic debridement
- Allow wound observation
- Do not require a secondary dressing

Disadvantages

- May not be recommended for infected wounds
- Not recommended for wounds with moderate to heavy drainage because they don't absorb
- Not recommended for use on fragile skin
- Require a border of intact skin for adhesive edge of dressing
- May be difficult to apply and handle
- May dislodge in high-friction areas

HCPCS code overview

The HCPCS codes normally assigned to transparent film dressings are:
A6257—pad size <16 in^2
A6258—pad size >16 in^2 but ≤48 in^2
A6259—pad size >48 in^2

DermaView

DermaRite Industries, LLC

How supplied

Film: 2″ × 3″; A6257
4″ × 5″; A6258

Action

DermaView is a semiocclusive bacterial and viral barrier that protects skin from urine and fecal breakdown. This semipermeable dressing maintains a moist healing environment.

Indications

May be used as a primary or secondary dressing, to secure other dressings, or for necrotic wounds that need autolytic debridement.

Contraindications

- Contraindicated for infected areas
- Contraindicated for patients with deep systemic infections
- Contraindicated for full-thickness wounds involving muscle, tendon, or bone

Application

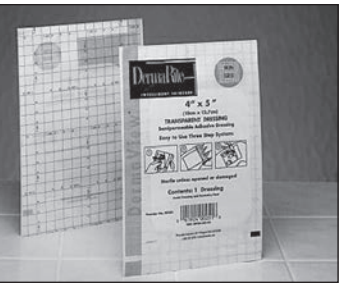
- Clean the wound area.
- Consulting the dressing instructions, peel off area surface labeled no. 1.
- Position the dressing over the wound, and press it down gently around the wound's perimeter.
- Pull out tab no. 2 and discard it. Peel back tab no. 3.
- Smooth the dressing out firmly from the center toward the edges.

Removal

- Lift and slowly stretch one corner of the dressing in the direction of the hair growth.
- Continue stretching or pulling around the perimeter of the dressing, and then remove remaining film.

DermaView II

DermaRite Industries, LLC



How supplied

Dressing: 2″ × 3″; A6257
4″ × 5″; A6258

Action

DermaView II is a transparent, semipermeable dressing with an ultrathin conformable film, coated with hypoallergenic adhesive and laminated between two protective silicon release papers. A properly applied dressing is impermeable to bacteria and liquids but offers excellent moisture vapor permeability properties.

Indications

May be used as a primary or secondary dressing, to secure other dressings, or for necrotic wounds that need autolytic debridement.

Contraindications

- Contraindicated as a primary dressing on heavily draining wounds
- Not intended to replace wound closures
- Contraindicated for infected wounds

Application

- Clean the wound area with DermaKlenz wound cleaner or Safe Wash saline.
- Consulting the dressing instructions, remove the primary adhesive liner from the film adhesive.
- Place the dressing over the wound site. Use the notch in the frame to place over the catheter hub when using for I.V.
- Smooth the dressing in place using firm, but gentle pressure.
- Carefully remove the paper frame from the perimeter of the film dressing. Secure any loose edges, if necessary.

Removal

- Carefully loosen the perimeter of the film dressing.
- Holding down one edge of the film, gently pull the opposite edge to break the adhesive bond.

Mepore Film Transparent Film Dressing

Mölnlycke Health Care

How supplied

Dressing: 2.4″ × 2.6″; A6257
4″ × 5″, 4″ × 10″; A6258
6″ × 8.5″; A6259

Action

Mepore Film is a breathable, transparent self-adhesive film dressing that conforms easily to body contours, helps protect the wound surface, and provides a barrier to leakage and bacterial contamination. Mepore Film helps maintain a moist wound environment, and the adhesive is gentle to the skin and wound site.

Indications

Designed for a wide range of clean wounds in the granulation phase, such as superficial burns, I.V. sites, abrasions, lacerations, superficial pressure ulcers, closed surgical wounds, and donor sites with low exudate levels, as well as for prevention of skin breakdown.

Contraindications

- Not for use on full-thickness wounds involving muscle, tendon, or bone
- Not for use on third-degree burns

Application

- Clean the wound area. Make sure that the surrounding skin is dry.
- Choose the correct dressing size to overlap dry skin by at least $^{3}/_{8}$″ (1 cm).
- For sizes 4″ × 10″ and 6″ × 8.5″ only: Remove center cutout paper and discard.
- Remove the protective backing to expose the adhesive.
- Position the dressing, and smooth it onto the skin.
- Remove the paper frame and the two white paper side tabs.

Removal

- The dressing may be left in place for up to 7 days, depending on the condition of the wound and surrounding skin.

OPSITE
OPSITE FLEXIGRID
OPSITE FLEXIFIX

Smith & Nephew, Inc.
Wound Management

How supplied

OPSITE

Film: 5½″ × 4″, 11″ × 4″; A6258
5½″ × 10″, 11″ × 6″, 11″ × 11¾″,
11″ × 17¾″, 17¾″ × 2⅝″; A6259

OPSITE FLEXIGRID

Film: 2⅜″ × 2½″; A6257
4″ × 4¾″, 6″ × 8″, 4¾″ × 10″; A6258

OPSITE FLEXIFIX

Film: 2″ × 11 yd, 4″ × 11 yd; A6257

Action

OPSITE consists of a polyurethane membrane that creates a moist environment by trapping the wound exudate. It's waterproof and aids in preventing bacterial contamination. OPSITE FLEXIGRID dressings provide a unique wound measurement grid that can be written on to record the change in wound size. OPSITE FLEXIFIX is easily applied to awkward areas of the body and over dressings and tubes. The film is highly conformable and extensible to increase patient comfort.

Indications

To protect skin from friction and for use as secondary dressings to secure foams, alginates, and gauzes while protecting the wound.

Contraindications

- None provided by the manufacturer.

Application

- Remove the backing from the dressing to expose the adhesive surface.
- Place the dressing gently over the wound, allowing the film to cover at least 1″ (2.5 cm) of undamaged skin around the wound.
- If using OPSITE FLEXIGRID, remove the flexible plastic grid.

Removal

- Lift a corner of the dressing, and begin stretching it horizontally along the skin surface, breaking the adhesive bond.
- Continue stretching from the edges toward the center. When two sides of the dressing are partially removed, grasp both sides and stretch horizontally, parallel to the skin, until the entire dressing can be removed.

Polyskin II Transparent Dressing

Covidien

How supplied

Sterile film sheet: 1½″ × 1½″, 2″ × 2¾″; A6257
4″ × 4¾″, 4″ × 8″, 6″ × 8″; A6258
8″ × 10″; A6259

Action

Polyskin II Transparent Dressing supports autolytic debridement of wounds by maintaining a moist healing environment and acting as a barrier against bacteria.

Indications

To manage partial-thickness wounds or dry necrotic wounds that require debridement and to prevent skin breakdown; may be used to dress I.V. sites, donor sites, ulcers, and surgical sites; may also be used to help manage pressure ulcers (stages 1 and 2), noninfected wounds, and wounds with minimal drainage.

Contraindications

- Contraindicated for exuding wounds, friable skin around wounds, and wounds with sinus tracts.

Application

- Check that the wound has a margin of intact skin to ensure successful application.
- Peel tab no. 1 from the backing of the dressing to expose the adhesive surface.
- Apply the dressing to the wound, and smooth it into place.
- Remove tab no. 2.

Removal

- Change the dressing per protocol or per physician's orders.
- Lift and slowly pull the dressing in the direction of hair growth.
- Alternatively, affix a small piece of surgical tape to the edge of the dressing, and peel back.

Suresite Transparent Film

Medline Industries, Inc.

How supplied

Film: 1.52″ × 1.52″ 1*2*3 style, 2″ × 3″, 2¾″ × 2³/₈″ window style, 2¾″ × 2³/₈″ 1*2*3 style; A6257
4″ × 4.5″, 4″ × 4.5″ matrix style, 4″ × 4.5″ window style, 4″ × 4.5″ 1*2*3 style, 6″ × 8″ matrix style, 6″ × 8″ 1*2*3 style, 4″ × 10″ 1*2*3 style; A6258
8″ × 12″ 1*2*3 style; A6259

Action

Suresite is a sterile, hypoallergenic film dressing that acts as a barrier to bacteria and water while creating a moist healing environment. It's permeable to oxygen and vapor.

Indications

To manage peripheral and central I.V. catheter sites and minor abrasions and skin tears, and to help prevent skin breakdown; may also be used for pressure ulcers (stages 1 and 2), partial-thickness wounds, noninfected wounds, and wounds with minimal drainage.

Contraindications

- Contraindicated for use as a primary dressing on moderately to heavily draining wounds.

Application

- Clean the wound with normal saline solution or another appropriate cleanser, such as Skintegrity Wound Cleanser. Dry the surrounding area. Allow any skin preparation to dry completely.
- Remove the backing paper from the dressing, exposing the adhesive.
- Gently place the dressing over the wound and apply it, leaving at least 1¼″ to 1½″ (3 to 4 cm) of healthy periwound skin.
- Remove the flexible plastic grid, paper window frame, or top paper carrier, if applicable.

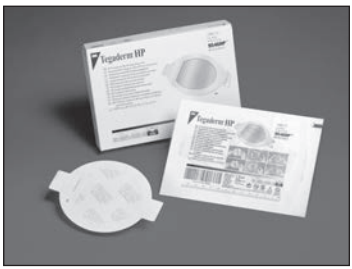
Removal

- Suresite can be worn during showering to protect the wound or the I.V. hub. If exudate accumulates under the dressing, change the dressing immediately.
- Lift a corner of the dressing, and begin stretching it horizontally along the skin surface. When two sides are partially removed, grasp both sides, and stretch parallel to the skin.

3M Tegaderm HP Transparent Film Dressing

3M Tegaderm Transparent Film Dressing

3M Health Care



How supplied

3M Tegaderm HP Transparent Film Dressing

Film sheet:	$2^3/_8'' \times 2^3/_4''$; A6257
	$4'' \times 4^3/_4''$; A6258
Film sheet (sacral):	$4^1/_2'' \times 4^3/_4''$; A6258
Oval:	$2^1/_8'' \times 2^1/_2''$; A6257
	$4'' \times 4^1/_2''$, $5^1/_2'' \times 6^1/_2''$; A6258

3M Tegaderm Transparent Film Dressing

Frame style:	$1^3/_4'' \times 1^3/_4''$, $2^3/_8'' \times 2^3/_4''$; A6257
	$4'' \times 4^3/_4''$, $4'' \times 10''$, $6'' \times 8''$; A6258
	$8''$ x $12''$; A6259
Frame style with border:	$2^3/_8'' \times 2^3/_4''$; A6257
	$4'' \times 4^3/_4''$; A6258
Frame style (oval):	$4'' \times 4^1/_2''$; A6258
First aid style:	$2^3/_8'' \times 2^3/_4''$; A6257
	$4'' \times 4\ ^3/_4''$; A6258

Action

3M Tegaderm Transparent Film Dressing consists of a thin film backing with a hypoallergenic adhesive. The dressing is breathable, allowing good oxygen and moisture vapor exchange. It's waterproof and impermeable to liquids, bacteria, and viruses. An intact dressing protects the site from outside contamination.

Indications

To cover and protect catheter sites and wounds, to maintain a moist environment for wound healing or to facilitate autolytic debridement, as a secondary dressing, as a protective cover over at-risk skin, to secure devices to the skin, to cover first- and second-degree burns, and as a protective eye covering.

Contraindications

- May be used on infected site only when under the care of a health care professional
- Not intended to replace sutures or other primary wound closure methods

Application

- Peel the liner from the dressing, exposing the adhesive surface.
- Center the dressing over the catheter site or wound.
- Press the transparent portion of the dressing into place.
- While slowly peeling off the paper frame, smooth down the dressing edges with fingertips.

Removal

Low and Slow

- Gently grasp an edge, and slowly peel the dressing from the skin in the direction of hair growth. Avoid skin trauma by peeling the dressing back, rather than pulling it up from the skin.

OR

Stretch and Release

- Grasp one edge of the dressing, and gently pull it straight out to stretch it and release the adhesion. A medical solvent can also facilitate removal.
- If the dressing adheres to the wound surface where epithelialization has taken place, gently soak it off.

Transeal Transparent Wound Dressing

DeRoyal

How supplied

Film: 1¾″ × 1¾″, 2 ½″ × 2¾″; A6257
4″ × 4¾″, 4″ × 10″, 6″ × 8″; A6258
8″ × 12″; A6259

Action

Transeal is a transparent, breathable polyurethane wound dressing coated with an acrylic, pressure-sensitive adhesive that acts as a second skin. Transeal has the highest vapor transmission rate available, yet it's impermeable to external contaminants, such as water, dirt, debris, and bacteria.

Indications

To prevent skin breakdown and to manage pressure ulcers (stages 1 to 4), partial- and full-thickness wounds, tunneling wounds, donor sites, I.V. sites, first- and second-degree burns, acute wounds, infected and noninfected wounds, draining wounds, and red, yellow, or black wounds; may be used as a primary or secondary dressing depending on wound type.

Contraindications

- Contraindicated as a primary dressing for heavily draining wounds

Application

- Clean and thoroughly dry the wound and surrounding skin.
- Peel off the backing layer of the dressing to expose the adhesive side of the dressing.
- Position the dressing over the wound, and press it gently into place.
- Peel off the clear carrier film to leave the dressing in place.

Removal

- Remove the dressing by gently peeling away in the direction of hair growth.

WOUND FILLERS

Action

Wound fillers are available as pastes, granules, powders, beads, and gels that provide a moist healing environment, absorb exudate, and help debride the wound bed by softening the necrotic tissue.

Indications

Wound fillers may be used as primary dressings to manage partial- and full-thickness wounds, minimally to moderately exuding wounds, infected and noninfected wounds, and wounds requiring packing to fill dead space.

Advantages

- May be absorbent
- Promote autolytic debridement
- Are easy to apply and remove
- May be used with other products
- Fill dead space

Disadvantages

- Most not recommended for use in wounds with little or no exudate
- Require secondary dressing

HCPCS code overview

The HCPCS codes normally assigned to wound fillers not elsewhere classified are:
A6261—paste, per fluid ounce
A6262—dry form, per gram

FlexiGel Strands Absorbent Wound Dressing

Smith & Nephew, Inc.
Wound Management

How supplied

Packet: 6 g; A6262

Action

FlexiGel Strands Absorbent Wound Dressing is a sterile, single-use bundle of absorbent matrix for use in moist wound dressing applications. The synthetic matrix absorbs excess exudate fluid, swells to conform to the wound contours, and entraps slough and necrotic debris within its strands to assist in debridement. FlexiGel Strands dressing is flexible, pliable, and nonadherent to aid in comfort.

Indications

For use as an external wound dressing, for the management of exudate from chronic wounds such as ulcers (venous, arterial, diabetic); pressure sores; donor sites; surgical incisions and excisions; lacerations; and burns (first- and second-degree)

Contraindications

- Not for use if wound gets larger or shows signs of irritation (reddening, inflammation), maceration (overhydration of skin), hypergranulation (excess tissue), or sensitivity (allergic reactions); in this event, a health care professional should be contacted
- Contraindicated if package is open or damaged before use
- For single-use only; shouldn't be reused (FlexiGel Strands should be removed during the dressing change and at the end of treatment)
- Contraindicated on third-degree burns

Application

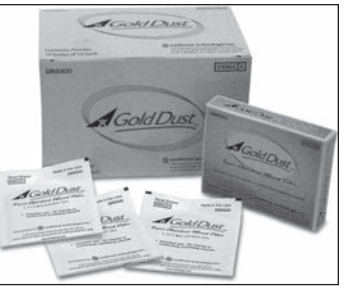
- Cleanse wound.
- Apply a skin preparation to the periwound skin.
- Apply FlexiGel Strands.
- Apply a secondary dressing such as CovRSite or roll gauze (for venous leg ulcers, apply a compression wrap).
- Dressing may be cut at the middle connecting band to accommodate wounds of various volume. FlexiGel Strands expands as it absorbs. Apply to fill half of the wound cavity. Don't pack.

