

THE OFFICIAL
PATIENT'S SOURCEBOOK

on

HIATAL
HERNIA



JAMES N. PARKER, M.D.
AND PHILIP M. PARKER, PH.D., EDITORS

ICON Health Publications
ICON Group International, Inc.
4370 La Jolla Village Drive, 4th Floor
San Diego, CA 92122 USA

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Printed in the United States of America.

Last digit indicates print number: 10 9 8 7 6 4 5 3 2 1

Publisher, Health Care: Tiffany LaRochelle
Editor(s): James Parker, M.D., Philip Parker, Ph.D.

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Cataloging-in-Publication Data

Parker, James N., 1961-
Parker, Philip M., 1960-

The Official Patient's Sourcebook on Hiatal Hernia: A Revised and Updated Directory for the Internet Age/James N. Parker and Philip M. Parker, editors

p. cm.

Includes bibliographical references, glossary and index.

ISBN: 0-597-83392-3

1. Hiatal Hernia-Popular works. I. Title.

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Dedication

To the healthcare professionals dedicating their time and efforts to the study of hiatal hernia.

Acknowledgements

The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this sourcebook which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which directly or indirectly are dedicated to hiatal hernia. All of the *Official Patient's Sourcebooks* draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this sourcebook. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany LaRochelle for her excellent editorial support.

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About ICON Health Publications

In addition to hiatal hernia, *Official Patient's Sourcebooks* are available for the following related topics:

- The Official Patient's Sourcebook on Appendicitis
- The Official Patient's Sourcebook on Autoimmune Hepatitis
- The Official Patient's Sourcebook on Bacteria and Foodborne Illness
- The Official Patient's Sourcebook on Barrett's Esophagus
- The Official Patient's Sourcebook on Celiac Disease
- The Official Patient's Sourcebook on Cirrhosis of the Liver
- The Official Patient's Sourcebook on Constipation
- The Official Patient's Sourcebook on Crohn Disease
- The Official Patient's Sourcebook on Cyclic Vomiting Syndrome
- The Official Patient's Sourcebook on Diarrhea
- The Official Patient's Sourcebook on Diverticular Disease
- The Official Patient's Sourcebook on Fecal Incontinence
- The Official Patient's Sourcebook on Gallstones
- The Official Patient's Sourcebook on Gas
- The Official Patient's Sourcebook on Gastritis
- The Official Patient's Sourcebook on Gastroparesis
- The Official Patient's Sourcebook on Hemolytic Uremic Syndrome
- The Official Patient's Sourcebook on Hemorrhoids
- The Official Patient's Sourcebook on Hepatitis A
- The Official Patient's Sourcebook on Hepatitis B
- The Official Patient's Sourcebook on Hepatitis C
- The Official Patient's Sourcebook on Hiatal Hernia
- The Official Patient's Sourcebook on Hirschsprung
- The Official Patient's Sourcebook on Indigestion
- The Official Patient's Sourcebook on Inguinal Hernia
- The Official Patient's Sourcebook on Intestinal Pseudo-obstruction
- The Official Patient's Sourcebook on Irritable Bowel Syndrome
- The Official Patient's Sourcebook on Lactose Intolerance
- The Official Patient's Sourcebook on Ménétrier
- The Official Patient's Sourcebook on Pancreatitis
- The Official Patient's Sourcebook on Peptic Ulcer
- The Official Patient's Sourcebook on Porphyria
- The Official Patient's Sourcebook on Primary Biliary Cirrhosis
- The Official Patient's Sourcebook on Primary Sclerosing Cholangitis
- The Official Patient's Sourcebook on Proctitis

- The Official Patient's Sourcebook on Rapid Gastric Emptying
- The Official Patient's Sourcebook on Short Bowel Syndrome
- The Official Patient's Sourcebook on Ulcerative Colitis
- The Official Patient's Sourcebook on Whipple Disease
- The Official Patient's Sourcebook on Wilson's Disease
- The Official Patient's Sourcebook on Zollinger-ellison Syndrome

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INTRODUCTION

Overview

Dr. C. Everett Koop, former U.S. Surgeon General, once said, “The best prescription is knowledge.”¹ The Agency for Healthcare Research and Quality (AHRQ) of the National Institutes of Health (NIH) echoes this view and recommends that every patient incorporate education into the treatment process. According to the AHRQ:

Finding out more about your condition is a good place to start. By contacting groups that support your condition, visiting your local library, and searching on the Internet, you can find good information to help guide your treatment decisions. Some information may be hard to find – especially if you don’t know where to look.²

As the AHRQ mentions, finding the right information is not an obvious task. Though many physicians and public officials had thought that the emergence of the Internet would do much to assist patients in obtaining reliable information, in March 2001 the National Institutes of Health issued the following warning:

The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading.³

¹ Quotation from <http://www.drkoop.com>.

² The Agency for Healthcare Research and Quality (AHRQ):
<http://www.ahrq.gov/consumer/diaginfo.htm>.

³ From the NIH, National Cancer Institute (NCI):
<http://cancertrials.nci.nih.gov/beyond/evaluating.html>.

Since the late 1990s, physicians have seen a general increase in patient Internet usage rates. Patients frequently enter their doctor's offices with printed Web pages of home remedies in the guise of latest medical research. This scenario is so common that doctors often spend more time dispelling misleading information than guiding patients through sound therapies. *The Official Patient's Sourcebook on Hiatal Hernia* has been created for patients who have decided to make education and research an integral part of the treatment process. The pages that follow will tell you where and how to look for information covering virtually all topics related to hiatal hernia, from the essentials to the most advanced areas of research.

The title of this book includes the word "official." This reflects the fact that the sourcebook draws from public, academic, government, and peer-reviewed research. Selected readings from various agencies are reproduced to give you some of the latest official information available to date on hiatal hernia.

Given patients' increasing sophistication in using the Internet, abundant references to reliable Internet-based resources are provided throughout this sourcebook. Where possible, guidance is provided on how to obtain free-of-charge, primary research results as well as more detailed information via the Internet. E-book and electronic versions of this sourcebook are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). Hard copy users of this sourcebook can type cited Web addresses directly into their browsers to obtain access to the corresponding sites. Since we are working with ICON Health Publications, hard copy *Sourcebooks* are frequently updated and printed on demand to ensure that the information provided is current.

In addition to extensive references accessible via the Internet, every chapter presents a "Vocabulary Builder." Many health guides offer glossaries of technical or uncommon terms in an appendix. In editing this sourcebook, we have decided to place a smaller glossary within each chapter that covers terms used in that chapter. Given the technical nature of some chapters, you may need to revisit many sections. Building one's vocabulary of medical terms in such a gradual manner has been shown to improve the learning process.

We must emphasize that no sourcebook on hiatal hernia should affirm that a specific diagnostic procedure or treatment discussed in a research study, patent, or doctoral dissertation is "correct" or your best option. This sourcebook is no exception. Each patient is unique. Deciding on appropriate

options is always up to the patient in consultation with their physician and healthcare providers.

Organization

This sourcebook is organized into three parts. Part I explores basic techniques to researching hiatal hernia (e.g. finding guidelines on diagnosis, treatments, and prognosis), followed by a number of topics, including information on how to get in touch with organizations, associations, or other patient networks dedicated to hiatal hernia. It also gives you sources of information that can help you find a doctor in your local area specializing in treating hiatal hernia. Collectively, the material presented in Part I is a complete primer on basic research topics for patients with hiatal hernia.

Part II moves on to advanced research dedicated to hiatal hernia. Part II is intended for those willing to invest many hours of hard work and study. It is here that we direct you to the latest scientific and applied research on hiatal hernia. When possible, contact names, links via the Internet, and summaries are provided. It is in Part II where the vocabulary process becomes important as authors publishing advanced research frequently use highly specialized language. In general, every attempt is made to recommend “free-to-use” options.

Part III provides appendices of useful background reading for all patients with hiatal hernia or related disorders. The appendices are dedicated to more pragmatic issues faced by many patients with hiatal hernia. Accessing materials via medical libraries may be the only option for some readers, so a guide is provided for finding local medical libraries which are open to the public. Part III, therefore, focuses on advice that goes beyond the biological and scientific issues facing patients with hiatal hernia.

Scope

While this sourcebook covers hiatal hernia, your doctor, research publications, and specialists may refer to your condition using a variety of terms. Therefore, you should understand that hiatal hernia is often considered a synonym or a condition closely related to the following:

- Diaphragmatic Hernias

In addition to synonyms and related conditions, physicians may refer to hiatal hernia using certain coding systems. The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) is the most commonly used system of classification for the world's illnesses. Your physician may use this coding system as an administrative or tracking tool. The following classification is commonly used for hiatal hernia:⁴

- 750.6 congenital hiatus hernia
- 750.6 hiatal hernia

For the purposes of this sourcebook, we have attempted to be as inclusive as possible, looking for official information for all of the synonyms relevant to hiatal hernia. You may find it useful to refer to synonyms when accessing databases or interacting with healthcare professionals and medical librarians.

Moving Forward

Since the 1980s, the world has seen a proliferation of healthcare guides covering most illnesses. Some are written by patients or their family members. These generally take a layperson's approach to understanding and coping with an illness or disorder. They can be uplifting, encouraging, and highly supportive. Other guides are authored by physicians or other healthcare providers who have a more clinical outlook. Each of these two styles of guide has its purpose and can be quite useful.

As editors, we have chosen a third route. We have chosen to expose you to as many sources of official and peer-reviewed information as practical, for the purpose of educating you about basic and advanced knowledge as recognized by medical science today. You can think of this sourcebook as your personal Internet age reference librarian.

Why "Internet age"? All too often, patients diagnosed with hiatal hernia will log on to the Internet, type words into a search engine, and receive several Web site listings which are mostly irrelevant or redundant. These patients are left to wonder where the relevant information is, and how to obtain it. Since only the smallest fraction of information dealing with hiatal hernia is

⁴ This list is based on the official version of the World Health Organization's 9th Revision, International Classification of Diseases (ICD-9). According to the National Technical Information Service, "ICD-9CM extensions, interpretations, modifications, addenda, or errata other than those approved by the U.S. Public Health Service and the Health Care Financing Administration are not to be considered official and should not be utilized. Continuous maintenance of the ICD-9-CM is the responsibility of the federal government."

even indexed in search engines, a non-systematic approach often leads to frustration and disappointment. With this sourcebook, we hope to direct you to the information you need that you would not likely find using popular Web directories. Beyond Web listings, in many cases we will reproduce brief summaries or abstracts of available reference materials. These abstracts often contain distilled information on topics of discussion.

While we focus on the more scientific aspects of hiatal hernia, there is, of course, the emotional side to consider. Later in the sourcebook, we provide a chapter dedicated to helping you find peer groups and associations that can provide additional support beyond research produced by medical science. We hope that the choices we have made give you the most options available in moving forward. In this way, we wish you the best in your efforts to incorporate this educational approach into your treatment plan.

The Editors

PART I: THE ESSENTIALS

ABOUT PART I

Part I has been edited to give you access to what we feel are “the essentials” on hiatal hernia. The essentials of a disease typically include the definition or description of the disease, a discussion of who it affects, the signs or symptoms associated with the disease, tests or diagnostic procedures that might be specific to the disease, and treatments for the disease. Your doctor or healthcare provider may have already explained the essentials of hiatal hernia to you or even given you a pamphlet or brochure describing hiatal hernia. Now you are searching for more in-depth information. As editors, we have decided, nevertheless, to include a discussion on where to find essential information that can complement what your doctor has already told you. In this section we recommend a process, not a particular Web site or reference book. The process ensures that, as you search the Web, you gain background information in such a way as to maximize your understanding.

CHAPTER 1. THE ESSENTIALS ON HIATAL HERNIA: GUIDELINES

Overview

Official agencies, as well as federally-funded institutions supported by national grants, frequently publish a variety of guidelines on hiatal hernia. These are typically called “Fact Sheets” or “Guidelines.” They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. The great advantage of guidelines over other sources is that they are often written with the patient in mind. Since new guidelines on hiatal hernia can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

The National Institutes of Health (NIH)⁵

The National Institutes of Health (NIH) is the first place to search for relatively current patient guidelines and fact sheets on hiatal hernia. Originally founded in 1887, the NIH is one of the world’s foremost medical research centers and the federal focal point for medical research in the United States. At any given time, the NIH supports some 35,000 research grants at universities, medical schools, and other research and training institutions, both nationally and internationally. The rosters of those who have conducted research or who have received NIH support over the years include the world’s most illustrious scientists and physicians. Among them are 97 scientists who have won the Nobel Prize for achievement in medicine.

⁵ Adapted from the NIH: <http://www.nih.gov/about/NIHoverview.html>.

There is no guarantee that any one Institute will have a guideline on a specific disease, though the National Institutes of Health collectively publish over 600 guidelines for both common and rare diseases. The best way to access NIH guidelines is via the Internet. Although the NIH is organized into many different Institutes and Offices, the following is a list of key Web sites where you are most likely to find NIH clinical guidelines and publications dealing with hiatal hernia and associated conditions:

- Office of the Director (OD); guidelines consolidated across agencies available at <http://www.nih.gov/health/consumer/conkey.htm>
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines available at <http://www.nlm.nih.gov/medlineplus/healthtopics.html>
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at <http://www.niddk.nih.gov/health/health.htm>

Among these, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is particularly noteworthy. The NIDDK's mission is to conduct and support research on many of the most serious diseases affecting public health.⁶ The Institute supports much of the clinical research on the diseases of internal medicine and related subspecialty fields as well as many basic science disciplines. The NIDDK's Division of Intramural Research encompasses the broad spectrum of metabolic diseases such as diabetes, inborn errors of metabolism, endocrine disorders, mineral metabolism, digestive diseases, nutrition, urology and renal disease, and hematology. Basic research studies include biochemistry, nutrition, pathology, histochemistry, chemistry, physical, chemical, and molecular biology, pharmacology, and toxicology. NIDDK extramural research is organized into divisions of program areas:

- Division of Diabetes, Endocrinology, and Metabolic Diseases
- Division of Digestive Diseases and Nutrition
- Division of Kidney, Urologic, and Hematologic Diseases

The Division of Extramural Activities provides administrative support and overall coordination. A fifth division, the Division of Nutrition Research Coordination, coordinates government nutrition research efforts. The Institute supports basic and clinical research through investigator-initiated

⁶ This paragraph has been adapted from the NIDDK: <http://www.niddk.nih.gov/welcome/mission.htm>. "Adapted" signifies that a passage is reproduced exactly or slightly edited for this book.

grants, program project and center grants, and career development and training awards. The Institute also supports research and development projects and large-scale clinical trials through contracts. The following patient guideline was recently published by the NIDDK on hiatal hernia.

What Is Hiatal Hernia?⁷

When an organ pokes out past the muscle wall that is supposed to hold the organ in place, you have a hernia. A hiatal hernia occurs when the upper part of the stomach pushes through an opening in the diaphragm, the muscle that separates the abdomen from the chest. This opening is called the esophageal hiatus.

After you swallow food, it travels between your mouth and stomach through a muscular tube called the esophagus. The esophagus passes through the hiatus to enter the abdominal cavity. At the bottom of the esophagus is a muscle called the lower esophageal sphincter, which acts as a valve. The hiatus itself acts like a second valve. Normally the hiatus and the lower esophageal sphincter line up with each other to keep stomach contents from backing up into the esophagus (a condition called reflux). But the hiatus can stretch because of muscle weakness or too much abdominal pressure. When this occurs, the stomach can slip through the hiatus, causing a hiatal hernia.

A hiatal hernia can be caused by:

- Obesity
- Pregnancy
- Tight clothing
- Sudden physical exertion, such as weight lifting
- Straining, coughing
- Abdominal injury

Although most hiatal hernias cause no symptoms, some people experience heartburn. Heartburn is caused by gastric reflux, in which the acid from the stomach refluxes up into the esophagus, causing an irritating and burning sensation. People with reflux symptoms have gastroesophageal reflux disease (GERD) and may need drug therapy. In certain people, reflux

⁷ Adapted from The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK): <http://www.niddk.nih.gov/health/digest/summary/hiatal/hiatal.htm>.

damages the lining of the esophagus, resulting in erosions. In extreme cases, the normal lining is replaced by abnormal cells, a condition called Barrett's esophagus.

You should not worry about having a hiatal hernia. Many people over the age of 50 have such a hernia, and it does not need treatment unless heartburn or GERD is present and causes significant discomfort, or unless the hernia is in danger of becoming twisted and cutting off the stomach's blood supply. Treatment may also be considered if you have complications such as severe GERD or esophagitis, which is an inflammation of the esophagus. In such cases, the doctor may recommend surgery to repair the hiatal hernia.

If a hiatal hernia is causing symptoms, the following tips may help:

- Eat smaller, more frequent meals.
- Avoid foods and drinks that may cause symptoms.
- Avoid lying down for 3 hours after eating.
- Raise the head of your bed 4 to 8 inches.
- Avoid wearing tight clothing around your waist.
- Take acid-reducing medications.
- Lose weight

For More Information

More information is available from:

**International Foundation for Functional Gastrointestinal Disorders
(IFFGD)**
P.O. Box 170864
Milwaukee, WI 53217-8076
Phone: 1-888-964-2001 or (414) 964-1799
Fax: (414) 964-7176
Email: iffgd@iffgd.org
Internet: www.iffgd.org

Intestinal Disease Foundation, Inc.

1323 Forbes Avenue, Suite 200
Pittsburgh, PA 15219
Phone: 1-877-587-9606 or (412) 261-5888
Fax: (412) 471-2722
Email: intdis@stargate.net

**Pediatric/Adolescent Gastroesophageal Reflux Association, Inc.
(PAGER)**

P.O. Box 1153
Germantown, MD 20875-1153
Phone: (301) 601-9541
Email: gergroup@aol.com
Internet: www.reflux.org

Additional Information on Hiatal Hernia

The National Digestive Diseases Information Clearinghouse collects resource information on digestive diseases for the Combined Health Information Database (CHID), which is produced by health-related agencies of the Federal Government. This database provides the titles, abstracts, and availability of health information and health education resources.

To give you the most up-to-date resources, information specialists at the clearinghouse created an automatic CHID search. To obtain this information, you may view the results of the automatic search on hiatal hernia.

Or if you wish to perform your own search of the database, you may access CHID Online and search CHID yourself.