Removal

- Change once a day or when secondary dressing reveals wound drainage.

Gold Dust

Southwest Technologies, Inc.



How supplied

Packet: 3 g

Action

Gold Dust is a highly absorbent hydrophilic polymer capable of absorbing 100 times its own weight and retaining the exudate in the matrix, even under high pressures. Therefore, when used as a wound dressing, Gold Dust protects the wound and the surrounding periwound area from maceration and degradation. Once the granules interact with wound exudate, the powder turns into a gel.

Indications

To manage heavy drainage

Contraindications

- Not for use on wounds without drainage

Application

- Wet the tissue with a small amount of water or saline solution, or add a thin layer of high-water-content amorphous hydrogel. It's recommended that Gold Dust be covered with a nonadherent dressing, such as Elastro-Gel wound dressing.
- In some cases, Gold Dust must be removed, especially for patients with low tolerance for pain.
- Gold Dust may be used as dry granules on highly exuding wounds, but the wounds must be monitored for the potential of overdrying of the tissue.
- When managing moderate- to low-exuding wounds, premoisten Gold Dust granules to form a gel, to avoid overdrying the tissue.
- Because of the high absorption capacity of the product, even Gold Dust as a premoistened gel can cause a burning or stinging sensation for the patient.

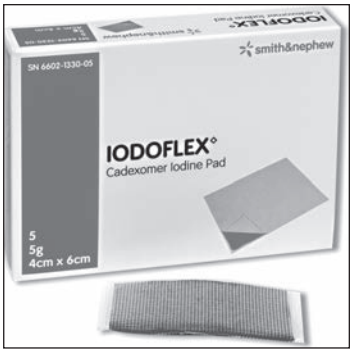
Removal

- Product doesn't have to be changed daily.
- Gold Dust may be flushed using saline solution or an irrigation system.

IODOFLEX

0.9% Cadexomer Iodine Pad

Smith & Nephew, Inc.
Wound Management



How supplied

Sterile pad: 5 g (1½″ × 2³/₈″), 10 g (2³/₈″ × 3″); A6262

Action

IODOFLEX is an antimicrobial pad with the benefits of 0.9% Cadexomer Iodine. Its unique smart-release formulation provides a slow, sustained release of iodine while absorbing slough, debris, and exudate from the wound bed. IODOFLEX delivers sustained, broad-spectrum antimicrobial activity for up to 72 hours. The pliable dressing allows easy shaping to fit wound contours.

Indications

For use in cleaning wet ulcers and wounds such as venous stasis ulcers, pressure sores, and infected traumatic and surgical wounds

Contraindications

- Contraindicated in patients with a sensitivity to iodine
- Contraindicated in patients with Hashimoto's thyroiditis, Graves' disease, or nontoxic nodular goiter; only for cautious use in patients with a history of thyroid disorder, who are more susceptible to a change in thyroid metabolism with long-term use
- Contraindicated in pregnant or breast-feeding patients
- Contraindicated for internal use and use in eyes

Application

- Clean the wound and surrounding area with either a gentle stream of sterile water or saline. Gently blot any excess fluid, leaving the wound surface slightly moist.
- With gloved hand, remove carrier gauze on one or both sides of the IODOFLEX Pad. Place the pad in contact with the wound surface.
- Cover the wound with dry sterile gauze or dressing of choice. Apply compression bandaging where appropriate.

Removal

- Change IODOFLEX three times a week or when all the IODOFLEX has changed from brown to a yellow/gray.
- If necessary, soak the gauze for a few minutes, then remove.
- Remove IODOFLEX with sterile water or saline.
- Gently blot any excess fluid, leaving the wound surface slightly moist, before reapplying IODOFLEX. The number of applications should be reduced as the exudate diminishes.

IODOSORB

0.9% Cadexomer Iodine Gel

Smith & Nephew, Inc.
Wound Management

How supplied

Sterile tube: 40 g; A6261

Action

IODOSORB is an antimicrobial gel with the benefits of 0.9% Cadexomer Iodine. Its unique smart-release formulation provides a slow, sustained release of iodine while absorbing slough, debris, and exudate from the wound bed. IODOSORB delivers sustained, broad-spectrum antimicrobial activity for up to 72 hours.

Indications

For use in cleaning wet ulcers and wounds such as venous stasis ulcers, pressure sores, and infected traumatic and surgical wounds

Contraindications

- Contraindicated in patients with a sensitivity to iodine
- Contraindicated in patients with Hashimoto's thyroiditis, Graves' disease, or nontoxic nodular goiter; only for cautious use in patients with a history of thyroid disorder, who are more susceptible to a change in thyroid metabolism with long-term use
- Contraindicated in pregnant or breast-feeding patients
- Contraindicated for internal use and use in eyes

Application

- Clean the wound and surrounding area with either a gentle stream of sterile water or saline. Don't dry surface.
- Apply ⅛″ to ¼″ thickness (0.3 to 0.5 cm) IODOSORB Gel onto dry gauze, sufficient to cover all parts of the wound. Larger amounts are unnecessary though not problematic.
- With gloved hands, position the prepared gauze onto the wound.
- A single application shouldn't exceed 1.8 oz (50 g) gel, and the total amount used in 1 week shouldn't exceed 5.3 oz (150 g).

Removal

- Change IODOSORB three times a week or when all the IODOSORB has changed from brown to a yellow/gray.
- Remove IODOSORB with either a gentle stream of sterile water or saline, using a sterile wet swab if necessary.
- Gently blot any excess fluid, leaving the wound surface slightly moist, before reapplying IODOSORB.

Multidex Maltodextrin Wound Dressing Gel or Powder

DeRoyal

How supplied

Powder: 6-g tube, 12-g tube, 25-g tube, 45-g tube; A6262
Gel: ¼ fl oz tube, ½ fl oz tube, 3 fl oz tube

Action

Multidex Maltodextrin Wound Dressing establishes and maintains a moist environment for tissue granulation by mixing with wound exudate, thus controlling dehydration, drainage, and odor.

Indications

To be used as a primary or secondary dressing to manage pressure ulcers (stages 2 to 4), venous stasis ulcers, diabetic ulcers, neuropathic ulcers, and poorly healing wounds; may also be used on tunneling wounds, partial- and full-thickness wounds, infected and noninfected wounds, wounds with heavy or purulent drainage, and red, yellow, or black wounds

Contraindications

- None provided by the manufacturer

Application

- Irrigate the wound with normal saline solution.
- Apply the dressing over the entire wound to a minimum thickness of 1⅛″ to 1¼″ (0.3 to 0.5 cm). For deep wounds, fill to the skin surface.
- Cover with a nonadherent dressing.

Removal

- Remove the secondary dressing.
- Irrigate the wound with normal saline solution. Any remaining dressing may be left in the wound.

OTHER PRODUCTS

This category comprises a wide variety of products used to facilitate skin and wound management. Each entry details the products:

- action
- indications
- contraindications
- application
- removal.

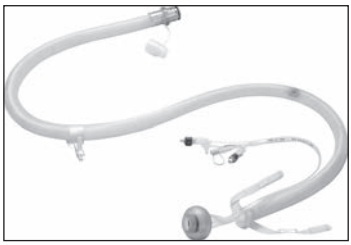
Please refer to each product listing for further information about these products.

In this section, the manufacturer has either received an HCPCS code or hasn't yet received or applied for a code. It's the clinician's responsibility to verify coding of each product with the product's manufacturer.

NEW PRODUCT

ActiFlo Indwelling Bowel Catheter System

Hollister Incorporated



How supplied

Catheter kit: Contains catheter, collection bag, irrigation bag, syringe, lubricant and instructions
Disposable collection bag: 2,000 mL capacity
Drainable collection bag: 3,000 mL capacity
Irrigation bag

Action

The ActiFlo System is the only bowel catheter system that provides access for rectal medication delivery and retention in addition to effectively managing fecal incontinence. This system combines a collapse-resistant cylinder, a low-pressure retention cuff, and a sampling/tube flushing port. The catheter connects securely to the disposable or drainable odor-barrier collection bags.

Indications

For diversion of fecal matter to minimize external contact with the patient's skin, to facilitate the collection of fecal matter for patients requiring stool management, to provide access for colonic irrigation, and to administer enema/medications

Contraindications

- Not for use in patients allergic to the materials used in this device
- Not for use if the patient's distal rectum can't accommodate the inflated volume of the retention cuff or if the distal rectum-anal canal is severely strictured
- Not for use in patients with impacted stool
- Not for use in patients with a recent (less than 6 weeks old) rectal anastomosis or anal or sphincter reconstruction
- Not for use in patients with compromised rectal wall integrity

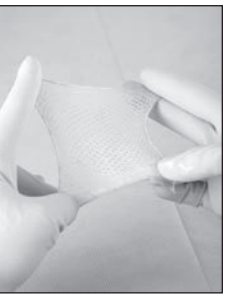
Application

- Caution: Before using the ActiFlo Indwelling Bowel Catheter System, read the entire ActiFlo Indwelling Bowel Catheter System Instructions for Use package insert supplied with the product. Read all other package inserts and labels supplied with the product and accessories.
- Federal law restricts this device for sale by or on the order of a physician or other healthcare practitioner licensed under state law to order this product.

NEW PRODUCT

AlloSkin

Allosource



How supplied

Skin substitute: 25 cm^2, 80 cm^2, 120 cm^2; Q4115
Trunk, arms, legs (includes ankle): CPT 15271-15274
CPT 15271: first 25 cm^2
CPT 15272: each additional 25 cm^2 up to maximum 100 cm^2 area or 1% body area of infants/children
CPT 15273: first 100 cm^2 or 1% of body area of infants/children
CPT 15724: each additional 100 cm^2 or 1% of body area
Face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits: CPT 15275-15278
CPT 15275: first 25 cm^2
CPT 15276: each additional 25 cm^2 up to maximum 100 cm^2 area or 1% body area of infants/children
CPT 15277: first 100 cm^2 or 1% of body area of infants/children
CPT 15278: each additional 100 cm^2 or 1% of body area

Action

Scientific literature consistently lists these potential benefits of skin allograft use on chronic wounds: Minimizes infection and keeps the wound bed mechanically clean; acts as a bacterial barrier; decreases loss of protein, water and electrolyte; reduces pain; decreases incidence of contractures; may provide a "dose pack" of growth factors to wound bed; prevents desiccation of bone and tendon; stimulates re-epithelialization and wound neovascularization

(Snyder, R. J. (2005). Treatment of nonhealing ulcers with allografts. *Clinics in Dermatology, 23*, 388–395; Spence, R. J., and Wong, Leslie. (1997). The Enhancement of Wound Healing with Human Skin Allograft. *Surgical Clinics of North America, 77*: 3, 731–745).

Indications

As a homologous-use allograft (FDA 21 CFR 1271), AlloSkin may be used to repair any integumental defect, such as those caused by ulcers and burns, and is appropriate for use over exposed substructures such as bone, tendon, ligament, and muscle.

Contraindications

- Contraindicated for use in a grossly infected wound

Application

- Apply AlloSkin to a clean, properly prepared wound bed.
- Thaw inner AlloSkin package in sterile solution for at least 1 minute; remove product from inner package, remove gauze backing, and rinse once with sterile water or saline.

- Apply AlloSkin to wound dermal (shiny) side down. Stretch so graft has contact with all wound contours and trim excess graft to fit wound.
- Anchor graft as appropriate (can staple, suture, steri-strip, or tack with silicone dressing) and dress graft as appropriate for amount of exudate and location of wound. Almost any dressing is appropriate for use over AlloSkin graft, including silver dressings and foams. May use in conjunction with VAC and HBO therapy.

Removal

- Evaluate healing progress after 7 days and manage wound exudate as needed.
- If necessary, trim any dry nonadhered edges of the existing graft, then clean the wound surface.
- Remove new AlloSkin graft if required to achieve wound closure.

NEW PRODUCT

AlloSkin RT (room temperature)

AlloSource

How supplied

Skin substitute: 25 cm^2, 80 cm^2; Q4123
Trunk, arms, legs (includes ankle): CPT 15271-15274
CPT 15271: first 25 cm^2
CPT 15272: each additional 25 cm^2 up to maximum 100 cm^2 area or 1% body area of infants/children
CPT 15273: first 100 cm^2 or 1% of body area of infants/children
CPT 15724: each additional 100 cm^2 or 1% of body area
Face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits: CPT 15275-15278
CPT 15275: first 25 cm^2
CPT 15276: each additional 25 cm^2 up to maximum 100 cm^2 area or 1% body area of infants/children
CPT 15277: first 100 cm^2 or 1% of body area of infants/children
CPT 15278: each additional 100 cm^2 or 1% of body area

Action

Scientific literature consistently lists these potential benefits of skin allograft use on chronic wounds: Minimizes infection and keeps the wound bed mechanically clean; acts as a bacterial barrier; decreases loss of protein, water, and electrolyte; reduces pain; decreases incidence of contractures; may provide a "dose pack" of growth factors to wound bed; prevents desiccation of bone and tendon; stimulates re-epithelialization and wound neovascularization.

(Snyder, R. J. (2005). Treatment of nonhealing ulcers with allografts. *Clinics in Dermatology, 23*, 388–395; Spence, R. J., and Wong, Leslie. (1997). The Enhancement of Wound Healing with Human Skin Allograft. *Surgical Clinics of North America, 77*: 3, 731–745).

Indications

As a homologous-use allograft (FDA 21 CFR 1271), AlloSkin may be used to repair any integumental defect, such as those caused by ulcers and burns, and is appropriate for use over exposed substructures, such as bone, tendon, ligament, and muscle. Sterile tissue; should be stored at room temperature.

Contraindications

- Contraindicated for use in a grossly infected wound

Application

- Apply AlloSkin to a clean, properly prepared wound bed.
- Thaw inner AlloSkin package in sterile solution for at least 1 minute; remove product from inner package, remove gauze backing, and rinse once with sterile water or saline.
- Apply AlloSkin to wound dermal (shiny) side down. Stretch so graft has contact with all wound contours and trim excess graft to fit wound.

- Anchor graft as appropriate (can staple, suture, steri-strip, or tack with silicone dressing), and dress graft as appropriate for amount of exudate and location of wound. Almost any dressing is appropriate for use over AlloSkin graft, including silver dressings and foams. May use in conjunction with VAC and HBO therapy.

Removal

- Evaluate healing progress after 7 days, and manage wound exudate as needed.
- Reapply new AlloSkin graft if required to achieve wound closure.

NEW PRODUCT

AutoloGel Wound Dressing System

Cytomedix, Inc.

How supplied

Wound Dressing Kit AGSW-02: Case of 10
Reagent Kit AGSR-03: Case of 10
Combination Kit of AGSW-02 and AGSR-03: Case of 10
AutoloGel System Centrifuge II

Action

The AutoloGel Wound Dressing System utilizes the patient's own blood to form platelet-rich plasma (PRP) gel to access growth factors, cytokines, and chemokines in the platelets for cell migration and formation of new tissue, the fibrin matrix from the plasma for tissue scaffolding, and albumin and ascorbic acid to clean the wound bed of damaging proteases, free radicals, and neutrophils. The mechanism of action for PRP is presumed to be the molecular and cellular induction of wound-healing responses. A small blood sample is spun in a proprietary leased centrifuge, PRP is drawn into a mixing syringe, calcified thrombin and ascorbic acid added in a fixed ratio, and resulting Gel placed in the prepared wound bed. This processing occurs at the patient's point-of-care, and takes less than 5 minutes.

Indications

The AutoloGel System is the only FDA-cleared system for use at point-of-care for the safe and rapid preparation of PRP; suitable for exuding wounds, such as leg ulcers, pressure ulcers, and diabetic ulcers and for mechanically and surgically debrided wounds; may be used on all types of wounds including surgical, diabetic, pressure, arterial, venous, and trauma wounds

Contraindications

- Malignancy in the wound bed, slough or necrotic tissue covering more than 75% of the wound bed, allergy to bovine products, active untreated infection.