More Guideline Sources

The guideline above on hiatal hernia is only one example of the kind of material that you can find online and free of charge. The remainder of this chapter will direct you to other sources which either publish or can help you find additional guidelines on topics related to hiatal hernia. Many of the guidelines listed below address topics that may be of particular relevance to your specific situation or of special interest to only some patients with hiatal hernia. Due to space limitations these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet

hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

Topic Pages: MEDLINEplus

For patients wishing to go beyond guidelines published by specific Institutes of the NIH, the National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages." You can think of a health topic page as a guide to patient guides. To access this system, log on to <http://www.nlm.nih.gov/medlineplus/healthtopics.html>. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following as being relevant to hiatal hernia:

- Guides On hiatal hernia

Hernia

<http://www.nlm.nih.gov/medlineplus/hernia.html>

Within the health topic page dedicated to hiatal hernia, the following was recently recommended to patients:

- General/Overviews

Causes and Surgical Treatment of Abdominal Hernia

Source: American Medical Association

http://www.medem.com/medlb/article_detailb.cfm?article_ID=ZZZESG4TWAC&sub_cat=195

Inguinal Hernia

Source: Patient Education Institute

<http://www.nlm.nih.gov/medlineplus/tutorials/inguinalhernialoader.html>

- Diagnosis/Symptoms

Coughing During Hernia Exam

Source: Mayo Foundation for Medical Education and Research

<http://www.mayoclinic.com/invoke.cfm?objectid=48F38DCF-441F-4C58-B74ACC8CF2ABCEC6>

- Treatment

- **Hernia Repair**

- Source: Animation Education Group

- <http://www.yoursurgery.com/ProcedureDetails.cfm?BR=1&Proc=26>

- **Laparoscopic Hernia Repair: Less Invasive, Faster Healing**

- Source: Mayo Foundation for Medical Education and Research

- <http://www.mayoclinic.com/invoke.cfm?id=HQ00980>

- Specific Conditions/Aspects

- **Diaphragmatic Hernia**

- Source: Children's Hospital Boston

- <http://www.childrenshospital.org/cfapps/A2ZtopicDisplay.cfm?Topic=Diaphragmatic%2520Hernia>

- **Incisional Hernia**

- Source: Patient Education Institute

- <http://www.nlm.nih.gov/medlineplus/tutorials/incisionalhernialoader.html>

- Children

- **Could That Lump Be a Hernia?**

- Source: Nemours Foundation

- <http://kidshealth.org/parent/system/surgical/hernia.html>

- Organizations

- **National Digestive Diseases Information Clearinghouse**

- <http://www.niddk.nih.gov/health/digest/nddic.htm>

- Teenagers

- **Hernias**

- Source: Nemours Foundation

- http://kidshealth.org/teen/diseases_conditions/digestive/hernias.html

If you do not find topics of interest when browsing health topic pages, then you can choose to use the advanced search utility of MEDLINEplus at the following: <http://www.nlm.nih.gov/medlineplus/advancedsearch.html>. This utility is similar to the NIH Search Utility, with the exception that it only includes material linked within the MEDLINEplus system (mostly

patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on hiatal hernia and related conditions. One of the advantages of CHID over other sources is that it offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is <http://chid.nih.gov/>. To search this database, go to <http://chid.nih.gov/detail/detail.html>. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Hiatal Hernia: Understanding a Common Problem**

Source: San Bruno, CA: StayWell Company. 1999. [2 p.].

Contact: Available from StayWell Company. Order Department, 1100 Grundy Lane, San Bruno, CA 94066-9821. (800) 333-3032. Fax (650) 244-4512. E-mail: email@staywell.com. Website: www.staywell.com. PRICE: \$17.95 for pack of 50; plus shipping and handling.

Summary: This patient education brochure describes hiatal hernia and its treatment. Written in nontechnical language, the brochure first describes hiatal hernia as a common problem that occurs when the stomach bulges into the chest. Most hiatal hernias cause no symptoms and need no treatment. Sometimes, hiatal hernias can cause reflux (return) of the gastric acid in the stomach back up into the esophagus. In these cases, symptoms can include heartburn or other chest discomfort; frequent burping; acid taste in the mouth; problems swallowing; and nighttime choking, coughing, or wheezing. Often a hiatal hernia is found during an examination or tests for another health problem. Diagnosis will include the patient's medical history and some diagnostic tests such as upper GI barium x ray, endoscopy, esophageal manometry, and 24 hour acid (pH) monitoring. Most treatment plans focus on lifestyle and behavior changes including: lose excess weight, avoid LES (lower esophageal sphincter) relaxers, avoid foods or drinks that cause symptoms, and try acid reducing medications. The brochure notes that surgery is rarely needed to treat hiatal hernias. One section of the brochure illustrates and describes the physiology of the connection between the esophagus and stomach (the LES) and what happens in hiatal hernia. The last page of the

brochure summarizes strategies for coping with a hiatal hernia. The brochure is illustrated with full color line drawings. 8 figures.

- **Heartburn**

Source: Bethesda, MD: American Gastroenterological Association. 1996. 3 p.

Contact: Available from GIDH-AGA Patient Education Center. P.O. Box 1274, West Caldwell, NJ 07007-9562. PRICE: 25 copies free to health care professionals for distribution to patients.

Summary: This brochure provides patients with basic information about heartburn, the most common symptom of gastroesophageal reflux disease (GERD). When the lower esophageal sphincter (a muscle located between the esophagus and stomach that normally opens after swallowing) either relaxes inappropriately or is very weak, the highly acidic contents of the stomach can back up, or reflux, into the esophagus. In addition to heartburn, symptoms of GERD may include persistent sore throat, laryngitis, nighttime or chronic cough, asthma, and a feeling of a lump in the throat. The author discusses how heartburn occurs, the symptoms of heartburn, tips to control heartburn, diagnostic tests used to confirm chronic disease, the interrelationship of hiatal hernia and heartburn, treatment options for heartburn, and the complications of longterm reflux and heartburn. The brochure concludes with a glossary of terms. 2 figures. 2 references. (AA-M).

- **Hernia**

Source: Emeryville, CA: Parlay International. 1995. [4 p.].

Contact: Available from Parlay International. Box 8817, Emeryville, CA 94662-0817. (800) 457-2752. Website: www.parlay.com. PRICE: \$20.00 per package of 50. Order number: 7045.

Summary: A hernia is a protrusion of an organ or part of an organ through the cavity wall that contains it. Hernias may be congenital (occurring at birth) or acquired (frequently brought on by strenuous activity). This brochure offers basic information about hernias, noting that most patients who have undergone surgery for hernia can usually resume normal activities within 2 to 3 weeks. The brochure discusses the symptoms, treatment options, postoperative care, and recovery issues. The most common symptom of a hernia is pain. Some hernias, such as hiatal hernias, are often managed by medication and dietary changes. However, most hernias in the groin and navel areas require surgical repair. The brochure includes a chart of four types of common hernias and their causes: inguinal hernia, paraumbilical hernia, hiatal hernia, and

incisional hernia. The brochure is illustrated with full color photographs of active people.

- **Digestive Do's and Don'ts**

Source: Bethesda, MD: National Institute on Aging. 1992. 4 p.

Contact: Available from National Institute on Aging (NIA) Information Center. P.O. Box 8057, Gaithersburg, MD 20898-8057. (800) 222-2225 or (301) 495-3450. Fax (301) 589-3014. TTY (800) 222-4225. E-mail: niainfo@access.digex.net. PRICE: Single copy free; bulk copies available.

Summary: This Age Page explains the digestive system, how it works and how to take care of the system in order to help avoid future difficulties. Information is provided on the types of symptoms requiring a doctor's attention. Following the symptomatic conditions, several digestive diseases are listed and described, along with their possible treatment plans. The digestive disorders discussed are constipation, diarrhea, diverticulosis and diverticulitis, functional disorders, gallbladder disease, gas, gastritis, heartburn, peptic ulcer, indigestion, hemorrhoids, hiatal hernia, milk intolerance, and ulcerative colitis.

The National Guideline Clearinghouse™

The National Guideline Clearinghouse™ offers hundreds of evidence-based clinical practice guidelines published in the United States and other countries. You can search their site located at <http://www.guideline.gov> by using the keyword "hiatal hernia" or synonyms. The following was recently posted:

- **Guideline for diagnostic laparoscopy.**

Source: Society of American Gastrointestinal Endoscopic Surgeons.; 1998 April; 4 pages

http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001087&sSearch_string=hiatal+hernia

Healthfinder™

Healthfinder™ is an additional source sponsored by the U.S. Department of Health and Human Services which offers links to hundreds of other sites that contain healthcare information. This Web site is located at

<http://www.healthfinder.gov>. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **Gastroesophageal Reflux Disease: (Hiatal Hernia and Heartburn)**

Summary: Gastroesophageal reflux disease (GERD) is a digestive disorder that affects the lower esophageal sphincter (LES)--the muscle connecting the esophagus with the stomach.

Source: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health

<http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=736>

The NIH Search Utility

After browsing the references listed at the beginning of this chapter, you may want to explore the NIH Search Utility. This allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is “crawled” and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to hiatal hernia. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: <http://search.nih.gov/index.html>.