Application

- Protect periwound with moisture barrier.
- Apply the Gel to the prepared wound bed, and into undermining, sinus tracts, and tunnels.
- Place a nonadherent contact layer on the Gel to help hold the Gel in the wound bed.
- Cover with clear nonabsorbent semiocclusive dressing, such as a transparent film, as a primary dressing, then cover with an absorbent layer as a secondary dressing. The absorbent layer can be changed as often as needed until primary layer requires removal.
- Leave primary dressing and Gel in place for 24 to 48 hours.
- Application can be done up to twice per week. Use standard moist wound healing principles between applications.

Removal

- Use standard methods for removal of primary dressing. Remove contact layer, cleanse wound and periwound.

NEW PRODUCT

Drawtex

SteadMed Medical

How supplied

Hydroconductive dressings with LevaFiber:

2″ × 2″; A6196
3″ × 3″; A6196
4″ × 4″; A6196
6″ × 8″; A6197
8″ × 8″; A6198

Hydroconductive rolls with LevaFiber:

3″ × 39″; A6199
4″ × 39″; A6199
8″ × 39″; A6199

Action

Drawtex is a hydroconductive, nonadherent wound dressing with Leva*Fiber* technology. Leva*Fiber* technology is a combination of two types of absorbent, cross-action structure that creates the ability to move large volumes of fluid and other debris from the wound through the dressing.

Indications

Indicated for a variety of wounds, including venous leg ulcers, diabetic foot ulcers, pressure ulcers, burn wounds, dehisced surgical wounds, and difficult-to-heal wounds (mixed etiology leg ulcers, necrotizing fasciitis, chronic wounds with slough, clinically infected wounds, fungating cancer wounds, Buruli ulcers)

Contraindications

- Cannot be used on arterial blood clots

Application

- Apply dressing appropriate to the size of the wound bed. Stack dressing if necessary. Cover with appropriate secondary dressing.

Removal

- Gently lift the dressing away from the wound.
- Clean the wound with saline solution or wound cleanser.

E-Z Derm Porcine Xenograft

Brennen Medical, LLC

How supplied

Patch, perforated or non-perforated:
2″ × 2″, 3″ × 4″; CPT 15400-15421
Roll, perforated or non-perforated:
3″ × 48″, 3″ × 24″,
3″ × 12″; CPT 15400-15421
Sheet, perforated or non-perforated:
7″ × 18″; CPT 15400-15421

Action

E-Z Derm protects partial-thickness wound beds from bacteria during proliferation and migration of the epithelial cells from the wound margins or skin appendages.

Indications

For temporary protective coverage of partial-thickness wounds, such as burns, ulcers, donor sites and as an autograft test graft for full-thickness wounds

Contraindications

- Contraindicated on patients with multiple or serum allergies
- Contraindicated over large areas of adherent eschar

Application

- Apply E-Z Derm to partial-thickness wounds as soon as possible after the injury occurs. Delay allows for wound bed drying or crusting, which retards epithelial regeneration.
- Thoroughly clean the wound and remove all debris and necrotic tissue. Even small amounts of resident bacteria or excessive fluid loss may prevent E-Z Derm from adhering.
- Sterilely remove E-Z Derm from its package. Apply either side of the E-Z Derm to the wound.
- Wrap with light gauze or tubular net dressing.
- Monitor for 24 hours, then inspect every 12 to 24 hours to detect any purulent accumulations under the skin. If a rash unrelated to other therapy or systemic antibiotic therapy occurs, discontinue use of E-Z Derm.
- If E-Z Derm doesn't adhere, thoroughly clean the wound and reapply new E-Z Derm. If E-Z Derm hasn't begun to adhere after 48 hours or four to five changes, take wound cultures to monitor wound status. Use an appropriate antibiotic to eradicate any gram-negative bacteria. Failure to adhere usually indicates original misdiagnosis of wound depth or bacterial proliferation.

Removal

- As epithelium regenerates, E-Z Derm sloughs from the injured area.
- Areas of dry, nonadherent E-Z Derm indicate subsurface healing and should be trimmed away.

Flexi-Seal Fecal Management System*

ConvaTec

How supplied

Flexi-Seal FMS Kit: 1 kit or box
Flexi-Seal FMS Replacement Collection Bags: 10/box

Action

The Flexi-Seal FMS contains 1 soft silicone catheter tube assembly, 1 syringe, and 3 collection bags. The soft silicone catheter is inserted into the rectum for fecal management, to contain and divert fecal waste to protect the patient's skin and keep the bedding clean. There is a low-pressure retention balloon at one end and a connector for attaching the collection bag at the other end.

Indications

For the fecal management of patients with little or no bowel control and liquid or semiliquid stool

Contraindications

- Not intended for use
  - for more than 29 consecutive days
  - for pediatric patients.
- Not for use on individuals who
  - have suspected or confirmed rectal mucosal impairment (that is, severe proctitis, ischemic proctitis, mucosal ulcerations)
  - have had rectal surgery within the past year
  - have any rectal or anal injury
  - have hemorrhoids of significant size and/or symptoms
  - have a rectal or anal stricture or stenosis
  - have a suspected or confirmed rectal or anal tumor
  - have any in-dwelling rectal or anal device (e.g., thermometer) or delivery mechanism (e.g., suppositories or enemas) in place
  - are sensitive to or who have had an allergic reaction to any components within the kit.

Application

Preparation of device

- In addition to the device kit, gloves and lubricant will be required.
- Using the syringe provided, remove any residual air that may be in the balloon by attaching the syringe to the inflation port and withdrawing the plunger. Ensure that the syringe is empty by expelling any air. Then fill this empty syringe with 45 mL tap water or saline. Don't overfill beyond 45 mL.
- Attach the syringe to the inflation port (marked 45 mL).
- Securely snap the collection bag to the connector at the end of the catheter.

Preparation of patient

- Position the patient in left side-lying position; if unable to tolerate, position the patient so access to the rectum is possible.
- Perform a digital rectal exam to evaluate suitability for insertion of device.

Insertion of device

- Remove any indwelling or anal device prior to insertion of the Flexi-Seal FMS device.
- Unfold the length of the catheter to lay it flat on the bed, extending the collection bag toward the foot of the bed. Insert a lubricated, gloved index finger into the retention balloon cuff finger pocket for digital guidance during device insertion. The finger pocket is located above the position indicator line. Coat the balloon end of the catheter with lubricating jelly. Grasp the catheter and gently insert the balloon end through the anal sphincter until the balloon is beyond the external orifice and well inside the rectal vault. The finger may be removed or remain in place in the rectum during balloon inflation.
- Inflate the balloon with 45 mL of water or saline by slowly depressing the syringe plunger. Under no circumstances should the balloon be inflated with more than 45 mL. The oval inflation indication chamber on the inflation port will expand as fluid is injected. This normal expansion should subside once the plunger stops. If the inflation indication chamber remains excessively expanded after the plunger stops, the balloon is not properly inflating. This is likely the result of improper balloon positioning in the rectal vault. In this case, use the syringe to withdraw the fluid from the balloon, reposition the balloon in the rectal vault and reinflate the balloon.
- Remove the syringe from the inflation port, and gently pull on the soft silicone catheter to check that the balloon is securely in the rectum and that it's positioned against the rectal floor.
- Position the length of the flexible silicone catheter along patient's leg, avoiding kinks and obstructions. Take note of the position indicator line relative to the patient's anus. Regularly observe changes in the location of the position indicator line as a means to determine movement of the retention balloon in the patient's rectum. This may indicate the need for the balloon or device to be repositioned.
- Hang the bag by the strap on the bedside at a position lower than that of the patient.

Irrigation of the device

- The silicone catheter can be rinsed by filling the syringe with tap water at room temperature and attaching the syringe to the irrigation port (marked IRRIG.) and depressing the plunger. Make sure that the syringe isn't inadvertently attached to the balloon inflation port (marked 45 mL). Repeat the irrigation procedure as often as necessary to maintain proper functioning of the device. Flushing the device as described above is an optional procedure for use only when needed to maintain the unobstructed flow of stool into the collection bag. If repeated flushing with water does not return the flow of stool through the catheter, the device should be inspected to ascertain that there is no external obstruction (pressure from a body part, piece of equipment, or resolution of diarrhea). If no source of obstruction of the device is detected, use of the device should be discontinued.

Maintenance of device

- Change the collection bag as needed. Snap the cap onto each used bag and discard according to institutional protocol for disposal of medical waste. Observe the device frequently for obstructions from kinks, solid fecal particles, or external pressure.

Removal

- To remove the catheter from the rectum, the retention balloon must first be deflated. Attach the syringe to the inflation port, and slowly withdraw all water from the retention balloon. Disconnect the syringe and discard.
- Grasp the catheter as close to the patient as possible, and slowly slide it out of the anus.
- Dispose of the device in accordance with institutional protocol for disposal of medical waste.

*See package insert for complete instructions for use.

NEW PRODUCT

InstaFlo Bowel Catheter System

Hollister Incorporated

How supplied

Catheter kit: Contains catheter, collection bag, syringe, instructions, and quick reference guide.
Disposable collection bag: 2,000 mL capacity

Action

The InstaFlo Bowel Catheter System is designed to be easy to learn and use. This system combines a collapse-resistant ring, a low-pressure retention cuff, and a sampling port. The cuff is folded for insertion. The sampling/tube flushing port facilitates stool sampling while the system remains in place. The catheter connects securely to the disposable, odor-barrier collection bag.

Indications

The InstaFlo Bowel Catheter System is intended for diversion of liquid or semi-liquid stool to facilitate the collection of fecal matter in patients with little or no bowel control.

Contraindications

- Not for use in patients allergic to the materials used in this device
- Not for use if the patient's distal rectum can't accommodate the inflated volume of the retention cuff or if the distal rectum-anal canal is severely strictured
- Not for use in patients with impacted stool
- Not for use in patients with a recent (less than 6 weeks old) rectal anastomosis or anal or sphincter reconstruction
- Not for use in patients with compromised rectal wall integrity

Application

- Caution: Before using the InstaFlo Bowel Catheter System, read the entire InstaFlo Bowel Catheter System Instructions for Use package insert supplied with the product. Read all other package inserts and labels supplied with the product and accessories.
- Federal law restricts this device for sale by or on the order of a physician or other health care practitioner licensed under state law to order this product.

InterDry Ag

Coloplast Corp.

How supplied

Box/Roll: 10″ × 144″ impregnated textile
10″ × 36″ impregnated textile

Action

InterDry Ag is a nonsterile skin protectant composed of polyurethane-coated polyester textile impregnated with an antimicrobial silver complex as the active component. It's a single-patient-use product that is custom cut from a multiuse package. The textile provides moisture transportation to keep skin dry, while the antimicrobial in the textile reduces odor. The textile's low friction surface aids lubrication, thereby reducing skin-to-skin friction. The product provides a protective environment for the skin and an effective protection against microbial contamination in the device. The device is an effective antimicrobial barrier against gram-positive and gram-negative bacteria and fungi, including methicillin-resistant *Staphylococcus aureus* (MRSA), methicillin-resistant *S. epidermidis* (MRSE), vancomycin-resistant *Enterococcus faecalis* (VRE), *Klebsiella pneumoniae, Pseudomonas aeruginosa, Aspergillus niger,* and *Candida albicans*.

Indications

For management of skin folds and other skin-to-skin contact areas; to provide an antimicrobial barrier to microbial colonization in the dressing; for use with compression bandaging (may be placed over wound dressings)

Contraindication

- Not for use on patients with a sensitivity to silver. In case of suspected allergic reaction, contact Coloplast for further information.
- Not for use during radiation treatment or examinations that include X-rays, ultrasonic treatment, diathermy, microwaves, or MRI
- Not for use on highly exudating wounds

Application

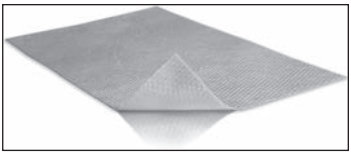
- The use of InterDry Ag during pregnancy and lactation and on children hasn't been demonstrated.
- Measure and cut the appropriate length of textile allowing for 5 cm (2″) of textile exposure to the air on each side of the skin fold.
- Place one edge of the textile in the base of the skin fold. Gently smooth the rest of the cloth over the skin keeping the textile flat, covering any wound dressings.
- Gently place skin fold together, with 5 cm (2″) of textile exposed to air at each cut end.
- Separate the skin fold to assess the skin and placement of the textile daily or as indicated by normal practice.
- For use on an extremity, loosely wrap the textile around the area of skin to be protected. Secure with tape or other suitable device.

Removal

- InterDry Ag may be left in place for up to 5 days, depending on the amount of moisture, the general skin condition and the use of wound dressings.
- When removing the textile from a skin fold, gently separate the skin fold, and lift away the textile.

Mepiform Soft Silicone Gel Sheeting

Mölnlycke Health Care



How supplied

Gel sheeting: 2″ × 3″, 4″ × 7″, 1.6″ × 12″

Action

Mepiform is a self-adherent soft silicone gel sheeting for scar management, featuring Safetac technology that is breathable, comfortable, and waterproof. Mepiform is thin, flexible, and discreet and can be worn during all daily activities.

Indications

To manage old and new hypertrophic and keloid scars; can be used on closed wounds, where it may prevent the formation of hypertrophic and keloid scars; may be used prophylactically for 2 to 6 months, depending on the condition of the scar

Contraindications

- None provided by the manufacturer

Application

- Clean the scar tissue or closed wound with mild soap and water. Rinse and pat dry. Make sure the scar and surrounding skin are dry.
- If necessary, cut the dressing to the appropriate shape. No extra fixation is needed.
- Remove the release film, and apply the dressing to the scar without stretching the dressing.
- Avoid the use of creams or ointments under Mepiform.

Removal

- Optimally, Mepiform should be worn 24 hours/per day. It's recommended that Mepiform be removed once a day for showering or bathing and reapplied.
- Change the dressing when it begins to lose its adherent properties. Dressing wear time varies by person.

NEW PRODUCT

Microcyn Solution with Preservatives

Oculus Innovative Sciences

How supplied

Shelf stable hypochlorous acid solution:
500 mL bottle; 990 mL bottle

Action

Laboratory proven in-solution inactivation of bacteria and spores including MRSA, VRE, *Pseudomonas* and *Acinetobacter*. Nonfoaming and safe to use around nose, mouth and eyes. No mixing, dilution, or rinsing required.

Indications

For the management by debridement of postsurgical wounds

Contraindications

- None known

Application

- Use as you would saline in treatment of postsurgical wounds.

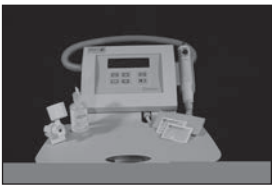
Removal

- Nonirritating, noncytotoxic, and nonsensitizing to skin and eyes. No special handling precautions required and no special disposal requirements. No rinsing required.

NEW PRODUCT

MIST Ultrasound Healing Therapy

Celleration



How supplied

MIST Therapy System: 11″ × 9″ × 5.5″; CPT-0183T
MIST Disposable Applicator Kit: 6.5″ × 7.5″ × 2.75″

Action

MIST Therapy delivers a low frequency ultrasound (40 kHz) into the wound bed via a gentle saline mist. The sound waves of MIST Therapy penetrate through the surface and into the wound bed, causing a pushing/stretching effect to the cells. The result is reduction of bacteria/biofilm and decreased inflammation to accelerate the body's normal healing process. MIST Therapy has been clinically proven to accelerate healing in even the most difficult to treat wounds. MIST's noncontact delivery results in a painless treatment experienced by the patient.

Indications

May be used on all types of wounds (chronic, acute and/or surgical) to promote wound healing; may be used by itself or in conjunction with other wound therapies and/or procedures

Contraindications

- Not for use near electronic implants/prosthesis (e.g., near or over the heart or over the thoracic area if the patient is using a cardiac pacemaker)
- Not for use on the lower back during pregnancy or over the pregnant uterus
- Not for use over areas of malignancies unless otherwise advised by a clinical professional

Application

- Clean entire system using provided disinfectant wipe.
- Plug system power cord into grounded electrical outlet.
- Slide on the disposable applicator and engage provided saline bottle into applicator.
  - System will automatically calculate treatment time based on wound size/area selected.
- Administer MIST treatment by slowly moving Treatment Wand in a horizontal and vertical pattern over the wound, keeping the ultrasound tip at a distance of 1 to 1.5 cm from the wound bed. MIST ultrasound is delivered via a gentle saline mist and penetrates in and below the wound bed.
- Ultrasound will automatically turn off after allotted treatment time.

Removal

- Remove and discard the saline bottle and applicator.
- Clean entire system using second provided disinfectant wipe.

NovaGel Silicone Gel Sheeting

Brennen Medical, LLC

How supplied

Sheet: 5″ × 6″ A6025

Action

NovaGel Silicone Gel Sheeting is a soft, slightly adhesive scar dressing intended to reduce the height and coloring of the scar. It's made from medical-grade silicone and reinforced with a polyester mesh placed within the silicone sheet.

Indications

For use as a scar management dressing on old and new hypertropic (raised) or keloid scars

Contraindications

- Contraindicated in patients with mitigating medical conditions (such as open wounds), dermatologic conditions (such as rashes), or disorders that may cause the skin to break out during use of NovaGel
- Contraindicated for open wounds

Application

- Wash scar site, then dry with a clean, dry towel.
- Remove NovaGel from the tray. The nylon net overlay may remain on the top side of NovaGel to help prevent adherence to clothes.
- If needed, trim NovaGel to a size and shape slightly larger than the scar to be covered. Multiple sheets may be used, side by side, to cover a large scar. Place NovaGel on the scar.
- Secure with an appropriate tape or support bandage covering to ensure that the NovaGel doesn't slide off the scar site.

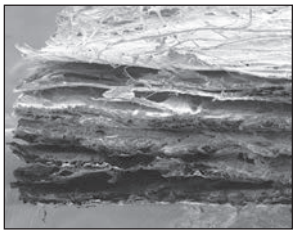
Removal

- NovaGel may be worn for up to 24 hours per day (a minimum of 12 hours per day is recommended). After 24 hours, remove, clean, and reapply NovaGel.
- After removing NovaGel, wash scar site and NovaGel gently with mild soap and warm water. Dry scar site and NovaGel, then reapply NovaGel. (Remove the nylon net overlay when cleaning the NovaGel. Replace nylon net overlay before reapplying the NovaGel.)
- Each NovaGel sheet can be used for 10 to 14 days. NovaGel may lose its adhesive qualities or become imbedded with surface dirt over time. If this occurs, discard the used NovaGel and apply a fresh sheet.
- If rash and pruritus occur beneath NovaGel (usually from poor hygiene at the scar site), limit application of the NovaGel to 12-hour periods, then remove for 12 hours. If symptoms persist, discontinue use of NovaGel.

NEW PRODUCT

OASIS Ultra Tri-Layer Matrix

Healthpoint Biotherapeutics



How supplied

Meshed: 7 × 10 cm (5 sheets), 7 × 20 cm (5 sheets)

Action

OASIS works by providing a natural, extracellular matrix with a three-dimensional structure that acts as a scaffold for host-tissue remodeling.

Indications

For the management of partial- and full-thickness skin loss injury, such as pressure and chronic vascular ulcers, diabetic ulcers, second-degree burns, abrasions, and autograft donor sites

Contraindications

- Not for use on patients with sensitivity to porcine material
- Not indicated for use on third-degree burns

Application

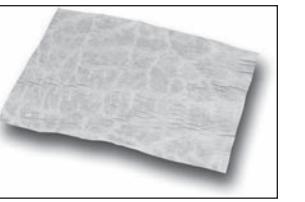
- Gently clean the wound.
- Cut the dry OASIS sheet to size, and apply the sheet on the wound surface.
- Rehydrate using sterile saline or lactated Ringer's solution, and anchor with choice of fixative.

Removal

- OASIS remodels like tissue and, therefore, isn't removed from the wound. Additional OASIS is added as needed.

OASIS Wound Matrix

Healthpoint Biotherapeutics



How supplied

Fenestrated: 3 × 3.5 cm (10 sheets), 3 × 7 cm (10 sheets), 7 × 10 cm (5 sheets), 7 × 20 cm (5 sheets)
Meshed: 7 × 10 cm (5 sheets), 7 × 20 cm (5 sheets)
Burn Matrix: 7 × 20 cm bilaminate mesh (5 sheets)
CPT codes: 15430 and 15431
Q code 4102

Action

OASIS works by providing a natural, extracellular matrix with a three-dimensional structure that acts as a scaffold for host-tissue remodeling.

Indications

For the management of partial- and full-thickness skin loss injury, such as pressure and chronic vascular ulcers, diabetic ulcers, second-degree burns, abrasions, and autograft donor sites

Contraindications

- Not for use on patients with sensitivity to porcine material

Application

- Gently clean the wound.
- Cut the dry OASIS sheet to size, and apply the sheet on the wound surface.
- Rehydrate using sterile saline or lactated Ringer's solution, and anchor with choice of fixative.

Removal

- OASIS remodels like tissue and, therefore, isn't removed from the wound. Additional OASIS is added as needed.

Oleeva Clear

Bio Med Sciences, Inc.

How supplied

Dressing: 1.5″ × 5″, 5″ × 5″, 5″ × 10″, 8″ × 12″; A6025

Action

Oleeva Clear is used topically to reduce or prevent hypertrophic scars and keloids.

Indications

Used topically to reduce or prevent hypertrophic scars and keloids resulting from traumatic or surgical injury

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Remove the product from its package. If necessary, use scissors to trim the product so it extends beyond the area of the scar.
- Peel away the paper protective liner and save it for later use.
- Place the product sticky side down, directly on the scarred area.
- Keep the product in place from 12 to 23 hours per day.
- At least once a day, wash the scarred area and both sides of the product with mild soap and water. Rinse the product thoroughly to remove all traces of soap.
- Allow the product to air-dry, or pat it dry with a lint-free towel before reapplying.
- Between uses, product may be stored on the protective paper liner.

Removal

- Remove daily, wash with mild soap and water, allow product to dry, and reapply.

Oleeva Fabric

Bio Med Sciences, Inc.

How supplied

Dressing: 1.5″ × 5″, 5″ × 5″, 5″ × 19″, 8″ × 12″; A6025

Action

Oleeva Fabric is used topically to reduce or prevent the appearance of hypertrophic scars and keloids. Oleeva Fabric combines a patented, self-adhesive silicone technology with an ultra thin, silky-smooth fabric backing to minimize shear force distribution. This combination makes Oleeva Fabric exceedingly comfortable and easy to wear under clothing to minimize scar formation almost anywhere on the body.

Indications

Use topically to reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Remove the product from its package. If necessary, use scissors to trim the product so it extends beyond the area of the scar on all sides.
- Peel away the paper protective liner and save it for later use.
- Place the product sticky side down, directly on the scarred area.
- Keep the product in place from 12 to 23 hours per day.
- At least once a day, wash the scarred area and both sides of the product with mild soap and water. Rinse the product thoroughly to remove all traces of soap and sloughed skin cells.
- Allow the product to air-dry, or pat it dry with a lint-free towel before reapplying.
- Between uses, product may be stored on the protective paper liner.

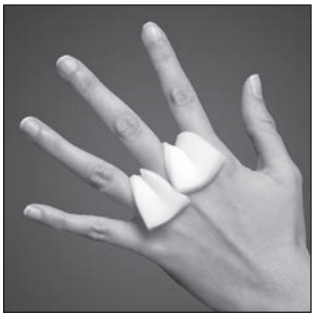
Removal

- Remove daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

Oleeva Foam

Bio Med Sciences, Inc.



How supplied

1.5″ × 5″, 5″ × 5″, 5″ × 10″, 8″ × 12″; A6025

Action

Oleeva Foam is used topically to reduce or prevent the appearance of hypertrophic scars and keloids.

Indications

Consistent use topically can reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin. Oleeva Foam combines a patented silicone technology with soft and pliable foam backing to provide padding and improve pressure distribution for optimal scar management over concave or convex surfaces.

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Remove the product from its package. If necessary, use scissors to trim the product so it extends beyond the area of the scar on all sides.
- Peel away the paper protective liner and save it for later use.
- Place the product sticky side down, directly on the scarred area.
- Keep the product in place from 12 to 23 hours per day.
- At least once a day, wash the scarred area and both sides of the product with mild soap and water. Rinse the product thoroughly to remove all traces of soap and sloughed skin cells.
- Allow the product to air-dry, or pat it dry with a lint-free towel before reapplying.
- Between uses, product may be stored on the protective paper liner.

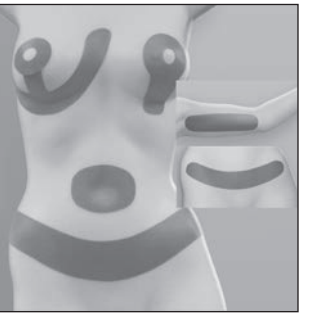
Removal

- Remove daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

Oleeva Scar Shapes

Bio Med Sciences, Inc.



How supplied

2″ × 23″, 2″ × 5″, 10″ × 4″; A6025
Breast Kit: 2″ × 8″, 2″ × 9″, 2.75″ × 3.75″, 3″ × 6.5″; A6025

Action

Oleeva Scar Shapes Fabric is used topically to reduce or prevent the appearance of hypertrophic scars and keloids.

Indications

Consistent use topically can reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin. Oleeva Scar Shapes Fabric combines a patented, self-adhesive silicone technology with an ultra thin, silky-smooth fabric backing to minimize shear force distribution and is cut specifically to fit cosmetic and reconstructive surgical procedures. This combination makes Oleeva Fabric exceedingly comfortable and easy to wear under clothing to minimize scar formation almost anywhere on the body.

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Remove the product from its package. If necessary, use scissors to trim the product so it extends beyond the area of the scar on all sides.
- Peel away the paper protective liner and save it for later use.
- Place the product sticky side down, directly on the scarred area.
- Keep the product in place from 12 to 23 hours per day.
- At least once a day, wash the scarred area and both sides of the product with mild soap and water. Rinse the product thoroughly to remove all traces of soap and sloughed skin cells.
- Allow the product to air-dry, or pat it dry with a lint-free towel before reapplying.
- Between uses, product may be stored on the protective paper liner.

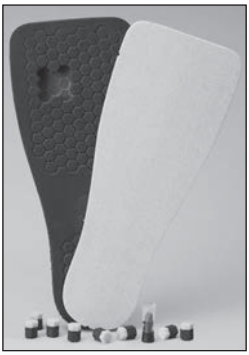
Removal

- Remove daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

Peg Assist Offloading Insole

Darco International, Inc.



How supplied

Men's and women's insoles: A9283

Action

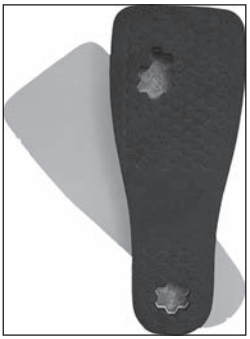
Relieves pressure via offloading of the wound or ulcer site

Indications

Diabetic ulcers, wounds of the foot

Contraindications

- Not for postoperative use



Application

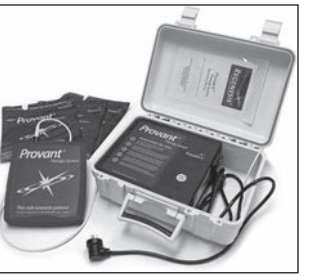
- Offload by pulling pegs to relieve pressure; used with the Darco Square Toe Medical-Surgical Shoe.

Removal

- Pull the insole from the footbed and replace with another Peg Assist or the original black EVA insole that comes with the Darco Square Toe Medical-Surgical Shoe.

Provant Therapy System

Regenesis Biomedical, Inc.



How supplied

Durable Medical Equipment product (portable system in carrying case, treatment applicator pad, and disposable covers): E0769

Action

The Provant Therapy System delivers tissue regeneration therapy based on Regenesis' pulsed radio frequency energy (PRFE) core technology platform. Provant stimulates dormant cells, causing them to replicate and produce natural growth factors and other gene expression proteins, which facilitate reduction of the pain and edema associated with post-operative soft tissues. Fibroblasts initiate wound healing and trigger the biochemical cascade that leads to granulation in the wound bed. Epithelial cells complete the healing and closure process. This device also stimulates secretion of multiple growth factors within the first treatment through a calcium-dependent cellular mechanism. Recent studies show that Provant induced the expression of hundreds of genes controlling all phases of wound healing, including inflammatory, granulation, epithelialization, and remodeling. The PRFE treatment signal penetrates 7 to 8 cm through dressings and tissue layers to initiate these critical events.

Provant is a lightweight and portable medical device about the size and shape of a small briefcase. Provant is so simple to use that a patient or caregiver can perform the treatment without the aid of a skilled practitioner, typically in their own home.

Indications

As an adjunct for the palliative treatment of post-operative pain and edema (swelling) in superficial soft tissue; often used to treat the inflammatory phase of wound healing in soft tissues, thus inducing subsequent granulation, epithelialization, and angiogenesis throughout multiple phases of the wound-healing process; may be used on patients soon after surgery or on patients with chronic and recalcitrant wounds after surgical debridement; intended for use in conjunction with all other wound therapies

Contraindications

- Contraindicated for treatment over joints of patients with immature bone development
- Contraindicated on pregnant patients
- Contraindicated on patients who have metallic implants in the area of application or who have cardiac pacemakers

Application

- Connect the system's base unit to a power outlet.
- Place a disposable cover over the treatment applicator pad before each use.
- The system delivers a manufacturer-preset therapeutic dose to the treatment area through the applicator pad. The recommended Provant therapy schedule

is 30 minutes in the morning and again in the evening until the desired effect is achieved. No adjustments by patient or caregiver are necessary or possible.

- Provant treatment dosing penetrates directly through wound dressings, casts, Unna boots, and clothes. No removal of dressings is required. When treatment is complete, Provant turns off automatically.
- In hospitals and long-term care facilities, a wound care nurse or a physical therapist typically administers the therapy. In outpatient settings, the primary care provider typically prescribes the therapy for administration by the patient, family member, or other caregiver twice daily at home between regular office visits for supervision of wound protocols.

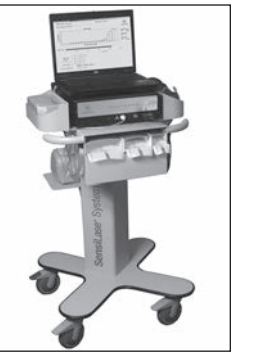
Removal

- Discard the applicator pad cover after each 30-minute treatment.

NEW PRODUCT

SensiLase Studycast System

Väsamed, Inc.



How supplied

Diagnostic Test Equipment Peripheral Artery Disease/ Wound Healing and Health Information Technology – Web-based data communication and management services

Non-invasive vascular testing; 93922/93923

Action

The SensiLase Studycast System generates two non-invasive vascular tests: Skin Perfusion Pressure (SPP) and Pulse Volume Recording (PVR). SPP, a quantitative evaluation of microcirculatory perfusion in the skin, is measured using a laser Doppler sensor and an occlusive pressure cuff to evaluate reactive hyperemia. A graph displays pressure and perfusion during cuff deflation and indicates the pressure at which skin perfusion is found to return. Other information observable from the graph includes percentage perfusion increase above baseline, total response time, perfusion reappearance time, and perfusion contour. PVR uses air plethysmography to evaluate variations in the volume of blood passing through a limb during each cardiac cycle. In combination, these tests help determine the severity and level of disease in the extremities. Studycast software and services provide web-accessible SensiLase data. Studycast System studies are uploaded in 2 minutes or less and feature two-way physician test data interpretation and optimal treatment path decisions.