Additional Web Sources

A number of Web sites that often link to government sites are available to the public. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: <http://search.aol.com/cat.adp?id=168&layer=&from=subcats>
- drkoop.com[®]: <http://www.drkoop.com/conditions/ency/index.html>
- Family Village: <http://www.familyvillage.wisc.edu/specific.htm>
- Google:
http://directory.google.com/Top/Health/Conditions_and_Diseases/
- Med Help International: <http://www.medhelp.org/HealthTopics/A.html>

- Open Directory Project:
http://dmoz.org/Health/Conditions_and_Diseases/
- Yahoo.com: http://dir.yahoo.com/Health/Diseases_and_Conditions/
- WebMD® Health: http://my.webmd.com/health_topics

Vocabulary Builder

The material in this chapter may have contained a number of unfamiliar words. The following Vocabulary Builder introduces you to terms used in this chapter that have not been covered in the previous chapter:

Abdomen: That portion of the body that lies between the thorax and the pelvis. [NIH]

Alimentary: Pertaining to food or nutritive material, or to the organs of digestion. [EU]

Chronic: Persisting over a long period of time. [EU]

Colitis: Inflammation of the colon. [EU]

Constipation: Infrequent or difficult evacuation of the faeces. [EU]

Diaphragm: The musculofibrous partition that separates the thoracic cavity from the abdominal cavity. Contraction of the diaphragm increases the volume of the thoracic cavity aiding inspiration. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Diverticulitis: Inflammation of a diverticulum, especially inflammation related to colonic diverticula, which may undergo perforation with abscess formation. Sometimes called left-sided or L-sides appendicitis. [EU]

Endocrinology: A subspecialty of internal medicine concerned with the metabolism, physiology, and disorders of the endocrine system. [NIH]

Endoscopy: Visual inspection of any cavity of the body by means of an endoscope. [EU]

Esophagitis: Inflammation, acute or chronic, of the esophagus caused by bacteria, chemicals, or trauma. [NIH]

Gastritis: Inflammation of the stomach. [EU]

Gastrointestinal: Pertaining to or communicating with the stomach and intestine, as a gastrointestinal fistula. [EU]

Groin: The external junctural region between the lower part of the abdomen and the thigh. [NIH]

Heartburn: Substernal pain or burning sensation, usually associated with

regurgitation of gastric juice into the esophagus. [NIH]

Hematology: A subspecialty of internal medicine concerned with morphology, physiology, and pathology of the blood and blood-forming tissues. [NIH]

Hemorrhoids: Varicosities of the hemorrhoidal venous plexuses. [NIH]

Hernia: The protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Invasive: 1. having the quality of invasiveness. 2. involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Laparoscopy: Examination, therapy or surgery of the abdomen's interior by means of a laparoscope. [NIH]

Laryngitis: Inflammation of the larynx, a condition attended with dryness and soreness of the throat, hoarseness, cough and dysphagia. [EU]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Peptic: Pertaining to pepsin or to digestion; related to the action of gastric juices. [EU]

Postoperative: Occurring after a surgical operation. [EU]

Reflux: A backward or return flow. [EU]

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Sphincter: A ringlike band of muscle fibres that constricts a passage or closes a natural orifice; called also musculus sphincter. [EU]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Symptomatic: 1. pertaining to or of the nature of a symptom. 2. indicative (of a particular disease or disorder). 3. exhibiting the symptoms of a particular disease but having a different cause. 4. directed at the allaying of symptoms, as symptomatic treatment. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and

the treatment and prevention of toxic manifestations. [NIH]

Ulcer: A break in the skin; a deep sore. People with diabetes may get ulcers from minor scrapes on the feet or legs, from cuts that heal slowly, or from the rubbing of shoes that do not fit well. Ulcers can become infected. [NIH]

Urology: A surgical specialty concerned with the study, diagnosis, and treatment of diseases of the urinary tract in both sexes and the genital tract in the male. It includes the specialty of andrology which addresses both male genital diseases and male infertility. [NIH]

CHAPTER 2. SEEKING GUIDANCE

Overview

Some patients are comforted by the knowledge that a number of organizations dedicate their resources to helping people with hiatal hernia. These associations can become invaluable sources of information and advice. Many associations offer aftercare support, financial assistance, and other important services. Furthermore, healthcare research has shown that support groups often help people to better cope with their conditions.⁸ In addition to support groups, your physician can be a valuable source of guidance and support. Therefore, finding a physician that can work with your unique situation is a very important aspect of your care.

In this chapter, we direct you to resources that can help you find patient organizations and medical specialists. We begin by describing how to find associations and peer groups that can help you better understand and cope with hiatal hernia. The chapter ends with a discussion on how to find a doctor that is right for you.

Associations and Hiatal Hernia

As mentioned by the Agency for Healthcare Research and Quality, sometimes the emotional side of an illness can be as taxing as the physical side.⁹ You may have fears or feel overwhelmed by your situation. Everyone has different ways of dealing with disease or physical injury. Your attitude, your expectations, and how well you cope with your condition can all

⁸ Churches, synagogues, and other houses of worship might also have groups that can offer you the social support you need.

⁹ This section has been adapted from <http://www.ahcpr.gov/consumer/diaginf5.htm>.

influence your well-being. This is true for both minor conditions and serious illnesses. For example, a study on female breast cancer survivors revealed that women who participated in support groups lived longer and experienced better quality of life when compared with women who did not participate. In the support group, women learned coping skills and had the opportunity to share their feelings with other women in the same situation. There are a number of directories that list additional medical associations that you may find useful. While not all of these directories will provide different information, by consulting all of them, you will have nearly exhausted all sources for patient associations.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about hiatal hernia. For more information, see the NHIC's Web site at <http://www.health.gov/NHIC/> or contact an information specialist by calling 1-800-336-4797.

DIRLINE

A comprehensive source of information on associations is the DIRLINE database maintained by the National Library of Medicine. The database comprises some 10,000 records of organizations, research centers, and government institutes and associations which primarily focus on health and biomedicine. DIRLINE is available via the Internet at the following Web site: <http://dirline.nlm.nih.gov/>. Simply type in "hiatal hernia" (or a synonym) or the name of a topic, and the site will list information contained in the database on all relevant organizations.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "hiatal hernia". Type the following hyperlink into your Web browser: <http://chid.nih.gov/detail/detail.html>. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." By making

these selections and typing in “hiatal hernia” (or synonyms) into the “For these words:” box, you will only receive results on organizations dealing with hiatal hernia. You should check back periodically with this database since it is updated every 3 months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by specific diseases. You can access this database at the following Web site: <http://www.rarediseases.org/cgi-bin/nord/searchpage>. Select the option called “Organizational Database (ODB)” and type “hiatal hernia” (or a synonym) in the search box.

Online Support Groups

In addition to support groups, commercial Internet service providers offer forums and chat rooms for people with different illnesses and conditions. WebMD[®], for example, offers such a service at their Web site: <http://boards.webmd.com/roundtable>. These online self-help communities can help you connect with a network of people whose concerns are similar to yours. Online support groups are places where people can talk informally. If you read about a novel approach, consult with your doctor or other healthcare providers, as the treatments or discoveries you hear about may not be scientifically proven to be safe and effective.

- **IBS Info Board**

<http://pub104.ezboard.com/fdigestioninformationfrm15>

Finding Doctors

One of the most important aspects of your treatment will be the relationship between you and your doctor or specialist. All patients with hiatal hernia must go through the process of selecting a physician. While this process will vary from person to person, the Agency for Healthcare Research and Quality makes a number of suggestions, including the following:¹⁰

- If you are in a managed care plan, check the plan’s list of doctors first.

¹⁰ This section is adapted from the AHRQ: www.ahrq.gov/consumer/qntascii/qntdr.htm.

- Ask doctors or other health professionals who work with doctors, such as hospital nurses, for referrals.
- Call a hospital's doctor referral service, but keep in mind that these services usually refer you to doctors on staff at that particular hospital. The services do not have information on the quality of care that these doctors provide.
- Some local medical societies offer lists of member doctors. Again, these lists do not have information on the quality of care that these doctors provide.

Additional steps you can take to locate doctors include the following:

- Check with the associations listed earlier in this chapter.
- Information on doctors in some states is available on the Internet at <http://www.docboard.org>. This Web site is run by "Administrators in Medicine," a group of state medical board directors.
- The American Board of Medical Specialties can tell you if your doctor is board certified. "Certified" means that the doctor has completed a training program in a specialty and has passed an exam, or "board," to assess his or her knowledge, skills, and experience to provide quality patient care in that specialty. Primary care doctors may also be certified as specialists. The AMBS Web site is located at <http://www.abms.org/newsearch.asp>.¹¹ You can also contact the ABMS by phone at 1-866-ASK-ABMS.
- You can call the American Medical Association (AMA) at 800-665-2882 for information on training, specialties, and board certification for many licensed doctors in the United States. This information also can be found in "Physician Select" at the AMA's Web site: <http://www.ama-assn.org/aps/amahg.htm>.

If the previous sources did not meet your needs, you may want to log on to the Web site of the National Organization for Rare Disorders (NORD) at <http://www.rarediseases.org/>. NORD maintains a database of doctors with expertise in various rare diseases. The Metabolic Information Network (MIN), 800-945-2188, also maintains a database of physicians with expertise in various metabolic diseases.

¹¹ While board certification is a good measure of a doctor's knowledge, it is possible to receive quality care from doctors who are not board certified.

Selecting Your Doctor¹²

When you have compiled a list of prospective doctors, call each of their offices. First, ask if the doctor accepts your health insurance plan and if he or she is taking new patients. If the doctor is not covered by your plan, ask yourself if you are prepared to pay the extra costs. The next step is to schedule a visit with your chosen physician. During the first visit you will have the opportunity to evaluate your doctor and to find out if you feel comfortable with him or her. Ask yourself, did the doctor:

- Give me a chance to ask questions about hiatal hernia?
- Really listen to my questions?
- Answer in terms I understood?
- Show respect for me?
- Ask me questions?
- Make me feel comfortable?
- Address the health problem(s) I came with?
- Ask me my preferences about different kinds of treatments for hiatal hernia?
- Spend enough time with me?

Trust your instincts when deciding if the doctor is right for you. But remember, it might take time for the relationship to develop. It takes more than one visit for you and your doctor to get to know each other.

Working with Your Doctor¹³

Research has shown that patients who have good relationships with their doctors tend to be more satisfied with their care and have better results. Here are some tips to help you and your doctor become partners:

- You know important things about your symptoms and your health history. Tell your doctor what you think he or she needs to know.
- It is important to tell your doctor personal information, even if it makes you feel embarrassed or uncomfortable.

¹² This section has been adapted from the AHRQ:
www.ahrq.gov/consumer/qntascii/qntdr.htm.

¹³ This section has been adapted from the AHRQ:
www.ahrq.gov/consumer/qntascii/qntdr.htm.

- Bring a “health history” list with you (and keep it up to date).
- Always bring any medications you are currently taking with you to the appointment, or you can bring a list of your medications including dosage and frequency information. Talk about any allergies or reactions you have had to your medications.
- Tell your doctor about any natural or alternative medicines you are taking.
- Bring other medical information, such as x-ray films, test results, and medical records.
- Ask questions. If you don’t, your doctor will assume that you understood everything that was said.
- Write down your questions before your visit. List the most important ones first to make sure that they are addressed.
- Consider bringing a friend with you to the appointment to help you ask questions. This person can also help you understand and/or remember the answers.
- Ask your doctor to draw pictures if you think that this would help you understand.
- Take notes. Some doctors do not mind if you bring a tape recorder to help you remember things, but always ask first.
- Let your doctor know if you need more time. If there is not time that day, perhaps you can speak to a nurse or physician assistant on staff or schedule a telephone appointment.
- Take information home. Ask for written instructions. Your doctor may also have brochures and audio and videotapes that can help you.
- After leaving the doctor’s office, take responsibility for your care. If you have questions, call. If your symptoms get worse or if you have problems with your medication, call. If you had tests and do not hear from your doctor, call for your test results. If your doctor recommended that you have certain tests, schedule an appointment to get them done. If your doctor said you should see an additional specialist, make an appointment.

By following these steps, you will enhance the relationship you will have with your physician.

Broader Health-Related Resources

In addition to the references above, the NIH has set up guidance Web sites that can help patients find healthcare professionals. These include:¹⁴

- Caregivers:
<http://www.nlm.nih.gov/medlineplus/caregivers.html>
- Choosing a Doctor or Healthcare Service:
<http://www.nlm.nih.gov/medlineplus/choosingadoctororhealthcareservice.html>
- Hospitals and Health Facilities:
<http://www.nlm.nih.gov/medlineplus/healthfacilities.html>

¹⁴ You can access this information at:

<http://www.nlm.nih.gov/medlineplus/healthsystem.html>.

PART II: ADDITIONAL RESOURCES AND ADVANCED MATERIAL

ABOUT PART II

In Part II, we introduce you to additional resources and advanced research on hiatal hernia. All too often, patients who conduct their own research are overwhelmed by the difficulty in finding and organizing information. The purpose of the following chapters is to provide you an organized and structured format to help you find additional information resources on hiatal hernia. In Part II, as in Part I, our objective is not to interpret the latest advances on hiatal hernia or render an opinion. Rather, our goal is to give you access to original research and to increase your awareness of sources you may not have already considered. In this way, you will come across the advanced materials often referred to in pamphlets, books, or other general works. Once again, some of this material is technical in nature, so consultation with a professional familiar with hiatal hernia is suggested.

CHAPTER 3. STUDIES ON HIATAL HERNIA

Overview

Every year, academic studies are published on hiatal hernia or related conditions. Broadly speaking, there are two types of studies. The first are peer reviewed. Generally, the content of these studies has been reviewed by scientists or physicians. Peer-reviewed studies are typically published in scientific journals and are usually available at medical libraries. The second type of studies is non-peer reviewed. These works include summary articles that do not use or report scientific results. These often appear in the popular press, newsletters, or similar periodicals.

In this chapter, we will show you how to locate peer-reviewed references and studies on hiatal hernia. We will begin by discussing research that has been summarized and is free to view by the public via the Internet. We then show you how to generate a bibliography on hiatal hernia and teach you how to keep current on new studies as they are published or undertaken by the scientific community.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and hiatal hernia, you will need to use the advanced search options. First, go to <http://chid.nih.gov/index.html>. From there, select the “Detailed Search” option (or go directly to that page with the following hyperlink: <http://chid.nih.gov/detail/detail.html>). The trick in extracting studies is found in the drop boxes at the bottom of the search page where “You may refine your search by.” Select the dates and language you prefer, and the

format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type in "hiatal hernia" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is a sample of what you can expect from this type of search:

- **Increased Gastric Acid Secretion After Helicobacter Pylori Eradication May Be a Factor for Developing Reflux Oesophagitis**

Source: *Alimentary Pharmacology and Therapeutics*. 15(6): 813-820. June 2001.

Contact: Available from Alimentary Pharmacology and Therapeutics. Blackwell Science Ltd., Osney Mead, Oxford OX2 OEL, UK. +44(0)1865 206206. Fax +44(0)1865 721205. E-mail: journals.cs@blacksci.co.uk. Website: www.blackwell-science.com.

Summary: The role of acid secretion in reflux esophagitis, which may develop after *Helicobacter pylori* eradication, is not well known. This article reports on a study undertaken to investigate the participation of altered gastric (stomach) acid secretion and the presence of hiatal hernia in the development of reflux esophagitis after eradication therapy for *H. pylori*. A total of 105 patients with *H. pylori* infection, but without reflux esophagitis at the time of eradication therapy, were followed prospectively for 7 months after the clearance of this microorganism. Gastric acid secretion was assessed by endoscopic gastrin test and the presence of hiatal hernia was assessed by endoscopy. Reflux esophagitis developed in 11 out of 105 (10.5 percent) patients when examined at 7 months after the eradication therapy. The incidence was correlated significantly with the increase in gastric acid secretion after the eradication of *H. pylori* and was significantly higher in the patients with hiatal hernia (20 percent) than in those without it (0 percent). The authors conclude that increased acid secretion after *H. pylori* eradication is an important risk factor of reflux esophagitis, especially in patients with hiatal hernia. 3 figures. 41 references.

- **Surgical Treatment for Gastroesophageal Reflux Disease**

Source: *Practical Gastroenterology*. 24(11): 11-12, 14, 17-18. November 2000.

Contact: Available from Shugar Publishing. 12 Moniebogue Lane, Westhampton Beach, NY 11978. (516) 288-4404. Fax (516) 288-4435.

Summary: Patients with gastroesophageal reflux disease (GERD) can usually be effectively treated using antacids, H₂ blockers, or proton pump inhibitors. Symptoms often recur after cessation of medication and therefore many patients require lifelong medication. Some patients do not want to be dependent on medications for the rest of their lives and some fail to obtain permanent relief of symptoms or develop complications of their disease. In these cases, an alternative therapy may be offered. This article explores the use of surgical treatment for GERD. The authors note that in the past there was a reluctance to recommend antireflux surgery due to the uncertainty of the outcome and the magnitude of the surgical approach. Surgery aims to create a barrier to reflux (return) of gastric and duodenal content across the lower esophageal sphincter (LES) into the esophagus. Surgery can also reduce the hiatal hernia, and accelerate gastric emptying. The ability to do these operations using minimally invasive techniques has changed the treatment options for GERD patients. The first report of the laparoscopic approach for antireflux surgery was published in 1991. Since then, there has been a rapid increase in the demand for antireflux surgery, both by patients and gastroenterologists. However, the authors caution that the availability of laparoscopic surgical therapy for GERD should not lessen the indications for surgery, and patients should be fully aware of the potential postoperative morbidity and mortality. 2 figures. 14 references.

- **Adenocarcinoma of the Esophagus and Gastric Cardia: Is There Progress in the Face of Increasing Cancer Incidence?**

Source: *Annals of Internal Medicine*. 130(1): 67-69. January 5, 1998.

Summary: From the late 1970's to the mid 1980's, the incidence of adenocarcinoma of the esophagus and gastric cardia increased more rapidly than that of any other cancer in the United States. Adenocarcinoma of the esophagus continued to increase in frequency in the early 1990's. This article considers the reasons for this increase and discusses recent progress in diagnosing and treating this problem. Adenocarcinoma of the esophagus itself usually occurs in patients who have Barrett's esophagus. Adenocarcinoma of the gastric cardia and esophagogastric junction is associated with Barrett's esophagus about 40 percent of the time. Barrett's esophagus is, in turn, a complication of gastroesophageal reflux disease (GERD). Most patients with Barrett's esophagus have severe GERD, as judged by predisposing pathophysiologic factors: weak lower esophageal sphincter pressure, decreased amplitude of contractions in the distal esophagus, increased acid and bile acid exposure, and presence of a hiatal hernia. The author discusses screening for Barrett's esophagus and patient surveillance and

treatment. The author notes that although demographic features of patients with adenocarcinoma are now becoming clearer, risk factors for the disease are not yet well defined and it is too early to develop specific interventions that might decrease its incidence. 20 references.

- **Overview of the Clinical Spectrum of Gastroesophageal Reflux Disease**

Source: *Practical Gastroenterology*. 23(10): 43, 48, 57-58, 60, 62. October 1999.

Contact: Available from Shugar Publishing, Inc. 99B Main Street, Westhampton Beach, NY 11978. (631) 288-4404. Fax (631) 288-4435. E-Mail: info@practicalgastro.com.

Summary: This article is the first in a series offering an indepth review of the pathophysiology, clinical presentation, diagnosis, and therapy of gastroesophageal reflux disease (GERD). The author of this overview of the clinical spectrum of GERD notes that the acronym GERD has become popular to describe all of the clinical manifestations of gastroesophageal reflux disease, including the various symptoms and forms of tissue damage that occur secondary to the reflux of gastric contents into the distal esophagus. Presentations of GERD vary widely; the author discusses them in three different categories that comprise the spectrum of GERD: typical symptoms, atypical symptoms, and complications. The author notes that mild postprandial (after a meal) reflux occurring in normal people that does not cause symptoms or esophageal mucosal injury is called physiologic reflux. The author then discusses the prevalence of GERD, the relationships between symptoms and meals (particularly certain foods), the diagnostic evaluation of the patient with GERD (including barium radiography, endoscopy, intraesophageal pH monitoring), and the role of the hiatal hernia. Patients with a normal lower esophageal sphincter (LES) pressure tended to experience heartburn only after consuming certain foods including fried foods, spicy foods, and hot dogs, whereas those patients with a very low LES pressure experienced reflux symptoms with most types of foods. Recent information indicates that hiatal hernias may contribute to the severity of GERD by trapping acid in the hernial sac, thus becoming more available to reflux during LES relaxation. 3 figures. 20 references.