Indications

SensiLase System is used in the Wound Care Center to:

- perform peripheral vascular assessments on all patients with lower extremity ulcers to rule out arterial ischemia. Skin Perfusion Pressure is clinically demonstrated to accurately predict wound healing outcome.
- assess the degree of arterial perfusion at the site of the wound in advance of HBO therapy to meet the pre-therapy vascular assessment requirement.
- determine the optimal level of amputation by measuring the site where there is adequate perfusion for healing to occur.
- plan compression wrap therapy in patients with edema to rule out arterial ischemia both pre- and post-compression wrap.

SensiLase Studycast Data Communication Networking is used in the Wound Care Center to:

- send completed SensiLase tests via a HIPAA compliant secure internet server to a physician for rapid test interpretation from any internet-connected device, allowing streamlined patient care.
- facilitate a collaborative care multidisciplinary team to treat these complex patients.
- integrate with electronic medical records to streamline patient care and support an optimal care treatment pathway.

Contraindications

- None known

Application

- Skin perfusion pressure is performed in the angiosome (distal arterial anatomy) where the ulcer is present.
- A single skin perfusion pressure measurement can be obtained in less than 5 minutes.
- Similar to a regular blood pressure test, SensiLase skin perfusion pressure is reported in mm Hg.
- Utilizing a laser Doppler to detect capillary perfusion, the SensiLase measures the first return of perfusion following controlled release of cuff occlusion. The skin perfusion pressure value is the cuff pressure at the point of reperfusion and is a measurement with reactive hyperemia.
- Pulse Volume Recording is measured following SPP assessment; it's performed at different limb levels to assess changes in limb volume with each cardiac cycle.
- SensiLase skin perfusion pressure tests will determine if there is adequate perfusion in the region of the ulcer for a likely healing outcome.
- SensiLase tests should be performed following revascularization therapy (bypass surgery or endovascular) to measure changes in perfusion.

Removal

- SPP/PVR tests require patient contact for only a brief testing period. Disposable accessories are provided that support institutional cross-contamination initiatives.

NEW PRODUCT

Silon-LTS

Bio Med Sciences, Inc.

How supplied

9″ × 12″, 12″ × 18″; A6512

Action

Silon-LTS is used topically to reduce or prevent the appearance of hypertrophic scars and keloids as a silicone-lined, low-temperature thermoplastic custom-molded orthotic. Silon-LTS combines a patented silicone technology that permanently bonds soft, nonadherent, silicone sheeting to a low temperature, thermoplastic material that will last for months of daily use. Silon-LTS is the first product to ever combine these two materials, which makes it easy to create custom-molded splints that can be used to provide maximum scar benefit in a single design.

Indications

To reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Cut the Silon-LTS to the desired size and shape using heavy duty scissors or shears. The paper release liner may be left on or removed from the Silon side of LTS.
- Place the product into a water bath preheated to approximately 70°C (160°F).
- Allow sufficient time for the Silon-LTS to fully soften (Note: It will turn transparent).
- Remove the product from the water bath and form the desired splint with the Silon coating directly against the skin and scar.
- Allow the Silon-LTS to cool retaining the formed shape until it is hard and attach straps and Velcro as desired to hold the splint in place.
- At least once a day, wash the scarred area and both sides of the splint with mild soap and water. Rinse the product thoroughly to remove all traces of soap and sloughed skin cells.
- Allow the splint to air-dry or pat it dry with a lint-free towel before reapplying.

Removal

- Remove splint daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

Silon-SES

Bio Med Sciences, Inc.

How supplied

1.5″ × 5″, 5″ × 5″, 5″ × 10″, 8″ × 12″; A6025

Action

Silon-SES is used topically to reduce or prevent the appearance of hypertrophic scars and keloids. Silon-SES combines a patented silicone technology to create soft, transparent, nonadherent silicone elastomer sheeting that will last for months of daily use. The durable, transparent, low profile design of SES makes it easy to use under pressure garments or clothing and is soft enough to move with articulating joints or in conjunction with elastic wraps or bandages.

Indications

Consistent use topically can reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin.

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Remove the product from its package. If necessary, use scissors to trim the product so it extends beyond the area of the scar on all sides.
- Peel away the paper protective liner and save it for later use.
- Place the product sticky side down, directly on the scarred area.
- Keep the product in place from 12 to 23 hours per day.
- At least once a day, wash the scarred area and both sides of the product with mild soap and water. Rinse the product thoroughly to remove all traces of soap and sloughed skin cells.
- Allow the product to air dry, or pat it dry with a lint-free towel before reapplying.
- Between uses, product may be stored on the protective paper liner.

Removal

- Remove daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

Silon-STS

Bio Med Sciences, Inc.

How supplied

16″ × 21″; A6512

Action

Silon-STS is used topically to reduce or prevent the appearance of hypertrophic scars and keloids as a silicone lined, transparent, high-temperature thermoplastic custom molded orthotic. Silon-STS combines a patented silicone technology that permanently bonds soft, nonadherent, silicone sheeting to a high temperature, transparent thermoplastic material that will last for months of daily use. Silon-STS is the first product to ever combine these two materials which makes it easy to create custom molded splints that can be used to provide maximum scar benefit in a single design.

Indications

To reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Remove the paper release liner from the silicone side of the Silon-STS and the clear protective film from the thermoplastic side.
- Place the Silon-STS on a flat tray with the silicone side of the product down. Heat the product in a convection oven at 155°C to 165°C (310 of to 330°F) for 3 to 4 minutes.
- Using thermally insulated gloves, remove the Silon-STS sheet from the oven. Form the sheet into a desired shape and allow to cool. Note: *Do not form directly on the patient* and be sure to form the product so that the silicone surface will contact the patient's skin.
- Using shears or heavy scissors, trim the Silon-STS as necessary. A rotary tool, for example a Dremel, may be used to cut holes for eyes, nose, mouth, etc.
- Attach snaps or fasteners as desired.
- Cleanse the entire product using a nondetergent soap and warm water.
- Allow the splint to air dry or pat it dry with a lint-free towel before reapplying.

Removal

- Remove splint daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

Silon-TEX

Bio Med Sciences, Inc.

How supplied

Roll: 5″ × 36″; A6025; A6501-6513

Action

Silon-TEX is used topically to reduce or prevent the appearance of hypertrophic scars and keloids in conjunction with a custom-fitted pressure garment. Silon-TEX combines a patented silicone technology to create soft, non-adherent silicone textile sheeting that will last for months of daily use. The durable, low profile design of TEX makes it easy to form inserts within the pressure garments, especially over mobile joints and articulating joint surfaces, to utilize the combination of silicone and pressure for maximum scar benefit.

Indications

To reduce or prevent the appearance of hypertrophic scars and keloid formation resulting from any traumatic or surgical injury to the skin

Contraindications

- Not for use on open wounds
- Not for use with creams or lotions
- Not for use on patients with sensitivity to silicone

Application

- Don the pressure garment and ensure the TEX is directly covering the scarred area within the garment.
- Keep the pressure garment and product in place from 12 to 23 hours per day.
- At least once a day, wash the scarred area and both sides of the product and garment with mild soap and water. Rinse the product thoroughly to remove all traces of soap and sloughed skin cells.
- Allow the garment and product to air dry on a flat surface, or pat it dry with a lint-free towel before reapplying.

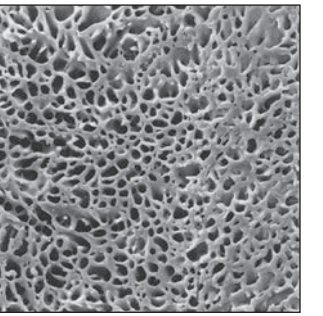
Removal

- Remove garment daily, wash with mild soap and water, allow product to dry, and reapply.

NEW PRODUCT

SUPRATHEL

Bio Med Sciences, Inc.



How supplied

2″ × 2″, 3.5″ × 4″, 4″ × 7″, 7″ × 9″

Action

SUPRATHEL is an absorbable, microporous membrane and alloplastic skin substitute composed of a patented copolymer of polylactide, trimethylene carbonate, and ε-caprolactone (lacto-capromer) for the treatment wounds and skin grafts.

Indications

A resorbable wound covering with an initially high oxygen and water moisture vapor permeability that provides a favorable environmental condition for the treatment of superficial dermal wounds, split thickness skin graft donor sites, second-degree burns, and second-degree burns mixed with third-degree burned areas; can be adapted optimally on any body parts by its elastic/plastic properties and becomes transparent when attached to the wound site, allowing the visual control of the healing progress; requires no change of the primary wound covering; protects against bacterial and viral infection while allowing for local infections to be treated with antibiotics through the permeable membrane without removal

Contraindications

- Not for use on infected wounds
- Not for use on deep dermal burns
- Not for use on ulcerating wounds

Application

- Debride and clean the wound completely. Remove blisters, debris and loose tissue. Wounds may be cleaned with a germicidal soap and rinsed with normal saline solution.
- Establish homeostasis before applying the membrane.
- Open the package under sterile conditions and retrieve the white membrane from the green paper protective sheet. Slight stretching at low stress on the membrane is allowed and facilitates the adaptation to curved surfaces and articulating joints. Warming up the membrane by contact with warm hands supports the ease of handling. SUPRATHEL can be applied on both sides and attached with overlapping edges to achieve full wound coverage.
- Remove all air bubbles and wrinkles underneath the membrane and ensure the attachment at the borderline to the healthy skin.
- Secure the membranes in places with a gauze dressing or another stenting device to maintain the SUPRATHEL firmly adhered to the wound surface and to prevent the migration of the membranes by mechanical alteration or

contamination. Mechanical alteration is avoided by the favorable spontaneous attachment via wound exudates.

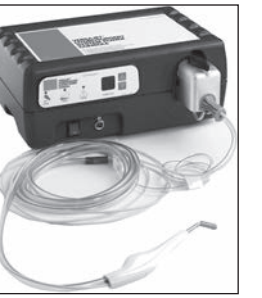
Removal

- SUPRATHEL degrades within 4 to 6 weeks and will be resorbed and subsequently detach from the regenerated wound sites.

NEW PRODUCT

VERSAJET Hydrosurgery System

Smith & Nephew, Inc.
Wound Management



How supplied

Console: VERSAJET Console (with power cord), foot pedal

Handsets:
VERSAJET Exact disposable handset:
45°/14 mm; 45°/8 mm; 15°/14 mm
VERSAJET Plus disposable handset:
45°/14 mm; 45°/8 mm; 15°/14 mm

Canisters: Surgical Cart

Action

The VERSAJET Hydrosurgery System utilizes a small fluidjet to create a surgical instrument that combines the benefits of sharp debridement and pulsed lavage. The unique design of the evacuation tube and its proximity to the fluidjet creates a localized vacuum that efficiently removes debris, tissue, or fluids. By simply placing the instrument tip near a piece of debris, it can easily be removed from the wound via the inherent vacuum of the fluidjet. However, the fluidjet itself is designed to provide sufficient pressure to cut through human tissues such as skin, muscle, and cartilage. Thus, by moving the fluidjet into contact with compromised tissue, the fluidjet will easily cut tissue and suction it away from the wound. The VERSAJET Hydrosurgery System allows a surgeon to select the operating technique that meets the patient's surgical needs for wound debridement, including foreign material removal, tissue excision, and wound site shaping.

Indications

To cut, ablate and remove tissue from wounds and to resect and remove material in various surgical procedures including wound debridement; intended for wound debridement, soft tissue debridement, and cleansing of the surgical site in applications that, in the surgeon's judgment, would require the use of a pulse lavage device with sharp debridement.

Contraindications

- Should be used with particular care in patients with hemophilia.
- Not for use on burns.
- Only VERSAJET-approved equipment should be connected to this device.
- Use of the higher settings on the device console will lead to more aggressive tissue removal.
- Use caution near sensitive tissues, such as neurovascular bundles.
- This device can cut soft tissue.

Application

- Use lower settings on the device console for deep wounds where visualization is obscured.

- Do not allow saline bag to empty because this could allow air to enter the supply tube. Air in the supply tube will result in temporary lower device efficiency and require re-priming of the system.
- Subsequent debridement procedures may be necessary.
- Use only sterile saline solution with this device.
- Examine all components before use. If you believe a component to be faulty, damaged, or suspect, DO NOT USE.
- Each Disposable Handpiece is intended for SINGLE USE ONLY. Do not resterilize. Discard after use.
- Do not connect the waste hose, or any container connected to it, to a vacuum source.

Drugs

OVERVIEW

In this section, you'll find a list of products that are considered drugs because their administration provokes a series of physiochemical events within the body. The drugs listed in this section each have unique actions, indications, and contraindications specific to the individual product. This information can also be found on the product's package insert. The clinician holds responsibility for understanding how each of these products affects the cascade of wound-healing events.

Products listed in this section are reimbursed as prescription drugs. The clinician must contact the appropriate payor regarding specific payment information for a given drug.

Collagenase Santyl Ointment

Healthpoint Biotherapeutics

How supplied

Ointment: 15 g, 30 g

Action

Collagenase Santyl Ointment is a sterile enzymatic debriding ointment which contains 250 collagenase units per gram of white petrolatum USP. The enzyme collagenase is derived from the fermentation by *Clostridium histolyticum*. It possesses the unique ability to digest collagen in necrotic tissue.

Because collagen accounts for 75% of the dry weight of skin tissue, the ability of collagenase to digest collagen in the physiological pH and temperature range makes it particularly effective in the removal of detritus. Collagenase thus contributes to the formation of granulation tissue and subsequent epithelialization of dermal ulcers and severely burned areas. Collagen in healthy tissue or in newly formed granulation tissue isn't attacked. No information is available on collagenase absorption through skin or its concentration in body fluids associated with therapeutic or toxic effects, degree of binding to plasma proteins, degree of uptake by a particular organ or in the fetus, and passage across the blood-brain barrier.

Indications

For debriding chronic dermal ulcers and severely burned areas

Contraindications

- Contraindicated on patients who have local or systemic hypersensitivity to collagenase

Application

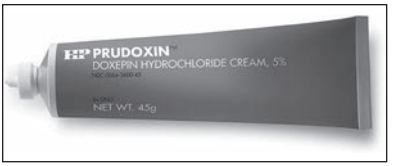
- Before application, wound should be cleansed of debris and digested material by gently rubbing with a gauze pad saturated with normal saline solution, or with the desired cleansing agent compatible with Collagenase Santyl Ointment, followed by a normal saline solution rinse.
- Whenever infection is present, it is desirable to use an appropriate topical antibiotic powder. The antibiotic should be applied to the wound prior to the application of Collagenase Santyl Ointment. Should the infection not respond, therapy with Collagenase Santyl Ointment should be discontinued until remission of the infection.
- Collagenase Santyl Ointment may be applied directly to the wound or to a sterile gauze pad, which is then applied to the wound and properly secured.

Removal

- Use of Collagenase Santyl Ointment should be terminated when debridement of necrotic tissue is complete and granulation tissue is well established.

PRUDOXIN Doxepin Hydrochloride Cream, 5%

Healthpoint Biotherapeutics



How supplied

Cream: 45 g

Action

PRUDOXIN's exact mechanism of action is unknown. A histamine blocker, it appears to compete at histamine-1 and histamine-2 receptor sites and inhibit their biological activation.

Indications

For short-term management (up to 8 days) of moderate pruritus in adult patients with atopic dermatitis or lichen simplex chronicus

Contraindications

- Contraindicated on patients with untreated narrow-angle glaucoma
- Contraindicated on patients with a tendency to urine retention

Application

- Apply a thin film of the cream to affected areas 3 or 4 times per day.
- Allow at least 3 to 4 hours between applications.

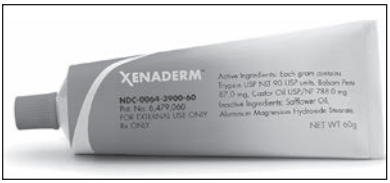
Removal

- The dosage should be repeated as required.