- **Pathophysiology of Gastroesophageal Reflux Disease: The Role of the Lower Esophageal Sphincter**

Source: *Practical Gastroenterology*. 23(11): 19-20, 27-28, 30, 32-34. November 1999.

Contact: Available from Shugar Publishing, Inc. 99B Main Street, Westhampton Beach, NY 11978. (631) 288-4404. Fax (631) 288-4435. E-Mail: info@practicalgastro.com.

Summary: This article focuses on the role of the lower esophageal sphincter (LES) in the pathophysiology of gastroesophageal reflux disease (GERD). The author reports that recent studies have confirmed that there are not one but two LESs. The dual sphincter mechanism at the esophagogastric junction (EGJ) is composed of intrinsic smooth muscles of the LES (internal LES) and skeletal muscles of the crural diaphragm (external LES). Other anatomical structures at the lower end of the esophagus may also play a role as antireflux barriers, but their exact function is not clear. The author explores LES pressure under various physiologic conditions, including links with respiration, exercise, and physical conditions that increase intraabdominal pressure. Other topics include the neural control of the internal and external LES, the physiologic significance of the two LESs, the mechanisms of gastroesophageal reflux, transient LES relaxation, stimuli that trigger transient LES relaxations (gastric distension, pharyngeal mechanisms, and neural causes), the effect of antireflux therapy on transient LES relaxation, LES hypotension in reflux disease, and the role of hiatal hernia in the induction of gastroesophageal reflux. The author comes up with a unifying hypothesis for the pathogenesis of reflux disease. The initial pathologic event is most likely frequent transient LES relaxations and the corresponding acid reflux episodes. Acid in the esophagus then causes esophagitis, which leads to a low internal LES pressure and esophageal hypotension. Furthermore, esophagitis induces esophageal shortening through acid induced contraction of the longitudinal muscles. Subsequent fibrosis may develop, resulting in a hiatus hernia. 3 figures. 19 references.

- **Gastrointestinal Complications of Renal Failure**

Source: Gastroenterology Clinics of North America. 27(4): 875-892. December 1998.

Contact: Available from W.B. Saunders. 6277 Sea Harbor Drive, Orlando, FL 32887-4800. (800) 654-2452 or (407) 345-4000.

Summary: Seventy-five percent of patients with end-stage renal disease (ESRD) have gastrointestinal complaints. Although some of these complaints may be specifically related to the techniques and procedures of the dialysis method itself, the physiologic state of chronic uremia is likely to contribute to the development of the majority of symptoms. Uremia is the presence of excessive amounts of urea and other nitrogen waste products in the blood. This article begins with a brief review of the

systemic effects of uremic toxins followed by a review of the effects of the uremic state on the esophagus, stomach, duodenum, and pancreas. The effects of ESRD on the gastrointestinal (GI) tract can be divided into complications directly attributable to dialysis and complications that are more systemically related. The majority of complications are likely to be related to the latter. Dialysis related GI complications include peritonitis and sclerosing peritonitis. Esophageal abnormalities associated with the uremic state include esophagitis, motility disorders, and hiatal hernia. Stomach involvement in ESRD can include gastritis and duodenitis (infections), abnormal gastric emptying, peptic ulcer disease, and vascular ectasias (blood vessel distension). Other problems can include amyloidosis, abnormal pancreatic morphology, and pancreatitis. The author concludes that unless the supply of donor kidneys increases dramatically, these complications of ESRD will continue to be an important clinical issue for gastroenterologists, given the large percentage of patients with symptoms. 4 tables. 99 references.

- **Laparoscopic Repair of Paraesophageal Hiatal Hernias**

Source: Journal of the American College of Surgeons. 186(4): 428-432. April 1998.

Summary: This article reports the University of California (UC) at San Francisco's experience with laparoscopic repair of paraesophageal hiatal hernias, emphasizing the technical steps essential for good results. From May 1993 to September 1997, 55 patients (27 women, 28 men, mean age 67 years) underwent laparoscopic repair of paraesophageal hernias at the UC facility. Symptoms, which had been present an average of 85 months before surgery, consisted mainly of pain (55 percent), heartburn (52 percent), dysphagia (45 percent), and regurgitation (41 percent). Of the four patients who presented with acute illness, two had gastric obstruction, one had severe dyspnea, and one had gastric bleeding. Endoscopy demonstrated esophagitis in 25 (69 percent) of 36 patients, and 24 hour pH monitoring demonstrated acid reflux in 22 (67 percent) of 33 patients. Manometry detected severely impaired distal esophageal peristalsis in 17 (52 percent) of 33 patients. The preferred operation consisted of reduction of the hernia, excision of the sack and the gastric fat pad, closure of the enlarged hiatus without mesh, and construction of a fundoplication anchored by sutures within the abdomen. Of the 55 patients, the operations of 49 were completed laparoscopically; five (9 percent) were converted to laparotomies. The average operating time was 219 minutes; the average blood loss was less than 25 mL; resumption of an unrestricted diet occurred after 27 hours; and mean hospital stay was 58 hours. Intraoperative technical complications occurred in five (9

percent) patients. One patient died during surgery from a sudden pulmonary embolus; two patients (4 percent) required a second operation for recurrent paraesophageal hernias. The authors conclude that laparoscopic repair of paraesophageal hiatal hernias is safe and effective, but the operation is difficult and good results hinge on details of the operative technique and the surgeon's experience. 2 figures. 1 table. 21 references. (AA-M).

- **Esophagogastric Junction**

Source: *New England Journal of Medicine*. 336(13): 924-932. March 27, 1997.

Summary: The lower esophageal sphincter (LES) regulates the flow of food between the esophagus and the stomach. In this article, the authors review the current understanding of the sphincter mechanism at the esophagogastric junction and its relation to esophageal disease. It is now clear that both the intrinsic smooth muscle of the distal esophagus and the skeletal muscle of the crural diaphragm constitute this sphincter mechanism. Furthermore, in normal subjects and patients with reflux esophagitis, transient relaxation of both sphincters rather than diminished lower esophageal sphincter pressure is the major mechanism of gastroesophageal reflux. Topics include the historical perspective, anatomical considerations, the esophagogastric-junction pressure under various physiologic conditions, neural control of contractility, physiologic importance of the two lower esophageal sphincters, mechanisms of gastroesophageal reflux, hiatal hernia and reflux disease, treatment of reflux disease, and achalasia of the esophagus. Current therapy for gastroesophageal reflux disease (GERD) focuses on modifying risk factors, inhibiting the production of gastric acid, and enhancing esophageal and gastric contractility. Patients should be counseled on lifestyle changes that decrease the incidence of reflux, including stopping cigarette smoking, reducing fat in the diet, avoiding meals 2 hours before lying down, and sleeping with the head of the bed elevated. Antisecretory drugs, such as histamine H₂-receptor antagonists and proton-pump inhibitors, may be offered to patients with persistent symptoms, with the choice of drug based on the severity of the disease. Achalasia, a major motor disorder of the esophagus, is characterized by impaired swallowing-induced relaxation of the smooth muscle of the lower esophageal sphincter and the absence of esophageal peristalsis. 4 figures. 54 references. (AA-M).

- **Basic Considerations in Gastroesophageal Reflux Disease**

Source: *Surgical Clinics of North America*. 77(5): 1017-1040. October 1997.

Contact: Available from W.B. Saunders Company. 6277 Sea Harbor Drive, Orlando, FL 32887-4800. (800) 654-2452 or (407) 345-4000.

Summary: This overview discusses basic considerations that are relevant to physicians, surgeons, and administrators, all of whom face challenges in the evaluation and treatment of patients with gastroesophageal reflux (GER). The symptoms of GER (reflux of gastric content into the esophagus) are variable and can be categorized as typical or atypical. If GER occurs in the absence of other abnormalities, as it commonly does, the usual treatments have a high probability of success. When GER occurs secondary to problems such as pyloric stenosis, gastric atony, or other foregut abnormalities, treatment cannot be successful unless that underlying problem is addressed. In evaluating an individual patient, physicians should systematically address the anatomic, physiologic, and constitutional factors that might play a role. The factors discussed include hiatal hernia, lower esophageal sphincter (LES), patient evaluation and physiologic measures in GER (including 24 hour pH measurement), esophageal manometry testing, the pathophysiology of GER, achalasia, trauma to the LES, myopathy-associated LES dysfunction, displaced LES, gastric atony, gastric or duodenal obstruction, brain or brainstem injury, estrogen hormone excess, medications, the definition of gastroesophageal reflux disease (GERD), esophageal mucosal changes, impaired defense mechanisms, epithelial changes (including Barrett's epithelium), and the use of esophageal and gastric scintiscanning. The author concludes that physicians and health system administrators have appropriate concerns and a legitimate interest in providing the most cost effective and practical approaches for the diagnosis of GER and exclusion of possible co-existing disease. However, the physician who orders a full complement of diagnostic studies has a higher probability of arriving at the right diagnosis. The author stresses that this is particularly necessary before any surgical intervention is undertaken. However, the majority of patients with reflux problems do not have exotic or unexpected findings and respond well to conventional treatments. 3 figures. 7 tables. 51 references. (AA-M).

- **Hiatal Hernia**

Source: Gastrointestinal Endoscopy Clinics of North America. 6(3): 641-666. July 1996.

Contact: Available from W.B. Saunders Company. Periodicals Fulfillment, 6277 Sea Harbor Drive, Orlando, FL 32887. (800) 654-2452.

Summary: This article consolidates the recent literature and evolving concepts related to hiatal hernia and upper gastrointestinal disease. The authors focus on the pathogenesis, classification, associated conditions,

and complications of hiatal hernia. They also discuss the medical and surgical approaches to treatment, with a detailed discussion of pre-and postoperative assessment in symptomatic patients. Surgical techniques include Nissen fundoplication, the Belsey Mark IV fundoplication, the Hill repair, the Toupet procedure, and laparoscopic antireflux surgery. 5 figures. 73 references. (AA-M).

- **New Applications of Laparoscopy in Gastrointestinal Surgery**

Source: American Family Physician. 53(1): 237-242. January 1996.

Summary: In this article, the author outlines new applications of laparoscopy in gastrointestinal surgery. After a brief history of laparoscopic techniques, the author describes procedures used for each component of the gastrointestinal tract. Laparoscopic operations must conform to principles for open general surgery, especially in cases of oncologic resection. Procedures for treatment of conditions such as hiatal hernia, gastroesophageal reflux, intractable peptic ulcer disease, bypass for malignant pancreatic obstruction, and repair of rectal prolapse have received immediate acceptance. Other procedures, such as Whipple's operation and colectomy for cancer, have met with a more guarded response. 3 figures. 1 table. 18 references. (AA-M).

- **Impact of Omeprazole and Laparoscopy Upon Hiatal Hernia and Reflux Esophagitis**

Source: Journal of the American College of Surgeons. 183(4): 413-418. October 1996.

Summary: This review article analyzes the treatment successes on hiatal hernia and reflux esophagitis that are attributable to omeprazole and laparoscopy. Both approaches challenge the accepted multimodal, nonoperative therapy of the past two decades and the reproducible efficacy of the open fundoplication procedure. As a proton pump blocker, omeprazole decreases gastric acidity by directly blocking acid production. Omeprazole has a long duration of acid suppression that does not appear to affect gastroesophageal sphincter function or gastric motility. However, long-term use of omeprazole is questionable in terms of both safety and efficacy. The authors note that operative therapy, especially if minimally invasive (as in laparoscopy) is being more widely practiced. Laparoscopic Nissen fundoplication (LNF) has proved to be a very safe operation overall and the principles of reconstruction of the lower esophageal sphincter, which have been learned from open techniques, can be strictly maintained with the minimally invasive approach. The authors conclude with a call for additional studies to fully

evaluate the clinical effectiveness of LNF and to define the 'learning curve' required for physicians. 6 tables. 46 references.

- **Gastroesophageal Reflux**

Source: *Current Problems in Pediatrics*. p. 193-242. May-June 1991.

Summary: This monograph reviews important aspects of the current understanding of the common and sometimes serious disorder, gastroesophageal reflux. As this article was written for a pediatric journal, the author focuses on the problems of gastroesophageal reflux in infants and children. Topics include the history, pathophysiology, clinical manifestations, diagnostic evaluation, differential diagnosis, and therapy of the disorder. A final section considers gastroesophageal reflux in special groups and situations, including concomitant obesity, hiatal hernia, gastrostomy, and neurological impairment and the implications of exercise. 25 figures. 9 tables. 479 references.

Federally-Funded Research on Hiatal Hernia

The U.S. Government supports a variety of research studies relating to hiatal hernia and associated conditions. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.¹⁵ CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally-funded biomedical research projects conducted at universities, hospitals, and other institutions. Visit the CRISP Web site at http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket. You can perform targeted searches by various criteria including geography, date, as well as topics related to hiatal hernia and related conditions.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally-funded studies use animals or simulated models to explore hiatal hernia and related conditions. In some cases, therefore, it may be difficult to understand how some basic or fundamental research could eventually translate into medical practice. The following sample is typical of the type of information found when searching the CRISP database for hiatal hernia:

¹⁵ Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

- **Project Title: Anatomic and Mechanical Variables of the EGJ in GERD**

Principal Investigator & Institution: Pandolfino, John E.; Medicine; Northwestern University 303 E Chicago Ave Chicago, IL 60611

Timing: Fiscal Year 2002; Project Start 1-JUL-2002; Project End 0-JUN-2007

Summary: (provided by applicant): The long-term objective of this research proposal is to understand the role of anatomical and mechanical variables of the esophagogastric junction (EGJ) in the pathogenesis of gastroesophageal reflux disease (GERD). The candidate is currently in the first year of a tenure track faculty appointment in the Division of Gastroenterology and Hepatology at Northwestern University Medical School. He is seeking support for full time mentored research. His mentor, Dr. Peter Kahrilas is an NIH funded internationally-recognized expert on esophageal physiology and division head in the department of Gastroenterology and Hepatology. In addition, the candidate will be enrolled in the K30 sponsored Master of Science in Clinical Investigation Program at the Graduate School of Northwestern University. The proposed research study is to define the anatomical and mechanical variables of the EGJ as they relate to GERD. The EGJ is a complex anatomic zone whose functional integrity is sum of its many parts. To date, much of the research on the competence of the EGJ in GERD has been focused on the lower esophageal sphincter. Our hypothesis is that acquired anatomic changes inclusive of, but not restricted to hiatal hernia may alter the mechanical characteristics of the EGJ and affect the propensity to reflux. One such variable that will be studied is compliance. Increased compliance may exacerbate reflux in two ways: 1) lowering the incremental increase in intra-abdominal pressure required to open the relaxed or hypotensive EGJ, and 2) the relaxed EGJ may open wider than normal under a given physiological circumstance resulting in a reduced discriminative resistance for liquid as opposed to gas reflux. Compliance will be determined using a customized barostat technique and then correlated with hiatal hernia size, intra-abdominal LES length, angle of His and gastroesophageal flap valve grade. In addition, we will be attempting to improve standard pH monitoring technique by measuring acid exposure at the SCJ and converting data to hydrogen ion concentration exposure. These changes will improve diagnostic accuracy of pH monitoring and also help determine the relationship between anatomical and mechanical variants and acid reflux. (Note: The critiques below were prepared by the reviewers assigned to this application. These commentaries do not necessarily reflect the position of the authors at the close of the group discussion, nor the final majority opinion of the group, although reviewers are asked to amend their critiques if their position

changed during the discussion. The resume and other initial sections of the summary statement are the authoritative representation of the final outcome of group discussion. If there is any discrepancy between the peer reviewers' commentaries and the numerical score on the face page of this summary statement, the numerical score should be considered the most accurate representation of the final outcome of the group discussion.)

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

- **Project Title: The High Pressure Zone of the Distal Esophagus**

Principal Investigator & Institution: Miller, Larry S.; Medicine; Temple University Broad St and Montgomery Ave Philadelphia, Pa 19122

Timing: Fiscal Year 2001; Project Start 1-JUN-2001; Project End 1-MAY-2004

Summary: (Applicant's Abstract): The PI's hypothesis is that the crural diaphragm interacts with the intrinsic lower esophageal sphincter in a very complex manner. These interactions take two forms: 1) space-time interactions in which the crural diaphragm and intrinsic lower esophageal sphincter (LES) are displaced from each other both in space and in time; and 2) mechanical interactions in which each component of the LES and CD contributes to the pressure generated at the gastroesophageal junction high-pressure zone (GEJHPZ) individually and in combination. When there are abnormalities in either of these interactions, at the GEJHPZ reflux events and retrograde flow of fluids will occur. The purpose of this proposal is to determine the relative physiologic roles of the intrinsic LES and CD in providing an anti-reflux barrier at the GEJHPZ. The PI plans to define the relative motion of the CD to the intrinsic LES the relaxation and contraction of the CD in relationship to the LES, the compressive effect and forces of the CD on the distal esophagus, the role of the CD in antegrade movement of liquids and the role of the CD in induced relaxation of the GEJHPZ and retrograde movement of liquids from the stomach to the esophagus. Simultaneous high-resolution ultrasound and manometry will be utilized to correlate anatomical position (structure) with pressure (function). To achieve these specific aims the PI plans to: 1) determine the effect of respiration on the position and pressure relationships of the intrinsic LES and CD as components of the GEJHPZ. The investigators hypothesize that respiration causes movement of the crural diaphragm relative to the intrinsic LES and, therefore, effects the anatomical relationship of these two structures to each other; 2) separate the intrinsic LES from the crural diaphragm using physiologic and pharmacologic manipulations. The manometric contribution of the CD to the GEJHPZ will be determined by

using pharmacologic and physiologic maneuvers to strengthen, diminish and even ablate the effects of the CD in order to better define the contribution of the CD to the GEJHPZ: 3) determine the effect of esophageal shortening during swallowing on the antireflux barrier GEJHPZ. This will be done by quantitating, the relative displacement of the intrinsic LES and CD to each other, in response to esophageal shortening, during swallowing of various bolus volumes of water; and 4) utilize several conditions in which the CEJHPZ structure and function are distorted to study the relative roles of the LES and CD. These conditions include hiatal hernia (displacement of the LES); Nissen fundoplication (reinforced HPZ) prior resection of the gastroesophageal junction (loss of the intrinsic LES); and GERD with and without hypotensive LES. Aim 5 Study the effect of retrograde flow at the GEJHPZ by inducing relaxation of the GEJHPZ and eliciting reflux events. This will be achieved by distending the fluid filled stomach with an air filled balloon, or distending the esophagus with an air filled balloon to induce relaxation of the GEJHPZ and elicit retrograde fluid movement from the stomach to the esophagus in normal controls and patients with GERD with and without a hypotensive LES. They will delineate both the normal and abnormal interactions of the LES and CD, using simultaneous ultrasound and manometry to define the physiology and pathophysiology of the GEJHPZ.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine. The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to the public.¹⁶ If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

¹⁶ PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

To generate your own bibliography of studies dealing with hiatal hernia, simply go to the PubMed Web site at www.ncbi.nlm.nih.gov/pubmed. Type “hiatal hernia” (or synonyms) into the search box, and click “Go.” The following is the type of output you can expect from PubMed for “hiatal hernia” (hyperlinks lead to article summaries):