Xenaderm Ointment

Balsam Peru, Castor Oil USP/NF, Trypsin USP

Healthpoint Biotherapeutics



How supplied

Tube: 30 g, 60 g

Action

Balsam Peru is an effective capillary bed stimulant used to increase blood supply to the wound site. Castor oil is used to improve epithelialization by reducing premature epithelial desiccation and cornification. Also, it can act as a protective covering and aids in the reduction of pain. Trypsin is intended for debridement of eschar and other necrotic tissue. It appears that, in many instances, removal of wound debris strengthens humoral defense mechanisms sufficiently to retard proliferation of local pathogens.

Indications

To promote healing and the treatment of pressure ulcers, varicose ulcers, and dehiscent wounds

Contraindications

- Contraindicated in patients with sensitivity to any of the product's components

Application

- Apply a thin film of Xenaderm twice daily or as often as necessary. The wound may be left unbandaged or appropriate dressing may be applied.

Removal

- To remove, wash gently with appropriate cleanser.

PART

III

Additional dressings and products

Overview

Part III provides a comprehensive listing of additional products: abdominal dressing holders and binders, tapes and closures, wound pouches, wound cleansers, gauzes, elastic bandages, and compression bandage systems.

Because of the high volume of general products that are manufactured, the section groups similar products into tables. The table headings closely follow the categories outlined by the Medicare Part B Surgical Dressing Policy. Each table may include more than one category. In that case, as appropriate, each representative category and its respective Health Care Financing Administration Common Procedure Coding System (HCPCS) code are identified above the table.

Inclusion in these tables doesn't mean that the manufacturers have applied for or received the HCPCS code identified above the tables. The provider and supplier are responsible for verifying the correct HCPCS codes before submitting claims to any payer.

To ensure uniform Medicare claim coding by all suppliers of wound care dressings, the Statistical Analysis Durable Medical Equipment Regional Carrier (SADMERC) performs a Coding Verification Review. If manufacturers wish to have a HCPCS code assigned to their products, they must formally apply to the SADMERC.

SADMERC and the four Durable Medical Equipment Regional Carriers (DMERCs) review the applications to determine the correct HCPCS codes for Medicare billing. These reviews result in a consensus coding decision. The assignment of an HCPCS code to a product should not be construed as an approval or endorsement of the product by SADMERC or Medicare and doesn't imply or guarantee reimbursement or coverage.

Many other payers also require the assigned HCPCS codes on their claim forms.

ABDOMINAL DRESSING HOLDERS OR BINDERS

Abdominal dressing holders or binders are hypoallergenic adhesive straps used in place of standard surgical tapes to avoid removing and reapplying tape during dressing changes.

The HCPCS code normally assigned to abdominal dressing holders or binders is A4462.

Product Name	Manufacturer/Distributor
Medfix Montgomery Straps	Medline Industries, Inc.

COMPRESSION BANDAGE SYSTEMS

Compression therapy products are used to manage edema and promote the return of venous blood flow to the heart. Conventional management with zinc oxide–impregnated bandaging systems, such as an Unna boot, provides inelastic compression. Multilayered, sustained, graduated, high-compression bandages aid in the management of wounds caused by venous insufficiency.

Each component used in the compression therapy system is billed using a specific code for the component, if available. The HCPCS codes normally assigned to compression bandage systems are:

Light compression bandage

A6448: Width < 3″ per yard
A6449: Width ≥ 3″ and < 5″ per yard
A6450: Width ≥ 5″ per yard

Moderate-high compression bandage

A6451: Moderate compression bandage, load resistance of 1.25 to 1.34 foot pounds at 50% maximum stretch, width > 3″ and < 5″ per yard
A6452: High compression bandage, load resistance ≥ 1.35 foot pounds at 50% maximum stretch, width ≥ 3″ and < 5″ per yard

Self-adherent bandage

A6453: Width < 3″ per yard
A6454: Width ≥ 3″ and < 5″ per yard
A6455: Width ≥ 5″ per yard

Conforming bandage

A6442: Width < 3″ per yard
A6443: Width ≥ 3″ and < 5″ per yard
A6444: Width > 5″ per yard
A6445: Width < 3″ per yard
A6446: Width ≥ 3″ and < 5″ per yard
A6447: Width ≥ 5″ per yard

Padding bandage

A6441: Width ≥ 3″ and < 5″ per yard

Zinc paste-impregnated bandage

A6456: Width ≥ 3″ and < 5″ per yard

Name of Product	Manufacturer/ Distributor	Type of Compression	Subcategory
✪Coban 2 Layer Lite	3M Health Care		Multilayer compression system
Curity Unna Boot Bandage	Covidien	Inelastic	Unna Boot
DeWrap	DeRoyal	Elastic	Multilayer compression system

Name of Product	Manufacturer/ Distributor	Type of Compression	Subcategory
Dufore Four-Layer Compression Bandaging System	Derma Sciences, Inc.	Elastic	Multilayer compression system
✪EdemaWear	Compression Dynamics	Elastic/mild compression	Single layer
Fourflex	Medline Industries, Inc.	Elastic	Multilayer compression system
✪Graduate	CircAid Medical Products, Inc.	Inelastic	Compression systems for leg and foot
✪Juxta-CURES	CircAid Medical Products, Inc.	Inelastic	Multilayer compression system for lower legs
✪Juxta-Fit	CircAid Medical Products, Inc.	Inelastic	Compression garments for arm, hand, leg and foot
✪Juxta-Lite	CircAid Medical Products, Inc.	Inelastic	Compression garments for leg and foot
✪Measure-Up	CircAid Medical Products, Inc.	Inelastic	Compression systems for arm
✪Primer Latex Free Modified Unna Boot	Derma Sciences, Inc.	Inelastic	Unna boot
PROFORE LF (Latex-Free) Lite Multi-Layer Reduced Compression Bandage System	Smith & Nephew, Inc. Wound Management	Elastic	Multilayer compression system
PROFORE LF (Latex-Free) Multi-Layer High Compression Bandage System	Smith & Nephew, Inc. Wound Management	Elastic	Multilayer compression system
PROFORE Multi-Layer High Compression Bandage System	Smith & Nephew, Inc. Wound Management	Elastic	Multilayer compression system

Name of Product	Manufacturer/ Distributor	Type of Compression	Subcategory
PROGUIDE Multi-Layer High Compression Bandage System	Smith & Nephew, Inc. Wound Management	Inelastic	Multilayer compression system
Threeflex	Medline Industries, Inc.	Elastic	Multilayer compression system
✪3M Coban 2 Layer Compression System	3M Health Care		Multilayer compression system
Unna Boot	DeRoyal	Elastic	Unna boot
UNNA-FLEX Plus Venous Ulcer	ConvaTec	Elastic	Unna boot
UNNA-FLEX Plus Venous Ulcer Convenience Pack	ConvaTec	Inelastic	Unna boot/paste bandage
✪Unna Pack	Primer Modified/ Duband Self Adherent	Inelastic/elastic	Cohesive wrap/ Unna Boot
Unna-Z	Medline Industries, Inc.	Inelastic	Unna boots
Unna-Z with Calamine	Medline Industries, Inc.	Inelastic	Unna boots
✪VISCOPASTE PB7	Smith & Nephew, Inc., Wound Management	Inelastic	Paste bandage

✪ = New Product

CONFORMING BANDAGES

The HCPCS codes normally assigned to conforming bandages are:

Conforming bandage, nonsterile

A6442: Width < 3″ per yard
A6443: Width ≥ 3″ and < 5″ per yard
A6444: Width ≥ 5″ per yard

Conforming bandage, sterile

A6445: Width < 3″ per yard
A6446: Width ≥ 3″ and < 5″ per yard
A6447: Width ≥ 5″ per yard

Packing strips, nonimpregnated

A6407: Up to 2″ wide, per linear yard

Product Name	Manufacturer/Distributor
Bulkee Lite 100% Non-Sterile Cotton Bandage	Medline Industries, Inc.
Bulkee Lite 100% Sterile Cotton Bandage	Medline Industries, Inc.
Bulkee II	Medline Industries, Inc.
Conform Stretch Bandage	Coviden
CURITY Packing Strips	Covidien
Duform Synthetic Conforming Bandage	Derma Sciences, Inc.
FLUFTEX Rolls	DeRoyal
Kerlix Rolls	Covidien
Medline Plain Packing Strips	Medline Industries, Inc.
Packing Strips with Iodoform	Medline Industries, Inc.
Pak-Its Gauze Packing Strips – Plain	Derma Sciences, Inc.

ELASTIC BANDAGE ROLLS

The HCPCS codes normally assigned elastic bandage rolls are:

Light compression bandage

A6448: Width < 3″ per yard
A6449: Width ≥ 3″ and < 5″ per yard
A6450: Width ≥ 5″ per yard

Moderate-high compression bandage

A6451: Moderate compression bandage, load resistance of 1.25 to 1.34 foot pounds at 50% maximum stretch, width ≥ 3″ and < 5″ per yard
A6452: High compression bandage, load resistance greater than or equal to 1.35 foot pounds at 50% maximum stretch, width ≥ 3″ and < 5″ per yard

Self-adherent bandage

A6453: Width < 3″ per yard
A6454: Width ≥ 3″ and < 5″ per yard
A6455: Width ≥ 5″ per yard
A6457: Tubular dressing with or without elastic, any width, per linear yard

Product Name	Manufacturer/Distributor
Compriband	Derma Sciences, Inc.
Curity Cohesive Bandages	Covidien
CURITY Elastic Bandage	Covidien
Duban Cohesive Elastic Bandage	Derma Sciences, Inc.
Duflex Synthetic Conforming Bandage	Derma Sciences, Inc.
DuGrip Tubular Bandage	Derma Sciences, Inc.
Dsor Elastic Bandage—with Clips	Derma Sciences, Inc.
Elastinet Tubular Elastic Net Dressing Retainer	Brennen Medical, LLC
Elastive Adhesive Bandage - Nonlatex	Derma Sciences, Inc.

Product Name	Manufacturer/Distributor
Matrix Latex Free Elastic Bandage with Double Velcro	Medline Industries, Inc.
Medigrip Elastic Tubular Bandage	Medline Industries, Inc.
Setopress High Compression Support Bandage	Mölnlycke Health Care
Soft Wrap Elastic Bandage	Medline Industries, Inc.
SurePress High Compression Bandage	ConvaTec
Swift Wrap Elastic Bandage with Single Velcro	Medline Industries, Inc.
3M Coban Self-Adherent Wrap	3M Health Care
Tubifast Garments	Mölnlycke Health Care
Tubifast 2-Way Stretch Tubular Retention Dressing	Mölnlycke Health Care
Tubigrip Arthro-pad Support bandage	Mölnlycke Health Care
Tubigrip Shaped Support Bandage	Mölnlycke Health Care
Tubigrip Tubular Support Bandage	Mölnlycke Health Care
Tubipad Tubular Support Bandage	Mölnlycke Health Care

GAUZE, IMPREGNATED WITH OTHER THAN WATER, NORMAL SALINE, OR HYDROGEL, WITHOUT ADHESIVE BORDER

Impregnated gauze dressings are woven or nonwoven materials in which substances such as iodinated agents, petrolatum, zinc compounds, crystalline sodium chloride, chlorhexadine gluconate, bismuth tribromophenate, aqueous saline, or other agents have been incorporated into the dressing material by the manufacturer.

The HCPCS codes normally assigned to gauze, impregnated with other than water, normal saline, or hydrogel, without adhesive border are:
A6222: Pad size ≤ 16 in^2
A6223: Pad size > 16 in^2 but ≤ 48 in^2
A6224: Pad size > 48 in^2

Product Name	Manufacturer/Distributor
Bulkee II 4″ × 4″ 12-ply sponges	Medline Industries, Inc.
Bulkee II Super Fluff Sponges	Medline Industries, Inc.
Curad Oil Emulsion	Medline Industries, Inc.
Curad Petrolatum Gauze	Medline Industries, Inc.
Curad Xeroform Gauze	Medline Industries, Inc.
CURASALT Sodium Chloride Dressing	Covidien
Curity AMD—Antimicrobial Dressing	Covidien
Curity Hypertonic Sodium Chloride Dressing	Covidien

Product Name	Manufacturer/Distributor
Curity Oil Emulsion Dressing	Covidien
CUTICERIN Low Adherent Dressing	Smith & Nephew, Inc. Wound Management
✪DermaGauze	DermaRite Industries, LLC
DERMAGRAN (Zinc-Saline) Wet Dressing	Derma Sciences, Inc.
Kerlix AMD Antimicrobial Dressing	Covidien
Kerlix/Curity Saline Dressing	Covidien
Medi-Tech Hydrophilic Gauze	Medi-Tech International Corporation
Mesalt Sodium Chloride Dressing	Mölnlycke Health Care
Mesalt Sodium Chloride Ribbon	Mölnlycke Health Care
Oil Emulsion	DeRoyal
Pak-Its Gauze Packing Strips—Iodoform	Derma Sciences, Inc.
Vaseline Petrolatum Gauze	Covidien
Xeroflo Gauze Dressing	Covidien
Xeroform	DeRoyal
Xeroform Petrolatum Gauze	Covidien

✪ = New Product

GAUZE, IMPREGNATED WITH WATER OR NORMAL SALINE, WITHOUT ADHESIVE BORDER

The HCPCS codes normally assigned to gauze, impregnated with water or normal saline, without an adhesive border are:
A6228: Pad size ≤ 16 in^2
A6229: Pad size > 16 in^2 but ≤ 48 in^2
A6230: Pad size > 48 in^2

Product Name	Manufacturer/Distributor
CURITY Saline Dressing	Covidien
CUTICERIN Low Adherent Dressing	Smith & Nephew, Inc. Wound Management
Medline Biogard Barrier Dressings	Medline Industries, Inc.
MPM Gauze Impregnated Saline Dressing	MPM Medical, Inc.

GAUZE, NONIMPREGNATED, WITH ADHESIVE BORDER

The HCPCS codes normally assigned to gauze, nonimpregnated, with an adhesive border are:
A6219: Pad size ≤ 16 in^2
A6220: Pad size > 16 in^2 but ≤ 48 in^2
A6221: Pad size > 48 in^2

Product Name	Manufacturer/Distributor
Bordered Gauze	DermaRite Industries, LLC
COVRSITE	Smith & Nephew, Inc., Wound Management Division
✪DeRoyal Bordered Gauze	DeRoyal
✪Elta Soft-Touch Composite Island Dressing	SteadMed Medical
Medline Bordered Gauze	Medline Industries, Inc.
Mepore Absorbent Island Dressing	Mölnlycke Health Care
Mepore Pro	Mölnlycke Health Care
Telfa Island	Covidien
3M Medipore + Pad Soft Cloth Adhesive Wound Dressing	3M Health Care

✪ = New Product

GAUZE, NONIMPREGNATED, WITHOUT ADHESIVE BORDER

The HCPCS codes normally assigned to gauze, nonimpregnated, without an adhesive border are:

Gauze, nonimpregnated, sterile

A6402: Pad size ≤ 16 in^2
A6403: Pad size > 16 in^2 but ≤ 48 in^2
A6404: Pad size > 48 in^2

Gauze, nonimpregnated, nonsterile

A6216: Pad size ≤ 16 in^2
A6217: Pad size > 16 in^2 but ≤ 48 in^2
A6218: Pad size > 48 in^2

Product Name	Manufacturer/Distributor
Avant Gauze Drain Sponge	Medline Industries, Inc.
Avant Gauze—Nonsterile	Medline Industries, Inc.
Bulkee Super Fluff Sponges	Medline Industries, Inc.
Curity Cover Sponges	Covidien
Curity Gauze Pads	Covidien
Curity Gauze Sponges	Covidien
Ducare Woven Gauze Sponges	Derma Sciences, Inc.
Dusoft Non-Woven Sponges	Derma Sciences, Inc.
EXCILON Drain Sponge	Covidien
FLUFTEX Sponges	DeRoyal
Gauzetex 6-ply Fluff Sponge	Derma Sciences, Inc.
Kerlix 4 × 4 Sponges	Covidien
Kerlix Packing Sponges	Covidien

Product Name	Manufacturer/Distributor
Medline Gauze Pads—Bulk, Nonsterile	Medline Industries, Inc.
Medline Gauze Pads—Sterile	Medline Industries, Inc.
Primapad Nonadherent	Derma Sciences, Inc.
Sof-Form	Medline Industries, Inc.
Telfa Pad	Covidien

TAPES

Securing a wound cover is an essential step in the management process. One way to secure a wound cover is with the use of tapes. Each product is manufactured using various materials, widths, adhesives, and hypoallergenic properties.

The HCPCS codes normally assigned tapes and closures are:
A4450: Nonwaterproof, per 18 in^2
A4452: Waterproof, per 18 in^2

Product Name	Manufacturer/Distributor
CURAD Cloth Tape	Medline Industries, Inc.
CURAD Ortho-Porous Sports Tape	Medline Industries, Inc.
CURAD Paper Tape	Medline Industries, Inc.
Curi-Strip Adhesive Wound Closures	Covidien
Episeal	DeRoyal
HYPAFIX Dressing Retention Rolls	Smith & Nephew, Wound Mangement Division
Kendall Hypoallergenic Clear Tape	Covidien
Kendall Hypoallergenic Cloth Tape	Coviden
Kendall Hypoallergenic Paper Tape	Coviden
Kendall Hypoallergenic Silk Tape	Covidien
Kendall Standard Porous Tape	Covidien
Kendall Waterproof Tape	Coviden
Medfix Dressing Retention Waterproof Tape	Medline Industries, Inc.
Medfix EZ Dressing Retention Tape	Medline Industries, Inc.
Mefix Self-Adhesive Fabric Tape	Mölnlycke Health Care
✪Mepitac Soft Silicone Tape	Mölnlycke Health Care
3M Blenderm Tape	3M Health Care
3M Cloth Adhesive Tape	3M Health Care
3M Durapore Tape	3M Health Care
✪3M Kind Removal Silicone Tape	3M Health Care
3M Medipore H Soft Cloth Tape	3M Health Care
3M Medipore Pre-Cut Dressing Covers	3M Health Care
3M Medipore Soft Cloth Tape	3M Health Care
3M Microfoam Sterile Tape Patch	3M Health Care

Product Name	Manufacturer/Distributor
3M Microfoam Tape	3M Health Care
3M Micropore Tan Surgical Tape	3M Health Care
3M Micropore Tape	3M Health Care
3M Transpore Tape	3M Health Care
3M Transpore White Surgical Tape	3M Health Care
3M Universal Cloth Adhesive Tape	3M Health Care
Ultrafix Adhesive Dressing	Derma Sciences, Inc.

✪ = New Product

WOUND CLEANSERS

Wound cleansers are an essential step in wound management. These solutions are used to remove debris or foreign materials from the wound. Each cleanser listed provides the health care professional with proactive products for positive outcomes.

The HCPCS code normally assigned wound cleansers is:
A6260—any type, any size.

Product Name	Manufacturer/Distributor
Amerigel Wound Wash	Amerx Health Care Corporation
CarraKlenz Wound and Skin Cleanser	Medline Industries, Inc.
Dermagran Wound Cleanser with Zinc	Derma Sciences, Inc.
DermaKlenz	DermaRite Industries
DERMAL WOUND CLEANSER	Smith & Nephew, Wound Management Division
DermaMed	DermaRite Industries
✪Elta Wound Cleanser	SteadMed Medical
✪Microcyn Dermatology Spray with Preservatives	Oculus Innovative Sciences
✪Microcyn Skin and Wound Care with preservatives	Oculus Innovative Sciences
Microcyn Solution with Preservatives	Oculus Innovative Solutions
MicroKlenz Antimicrobial Deodorizing Wound Cleanser	Medline Industries, Inc.
MPM Antimicrobial Wound Cleanser	MPM Medical, Inc.
MPM Silvermed Antimicrobial Wound Cleanser	MPM Medical, Inc.
MPM Wound and Skin Cleanser	MPM Medical, Inc.
Primaderm Wound Cleanser – Non-sterile	Derma Sciences, Inc.
Primaderm Wound Cleanser - Sterile	Derma Sciences, Inc.
Restore Wound Cleanser	Hollister Wound Care
SAF-Clens AF Dermal Wound Cleanser	ConvaTec
Safe Wash saline	DermRite Industries, LLC

Product Name	Manufacturer/Distributor
Sea-Clens Wound Cleanser	Coloplast Corp.
Shur-Clens Wound Cleanser and OPTIPORE Sponge	ConvaTec
Skintegrity Wound Cleanser	Medline Industries, Inc.
3M Wound Cleanser	3M Health Care
UltraKlenz Wound and Skin Cleanser	Medline Industries, Inc.

✪ = New Product

Appendices and Index

APPENDIX A

Body mass index

The body mass index (BMI) is the relationship between height and weight. Use this chart as an indicator for determining optimal weight for health and as a resource to assess obesity.

WEIGHT (lbs)	HEIGHT (inches)																		
	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
	4′10″	4′11″	5′0″	5′1″	5′2″	5′3″	5′4″	5′5″	5′6″	5′7″	5′8″	5′9″	5′10″	5′11″	6′0″	6′1″	6′2″	6′3″	6′4″
100	21	20	20	19	18	18	17	17	16	16	15	15	14	14	14	13	13	13	13
105	22	21	21	20	19	19	18	18	17	16	16	16	15	15	14	14	14	13	13
110	23	22	22	21	20	20	19	18	18	17	17	16	16	15	15	15	14	14	13
115	24	23	23	22	21	20	20	19	19	18	18	17	17	16	16	15	15	14	14
120	25	24	23	23	22	21	21	20	19	19	18	18	17	17	16	16	15	15	15
125	26	25	24	24	23	22	22	21	20	20	19	18	18	17	17	17	16	16	15
130	27	26	25	25	24	23	22	22	21	20	20	19	19	18	18	17	17	16	16
135	28	27	26	26	25	24	23	23	22	21	21	20	19	19	18	18	17	17	16
140	29	28	27	27	26	25	24	23	23	22	21	21	20	20	19	19	18	18	17
145	30	29	28	27	27	26	25	24	23	23	22	21	21	20	20	19	19	18	18
150	31	30	29	28	27	27	26	26	24	24	23	22	22	21	20	20	19	19	18
155	32	31	30	29	28	28	27	26	25	24	24	23	22	22	21	20	20	19	19
160	34	32	31	30	29	28	28	27	26	25	24	24	23	22	22	21	21	20	20
165	35	33	32	31	30	29	28	28	27	26	25	24	24	23	22	22	21	21	20
170	36	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21
175	37	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23	22	21
180	38	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23	22
185	39	37	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23
190	40	38	37	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23
195	41	39	38	37	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24
200	42	40	39	38	37	36	34	33	32	31	30	30	29	28	27	26	26	25	24
205	43	41	40	39	38	36	35	34	33	32	31	30	29	29	28	27	26	26	25
210	44	43	41	40	38	37	36	35	34	33	32	31	30	29	29	28	27	26	26
215	45	44	42	41	39	38	37	36	35	34	33	32	31	30	29	28	28	27	26
220	46	45	43	42	40	39	38	37	36	35	34	33	32	31	30	29	28	28	27
225	47	46	44	43	41	40	39	38	36	35	34	33	32	31	31	30	29	28	27
230	48	47	45	44	42	41	40	38	37	36	35	34	33	32	31	30	30	29	28
235	49	48	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	29	29
240	50	49	47	45	44	43	41	40	39	38	37	36	35	34	33	32	31	30	29
245	51	50	48	46	45	43	42	41	40	38	37	36	35	34	33	32	32	31	30
250	52	51	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30

WEIGHT (lbs) \ HEIGHT (inches)	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
	4′10″	4′11″	5′0″	5′1″	5′2″	5′3″	5′4″	5′5″	5′6″	5′7″	5′8″	5′9″	5′10″	5′11″	6′0″	6′1″	6′2″	6′3″	6′4″
255	53	52	50	48	47	45	44	43	41	40	39	38	37	36	35	34	33	32	31
260	54	53	51	49	48	46	45	43	42	41	40	38	37	36	35	34	33	33	32
265	56	54	52	50	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32
270	57	55	53	51	49	48	46	45	44	42	41	40	39	38	37	36	35	34	33
275	58	56	54	52	50	49	47	46	44	43	42	41	40	38	37	36	35	34	34
280	59	57	55	53	51	50	48	47	45	44	43	41	40	39	38	37	36	35	34
285	60	58	56	54	52	51	49	48	46	45	43	42	41	40	39	38	37	36	35
290	61	59	57	55	53	51	50	48	47	46	44	43	42	41	39	38	37	36	35
295	62	60	58	56	54	52	51	49	48	46	45	44	42	41	40	39	38	37	36
300	63	61	59	57	55	53	52	50	49	47	46	44	43	42	41	40	39	38	37

Key:

Underweight | Healthy weight | Hefty | Overweight | Obese

Excerpted from Hess, C.T. *Clinical Wound Management Series for the Wound Care Department.* © Wound Care Strategies, Inc., 2001.

APPENDIX B

Wagner ulcer grade classification

This system may be used to classify foot ulcers.

GRADE	CHARACTERISTICS
0	■ Preulcer lesion ■ Healed ulcer ■ Presence of bone deformity
1	■ Superficial ulcer without subcutaneous tissue involvement
2	■ Penetration through the subcutaneous tissue; may expose bone, tendon, ligament, or joint capsule
3	■ Osteitis, abscess, or osteomyelitis
4	■ Gangrene of a digit
5	■ Gangrene requiring foot amputation

Reprinted from Glugla, M., & G.D., The diabetic foot: Medical management of foot ulcers. In Krasner, D. (Ed.), *Chronic wound care*. King of Prussia, PA: Health Management Publications, Inc., 1990, with permission of the publisher.

APPENDIX C

Laboratory tests to rule out atypical causes of leg ulcers

Chemistries

Kidney (BUN, creatinine)
Liver (liver enzymes, hepatitis panel)
Electrolytes
Glucose
Fasting lipids
Hemoglobin A_{1c}
Amylase/lipase
Iron
Folate
Ferritin
Parathyroid hormone
Calcium
Phosphorus
Magnesium
Transferrin
Albumin
Prealbumin
Vitamins/minerals
Aldolase
Creatine kinase

Immunologic tests

Autoimmune disorders, vasculitis
ASO
Antinuclear antibodies
Rheumatoid factor
Quantitative immunoglobulins
Protein electrophoresis (SPEP, IPEP)
Complement (CH50, C3, C4)
a-ANCA, p-ANCA
Indirect immunofluorescence
Antiphospholipid antibodies (lupus anticoagulant, IgG or IgM anticardiolipin antibodies)

Hematologic tests

CBC with differential
Sedimentation rate
C-reactive protein
Antithrombin III
Protein C
Protein S
Factor V Leiden
Peripheral blood smear
Homocysteine
Hemoglobin electrophoresis
Cryoglobulins/cryofibrinogens
Glucose 6 phosphate dehydrogenase
Complement
Fibrinogen/FDP/D-dimers
PT/PTT

Tissue biopsy

For differential diagnosis of inflammatory, microthrombotic, and bullous disorders, such as:

- Nonatherosclerotic ischemic ulcers (vasculitis, vasculopathy)
- Inflammatory conditions
- Malignancies
- Infections
- Autoimmune bullous disorders
- Atherosclerotic ischemic ulcers
- Venous ulcers
- Neuropathic ulcers
- Medication-induced wounds
- Pressure ulcers
- Traumatic wounds

Note: Location is crucial to accurate diagnosis. Biopsy newest lesions along the advancing edge of the abnormal area, including a rim of normal tissue; consider several biopsies in different areas of the wound.

APPENDIX D

Braden scale

To use this scale, assess the patient for each category, assign a score of 1 to 4, then calculate the total score. If the patient's score is 16 or less, consider him at risk for pressure ulcer development.

SENSORY PERCEPTION Ability to respond appropriately to pressure-related discomfort	**1. Completely limited** Patient is unresponsive to painful stimuli (doesn't moan, flinch, or grasp) or has limited ability to feel pain over most of body surface due to diminished level of consciousness or sedation.	**2. Very limited** Patient responds only to painful stimuli, can't communicate discomfort except by moaning or restlessness, or has a sensory impairment that limits the ability to feel pain or discomfort over half of body.
MOISTURE Degree to which skin is exposed to moisture	**1. Constantly moist** Skin is moistened almost constantly by perspiration, urine, and so on. Dampness is detected every time patient is moved or turned.	**2. Moist** Skin is usually but not always moist. A linen change is required at least once each shift.
ACTIVITY Degree of physical activity	**1. Bedbound** Patient is confined to bed.	**2. Chairbound** Patient's ability to walk is severely limited or nonexistent. Patient can't bear his own weight or must be assisted into a chair or wheelchair.
MOBILITY Ability to change and control body position	**1. Completely immobile** Patient doesn't make even slight changes in body or extremity position without assistance.	**2. Very limited** Patient makes occasional slight changes in body or extremity position but is unable to make frequent or significant changes independently.
NUTRITION Usual food intake pattern	**1. Very poor** Patient never eats a complete meal and rarely eats more than one-third of any food offered. Patient eats two servings or less of protein (meat or dairy products) per day, takes fluids poorly, doesn't take a liquid dietary supplement, or is NPO or maintained on clear liquids or I.V. fluids for more than 5 days.	**2. Probably inadequate** Patient rarely eats a complete meal and generally eats only about one-half of any food offered. Patient eats three servings of protein (meat or dairy products) per day, occasionally will take a dietary supplement, or receives less than an optimum amount of liquid diet or tube feeding.
FRICTION AND SHEAR	**1. Problem** Patient requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible and he frequently slides down in the bed or chair, requiring repositioning with maximum assistance. Spasticity, contractures, or agitation lead to almost constant friction.	**2. Potential problem** Patient moves feebly or requires minimum assistance. During a move, skin slides to some extent against sheets, the chair, restraints, or other devices. Patient maintains relatively good position in a chair or bed most of the time but occasionally slides down.

		DATE OF ASSESSMENT			
3. Slightly limited Patient responds to verbal commands but can't always communicate discomfort or need to be turned or has some sensory impairment that limits his ability to feel pain or discomfort in one or two extremities.	**4. No impairment** Patient responds to verbal commands and has no sensory deficit that would limit his ability to feel or voice pain or discomfort.				
3. Occasionally moist Skin is occasionally moist, and an extra linen change is required approximately once per day.	**4. Rarely moist** Skin is usually dry and linen requires changing only at routine intervals.				
3. Walks occasionally Patient walks occasionally during the day but only for very short distances, with or without assistance. Patient spends most of each shift in a bed or chair.	**4. Walks frequently** Patient walks outside the room at least twice per day and inside the room at least once every 2 hours during waking hours.				
3. Slightly limited Patient independently makes frequent though slight changes in body or extremity position.	**4. No limitations** Patient makes major and frequent changes in position without assistance.				
3. Adequate Patient eats over one-half of most meals and eats a total of four servings of protein (meat or dairy products) each day. Occasionally, patient will refuse a meal but will usually take a supplement if offered or is on a tube feeding or total parenteral nutrition regimen.	**4. Excellent** Patient eats most of every meal and never refuses a meal. Patient usually eats a total of four or more servings of protein (meat or dairy products) daily. Patient occasionally eats between meals and doesn't require supplementation.				
3. No apparent problem Patient moves in a bed or chair independently and has sufficient muscle strength to lift up completely during the move. Patient maintains good position in a bed or chair at all times.					
		TOTAL SCORE			

APPENDIX E

Clinical pathways integrated with evidence-based decisions

The art and science of skin and wound care management directly impacts the patient's clinical and financial outcomes. An outcome is the overall condition of a patient that results from all health care processes performed on or for that patient. It refers not only to the patient's medical condition but also to the resulting quality of life the patient experiences.

Published wound-healing models capture relationships between healing and treatment across a large population and history of wound treatment. To achieve the best possible wound care outcomes while controlling costs, a comprehensive wound management system—one based on published evidence, validated protocols, and competency programs for staff members—should be established.

An effective tool for managing outcomes is the clinical pathway. The clinical pathway provides clinical and operational direction, in a stepwise fashion, for the team to follow when performing a comprehensive patient assessment. The assessment details the patient's medical history, inclusive of the wound's status. To complete each step, consider appropriate personnel through a clinical and operational workflow synchronization model. The pathway should provide information regarding an initial assessment. Follow-up visits will be predicated on the department's clinical and operational workflow, policies, and procedures as well as on the necessary medical/clinical direction based on the patient and wound presentation. Such a pathway can serve as a guideline for the health care team to follow for a specific diagnosis. A wound-healing pathway is then designed to include the assessment, documentation, intervention processes, and expected outcome:

- **Assessment**, both initial and ongoing, describes the overall condition of the patient, including the wound status.
- **Documentation**, both written and photographic, becomes the foundation for management decisions, evaluation of the wound-healing process, and reimbursement decisions. It also serves as a defense in litigation.
- **Interventions**, guided by the multidisciplinary wound care team, include topical treatments, use of support surfaces, adjunctive therapies and products, and nutritional supplements.
- **Expected outcome** describes the overall condition of the patient that should result from all the processes performed on or for that patient.

The following pathway tables are not all-inclusive. However, the sample tables provide clinicians and physicians with evidence-based recommendations for the care of diabetic, venous, and pressure-related wounds. Key decision points are provided based on research that combines healing rates, at 4-week intervals,

with expected outcomes. If the patient does not meet a given healing rate, closure objective research suggests that the patient will experience delayed healing in the weeks to come. The provider may, at this point, act on further evidence-based adjunctive therapy recommendations, altering the patient's expected negative outcome. See the references cited below for further considerations when developing pathways for your facility.

SAMPLE: Diabetic Etiology Evidence-Based Treatment Pathway

Week 1 Initial Assessment
Initial Assessment[1] may include details such as history of diabetes, cardiovascular risk factors and cardiovascular disease, footwear, foot exam, duration of wounds, impediments to wound healing, adjunctive therapies incorporated in lifestyle, past family and psychosocial factors/history.

Objective	Intervention
Manage wound bed preparation	Convert the molecular and cellular environment of a chronic wound to an acute healing wound
Assess circulation	Perfusion assessment test(s)
Relieve pressure	Offloading devices
Manage infection	Antimicrobials
Consider surgical procedure	Based on duration of wound and patient presentation
Remove callus	Debride callus
Remove avascular tissue	Debride nonviable tissue
Optimize nutrition	Dietary consultation
Protect surrounding tissue	Skin protectants
Control moisture	Absorbent dressing
Provide patient education	Validate patient/caregiver understanding of treatment plan each visit
Initiate wound measurements and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes

Week 4 Benchmark
If the diabetic foot ulcer heals less than 50% over the first 4 weeks*, you may want to consider the following approaches:

*Note: "50% percentage area reduction at 4 weeks was significantly associated with healing at 12 weeks."[3,4]

Objective	Intervention
Reevaluate patient status	Complete H&P and plan of care; review initial approaches
Sponsor granulation	Consider alternative technologies for wound management (e.g., NPWT)
Introduce growth factors	Skin substitute, PDGF
Improve microcirculation	Hyperbaric oxygen therapy (Wagner 3 or greater diabetic wounds)
Monitor healing and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Provide patient education	Reassess patient/caregiver understanding of treatment plan

SAMPLE: Diabetic Etiology Evidence-Based Treatment Pathway *(continued)*

Week 20 Benchmark
67% of diabetic foot ulcers remain unhealed after 20 weeks of care.[5] Based on the patient's outcome, you may want to consider the following approaches:

*Note: "50% percentage area reduction at 4 weeks was significantly associated with healing at 12 weeks."[3,4]

Objective	Intervention
Repeat physician evaluation[2,6]	Treatment as necessary per physician plan of care
Monitor healing and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Provide patient education	Reassess patient/caregiver understanding of treatment plan

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SAMPLE: Venous Etiology Evidence-Based Treatment Pathway

Week 1 Initial Assessment

- Initial Assessment[1–3] may include details of the comprehensive clinical history and physical examination (blood pressure measurement, weight, blood glucose level [if appropriate], perfusion assessment tests, any other tests relevant to presenting patient's condition, ulcer history, ulcer treatment history, medical history, medication, bilateral limb assessment, pain, nutrition, allergies, psychosocial status, functional/cognitive/emotional status, and ability for self-care)
- Comprehensive assessment of ulcer (measurement of the wound and undermining, amount and quality of exudate, wound bed appearance, condition of the wound edge, infection, presence or absence of patient suffering, and reevaluation)

Objective	Intervention
Manage wound bed preparation	Convert the molecular and cellular environment of a chronic wound to an acute healing wound
Confirm venous etiology	Venous duplex ultrasound
Rule out arterial etiology	Perfusion assessment test(s)
Apply compression	Multilayer compression
Remove avascular tissue	Debride nonviable tissue
Manage infection	Culture/antimicrobials
Consider surgical procedure	Based on duration of wound and patient presentation
Optimize nutrition	Dietary consultation
Protect surrounding tissue	Skin protectants
Control moisture	Absorbent dressing
Initiate wound measurements and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Provide patient education	Reassess patient/caregiver understanding of treatment plan

SAMPLE: Venous Etiology Evidence-Based Treatment Pathway *(continued)*

Week 4 Benchmark
If the venous leg ulcer has a 30% reduction over the first 4 weeks* (in a typical venous ulcer), you may want to consider the following approaches:

*Note: "Data suggests a venous leg ulcer that fails to decrease in size by 30% (percentage area reduction) of its initial size over the first 4 weeks of treatment has a 68% probability of failing to heal within 24 weeks."[2]

Objective	Intervention
Reevaluate patient status[1]	Complete H&P and plan of care; review initial approaches
Monitor healing and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Sponsor granulation	Consider alternative technologies for wound management (e.g., NPWT)
Introduce growth factors	Skin substitute
Revisit diagnosis	Rule out differential diagnosis of lower extremity ulcers (refer to "Differential diagnosis of lower-extremity ulcers" in chapter 3)
Provide patient education	Reassess patient/caregiver understanding of treatment plan

Week 24 Benchmark
A benchmark is 49% of the venous ulcers treated with compression therapy alone in the control arm of a randomized clinical trial healed at 24 weeks[3]. Based on the patient's outcome, you may want to consider the following approaches:

*Note: "Data suggests a venous leg ulcer that fails to decrease in size by 30% (percentage area reduction) of its initial size over the first 4 weeks of treatment has a 68% probability of failing to heal within 24 weeks."[4]

Objective	Intervention
Repeat physician evaluation[1]	Treatment as necessary per physician plan of care
Monitor healing and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Provide patient education	Reassess patient/caregiver understanding of treatment plan

References
1. Martin, C., et al. (2006). Guidelines for the treatment of venous ulcers. *Wound Repair and Regeneration, 14*(6), 649–662.
2. Registered Nurses Association of Ontario (RNAO). (March 2004). Assessment and management of venous leg ulcers. Accessed November 14, 2011, via the Web at http://www.guideline.gov/content.aspx?id=11508
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SAMPLE: Pressure Ulcer Evidence-Based Treatment Pathway

Week 1 Initial Assessment

- Initial Assessment[1–3] may include details of the comprehensive clinical history and physical examination (blood pressure measurement, weight, mobility status, incontinence status, any other tests relevant to presenting patient's condition, ulcer history, ulcer treatment history, medical history, medications, pain, nutrition, allergies, psychosocial status, functional/cognitive/emotional status, and ability for self-care)
- Comprehensive assessment of ulcer (measurement of the wound and undermining, amount and quality of exudate, wound bed appearance, condition of the wound edge, infection, presence or absence of patient suffering, and reevaluation)

Objective	Intervention
Manage wound bed preparation	Convert the molecular and cellular environment of a chronic wound to an acute healing wound
Initiate wound measurements and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Relieve pressure	Support surfaces/other offloading devices
Manage infection	Culture/antimicrobials
Remove avascular tissue	Debride (Leave heel wounds intact unless infected)
Optimize nutrition	Pre-albumin/dietary consultation
Consider surgical procedure	Based on duration of wound and patient presentation
Protect surrounding tissue	Skin protectants
Reduce healing delays	Treat comorbid conditions
Fill dead space	Fill to volume of wound (don't overpack)
Resolve aggravating conditions	Treat friction, shear, moisture, and incontinence
Control moisture	Absorbent dressing
Sponsor granulation	Consider alternative technologies for wound management (e.g., NPWT)
Provide patient education	Reassess patient/caregiver understanding of treatment plan

SAMPLE: Pressure Ulcer Evidence-Based Treatment Pathway *(continued)*

Week 4 Benchmark
If the pressure ulcer heals less than 75% over the first 4 weeks*, you may want to consider the following approaches:

* Note: Wounds that did not decrease in area by 77% after 4 weeks were significantly less likely to heal[3] (a 75% closure rate at 4 weeks was selected due to wound measurement conventions).

Objective	Intervention
Reevaluate patient status[1]	Complete H&P and plan of care; review initial approaches
Monitor healing and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Monitor dressing, drugs, devices, and support surfaces	Reevaluate adjunctive products, therapies, and offloading devices
Sponsor granulation	Consider alternative technologies for wound management (e.g., NPWT)
Fill volume	Apply dermal substitutes
Revise tissue	Surgical intervention
Remove avascular tissue	Debride and treat with advanced wound care products
Provide patient education	Reassess patient/caregiver understanding of treatment plan

Week 10 Benchmark
The median days to healing is 73 days for large (> 4 cm^2) ulcers.[3]

Based on the patient's outcome, you may want to consider the following approaches:

Objective	Intervention
Repeat physician evaluation[1]	Treatment as necessary per physician plan of care
Monitor healing and outcomes	Measure healing with validated wound-analysis tool and monitor outcomes
Monitor dressing, drugs, devices, and support surfaces	Reevaluate adjunctive products, therapies, and offloading devices
Provide patient education	Reassess patient/caregiver understanding of treatment plan

References
1. Whitney, J., et al. (2006). Guidelines for the treatment of pressure ulcers. *Wound Repair and Regeneration, 14*, 663–679.
2. European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. (2009). Prevention and treatment of pressure ulcers: Quick reference guide. Washington D. C.: National Pressure Ulcer Advisory Panel.
3. Van Rijswijk, L. (1993). Full-thickness pressure ulcers: Patient and wound healing characteristics. *Decubitus, 6*(1), 16–21.

APPENDIX F

Ankle-brachial index use in patients with diabetes

Peripheral arterial disease (PAD) in the lower extremities signals widespread arterial disease and a high risk of stroke, myocardial infarction, and death. Because many patients with diabetes also have PAD, the American Diabetes Association now recommends testing for PAD in any patient with diabetes who is over age 50.[1] Patients with diabetes who are younger than age 50 should be screened for PAD if they have risk factors for PAD, such as smoking, hypertension, hyperlipidemia, or diabetes for more than 10 years.[1]

The recommended test is the ankle-brachial index (ABI), which measures the ratio of systolic blood pressure in the ankle and the arm. The ABI can be used to detect decreased blood pressure distal to sites of artery narrowing. If the results are normal, the ADA recommends that patients be rechecked every 5 years.[1]

However, the ABI is not a foolproof way to assess patients with diabetes. These patients may have falsely elevated ABIs because their disease process causes calcification that decreases compressibility of the arteries. Clinicians must, therefore, pay close attention to the patient's physical condition. A patient with cold and/or hairless lower extremities, for example, may have PAD regardless of a normal ABI. If the physical examination warrants, the patient may need a toe-brachial index to determine arterial perfusion in the feet and toes.

When measuring the ABI, use a handheld, 5 to 10 MHz Doppler ultrasound device[1] and follow the steps listed here to detect the brachial and ankle pulses.

1. Gather the following equipment:
   - mercury or aneroid sphygmomanometer with cuff
   - handheld Doppler device with vascular probe
   - conductivity gel compatible with the Doppler device
   - gauze or tissues.
2. Have the patient lie in the supine position for at least 5 minutes. Remove the patient's shoes and socks. Apply the blood pressure cuff to the arm and palpate for the brachial pulse. Apply conductivity gel over the brachial artery.
3. Turn on the Doppler device and place the tip of the probe into the top of the gel at a 45-degree angle. Listen for a whooshing sound, which indicates the brachial pulse.
4. Pump up the cuff to the point at which the sound is no longer heard, then to 20 mm Hg above that point. Slowly release the air and listen again for the whooshing sound. The point at which the sound is first heard indicates systolic blood pressure. Repeat the procedure in the other arm and record the higher reading.
5. Locate the posterior tibial pulse at the medial aspect of the patient's ankle. With the same technique used on the arms, assess and record systolic pressures in both ankles. Use the gauze or tissue to clean the gel from the patient's skin. Calculate the ABI for each ankle and document the results and the sites in the medical record. (See *Calculating the ABI.*)

Calculating the ABI

To determine the ABI, divide each ankle systolic pressure (A) by the higher brachial pressure (B) to calculate the ankle-brachial index (ABI). For example:

	Left		Right
	140	(A)	128
divided by	144	(B)	144
equals	0.97	(AB)	0.89

According to the ADA,[1] diagnostic criteria for PAD based on the ABI are as follows:

- Normal: 0.91–1.30
- Mild obstruction: 0.70–0.90
- Moderate obstruction: 0.40–0.69
- Severe obstruction: < 0.40
- Poorly compressible (due to medial arterial calcification): > 1.3

Adapted with permission from Sloan, H., and Willis, E.M. (1999). Ankle-brachial index: Calculating your patient's vascular risk," *Nursing 99 29*(10):58–59.

[1]American Diabetes Association. (2003). Peripheral arterial disease in people with diabetes. *Diabetes Care, 26,* 3333–3341.

Manufacturer resource guide

AlloSource
www.allosource.org

Ameriderm Laboratories Ltd
www.ameriderm.com

Amerx Health Care Corp.
www.amerigel.com

Argentum Medical LLC
www.silverlon.com

Bio Med Sciences, Inc.
www.silon.com

Brennen Medical, Inc.
www.brennenmed.com

Celleration
www.celleration.com

Choice Therapeutics, Inc.
www.choicetherapeutics.com

CircAid Medical Products
www.circaid.com

Coloplast Corp.
www.us.coloplast.com

Convatec
www.convatec.com

Covidien
www.covidien.com

Cytomedix, Inc.
www.cytomedix.com

Darco International, Inc.
www.darcointernational.com

DermaRite Industries LLC
www.DermaRite.com

Derma Sciences, Inc.
www.dermasciences.com

DeRoyal
www.deroyal.com

Ferris Manufacturing Corporation
www.ferriscares.com

Healthpoint Biotherapeutics
www.healthpoint.com

Hollister Incorporated
www.hollister.com

Integrated Health Partners
www.ihtpartners.com

Innovative Therapies, Inc.
www.itimedical.com

Kalypto Medical, Inc.
www.kalyptomedical.com

Kinetic Concepts, Inc.
www.kci1.com

Medline Industries, Inc.
www.medline.com/woundcare

Molnlycke Health Care US, LLC
www.molnlycke.com

MPM Medical, Inc.
www.mpmmedicalinc.com

Oculus Innovative Sciences, Inc.
www.oculusis.com

Regenesis Biomedical, Inc.
www.regenesisbiomedical.com

Smith & Nephew Wound Management
www.snwmd.com

Spiracur Inc.
www.spiracur.com

Southwest Technologies, Inc.
www.elastogel.com

SteadMed Medical
www.steadmed.com

Systagenix
www.systagenix.com

3M Health Care
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