Vocabulary Builder

Acidity: L. aciditas) the quality of being acid or sour; containing acid (hydrogen ions). [EU]

Adenocarcinoma: A malignant epithelial tumor with a glandular organization. [NIH]

Anatomical: Pertaining to anatomy, or to the structure of the organism. [EU]

Atony: Lack of normal tone or strength. [EU]

Atypical: Irregular; not conformable to the type; in microbiology, applied specifically to strains of unusual type. [EU]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Cardia: That part of the stomach surrounded by the esophagogastric junction, characterized by the lack of acid-forming cells. [NIH]

Concomitant: Accompanying; accessory; joined with another. [EU]

Constitutional: 1. affecting the whole constitution of the body; not local. 2. pertaining to the constitution. [EU]

Contractility: Capacity for becoming short in response to a suitable stimulus. [EU]

Distal: Remote; farther from any point of reference; opposed to proximal. In dentistry, used to designate a position on the dental arch farther from the median line of the jaw. [EU]

Duodenum: The first or proximal portion of the small intestine, extending from the pylorus to the jejunum; so called because it is about 12 fingerbreadths in length. [EU]

Dysphagia: Difficulty in swallowing. [EU]

Dyspnea: Difficult or labored breathing. [NIH]

Epithelium: The covering of internal and external surfaces of the body, including the lining of vessels and other small cavities. It consists of cells joined by small amounts of cementing substances. Epithelium is classified into types on the basis of the number of layers deep and the shape of the

superficial cells. [EU]

Fibrosis: The formation of fibrous tissue; fibroid or fibrous degeneration [EU]

Gastrostomy: Creation of an artificial external opening into the stomach for nutritional support or gastrointestinal compression. [NIH]

Helicobacter: A genus of gram-negative, spiral-shaped bacteria that is pathogenic and has been isolated from the intestinal tract of mammals, including humans. [NIH]

Histamine: 1H-Imidazole-4-ethanamine. A depressor amine derived by enzymatic decarboxylation of histidine. It is a powerful stimulant of gastric secretion, a constrictor of bronchial smooth muscle, a vasodilator, and also a centrally acting neurotransmitter. [NIH]

Hypotension: Abnormally low blood pressure; seen in shock but not necessarily indicative of it. [EU]

Hypotensive: Characterized by or causing diminished tension or pressure, as abnormally low blood pressure. [EU]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

Intrinsic: Situated entirely within or pertaining exclusively to a part. [EU]

Malignant: Tending to become progressively worse and to result in death. Having the properties of anaplasia, invasion, and metastasis; said of tumours. [EU]

Microorganism: A microscopic organism; those of medical interest include bacteria, viruses, fungi and protozoa. [EU]

Motility: The ability to move spontaneously. [EU]

Myopathy: Any disease of a muscle. [EU]

Neural: 1. pertaining to a nerve or to the nerves. 2. situated in the region of the spinal axis, as the neural arch. [EU]

Nitrogen: An element with the atomic symbol N, atomic number 7, and atomic weight 14. Nitrogen exists as a diatomic gas and makes up about 78% of the earth's atmosphere by volume. It is a constituent of proteins and nucleic acids and found in all living cells. [NIH]

Oesophagitis: Inflammation of the esophagus. [EU]

Pancreas: An organ behind the lower part of the stomach that is about the size of a hand. It makes insulin so that the body can use glucose (sugar) for energy. It also makes enzymes that help the body digest food. Spread all over the pancreas are areas called the islets of Langerhans. The cells in these areas each have a special purpose. The alpha cells make glucagon, which

raises the level of glucose in the blood; the beta cells make insulin; the delta cells make somatostatin. There are also the PP cells and the D1 cells, about which little is known. [NIH]

Pancreatitis: Inflammation (pain, tenderness) of the pancreas; it can make the pancreas stop working. It is caused by drinking too much alcohol, by disease in the gallbladder, or by a virus. [NIH]

Pathologic: 1. indicative of or caused by a morbid condition. 2. pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Pediatrics: A medical specialty concerned with maintaining health and providing medical care to children from birth to adolescence. [NIH]

Peristalsis: The wormlike movement by which the alimentary canal or other tubular organs provided with both longitudinal and circular muscle fibres propel their contents. It consists of a wave of contraction passing along the tube for variable distances. [EU]

Peritonitis: Inflammation of the peritoneum; a condition marked by exudations in the peritoneum of serum, fibrin, cells, and pus. It is attended by abdominal pain and tenderness, constipation, vomiting, and moderate fever. [EU]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Postprandial: Occurring after dinner, or after a meal; postcibal. [EU]

Prevalence: The number of people in a given group or population who are reported to have a disease. [NIH]

Prolapse: 1. the falling down, or sinking, of a part or viscus; procidentia. 2. to undergo such displacement. [EU]

Pulmonary: Pertaining to the lungs. [EU]

Radiography: The making of film records (radiographs) of internal structures of the body by passage of x-rays or gamma rays through the body to act on specially sensitized film. [EU]

Receptor: 1. a molecular structure within a cell or on the surface characterized by (1) selective binding of a specific substance and (2) a specific physiologic effect that accompanies the binding, e.g., cell-surface receptors for peptide hormones, neurotransmitters, antigens, complement fragments, and immunoglobulins and cytoplasmic receptors for steroid hormones. 2. a sensory nerve terminal that responds to stimuli of various kinds. [EU]

Rectal: Pertaining to the rectum (= distal portion of the large intestine). [EU]

Regurgitation: A backward flowing, as the casting up of undigested food, or the backward flowing of blood into the heart, or between the chambers of the heart when a valve is incompetent. [EU]

Resection: Excision of a portion or all of an organ or other structure. [EU]

Retrograde: 1. moving backward or against the usual direction of flow. 2. degenerating, deteriorating, or catabolic. [EU]

Secretion: 1. the process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. any substance produced by secretion. [EU]

Skeletal: Pertaining to the skeleton. [EU]

Stenosis: Narrowing or stricture of a duct or canal. [EU]

Systemic: Pertaining to or affecting the body as a whole. [EU]

Toxin: A poison; frequently used to refer specifically to a protein produced by some higher plants, certain animals, and pathogenic bacteria, which is highly toxic for other living organisms. Such substances are differentiated from the simple chemical poisons and the vegetable alkaloids by their high molecular weight and antigenicity. [EU]

Urea: One of the chief waste products of the body. When the body breaks down food, it uses what it needs and throws the rest away as waste. The kidneys flush the waste from the body in the form of urea, which is in the urine. [NIH]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

CHAPTER 4. PATENTS ON HIATAL HERNIA

Overview

You can learn about innovations relating to hiatal hernia by reading recent patents and patent applications. Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.¹⁷ Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available to patients with hiatal hernia within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available to patients with hiatal hernia. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information.

¹⁷ Adapted from The U. S. Patent and Trademark Office:
<http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm>.

Patents on Hiatal Hernia

By performing a patent search focusing on hiatal hernia, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.).

Patent Applications on Hiatal Hernia

As of December 2000, U.S. patent applications are open to public viewing.¹⁸ Applications are patent requests which have yet to be granted (the process to achieve a patent can take several years). The following patent applications have been filed since December 2000 relating to hiatal hernia:

- **Hiatal hernia repair patch and method for using the same**

Inventor(s): Rehil, Om P. ; (Marion, IN)

Correspondence: Richard C. Litman; LITMAN LAW OFFICES, LTD.; P.O. Box 15035; Arlington; VA; 22215; US

Patent Application Number: 20010049539

Date filed: January 3, 2001

Abstract: This invention relates to a surgical prosthesis and method of use. The hiatal hernia repair patch is a ring with an integral mesh attached to and surrounding the ring. The ring and the mesh have a slit therein extending radially so that the ring may be placed about the esophagus. The ring may be hollow or solid and is flexible so that it may be inserted through a small incision or a laparoscopic port into the abdominal cavity. The patch, including the ring and mesh, is made as a one-piece unit and is made from polypropylene or other biocompatible material. In use, the ring is placed around the esophagus, between the stomach and the diaphragm. Next, the mesh is stapled or sutured to the undersurface of the diaphragm, bridging the hiatal hernia defect.

Excerpt(s): The present invention relates to a method, and a prosthesis, for use in maintaining the intra-abdominal reduction of a sliding esophageal hiatal hernia. ... In humans, there is no anatomical valve, or discrete

¹⁸ This has been a common practice outside the United States prior to December 2000.

sphincter at the esophago-gastric (EG) junction. When anatomy in the area is normal, esophageal peristalsis pushes food through the EG junction. The stomach fills, like a sack, pulling the EG junction tighter. Normal, intact esophageal hiatal muscles prevent reflux. However, a gaping hiatal muscle sling creates a large defect around the esophagus, thereby interfering with the EG junction mechanism. This may lead to a hiatal hernia. ... Anatomically, hiatal hernia is a muscular defect in the diaphragm. The upper part of the stomach migrates through the defect, into the chest, or lower mediastinum. Here, negative pressure leads to free reflux of the stomach's acid into the esophagus. This reflux leads to an array of related symptoms and complications.

Web site: <http://appft1.uspto.gov/netahtml/PTO/search-bool.html>

Keeping Current

In order to stay informed about patents and patent applications dealing with hiatal hernia, you can access the U.S. Patent Office archive via the Internet at no cost to you. This archive is available at the following Web address: <http://www.uspto.gov/main/patents.htm>. Under "Services," click on "Search Patents." You will see two broad options: (1) Patent Grants, and (2) Patent Applications. To see a list of granted patents, perform the following steps: Under "Patent Grants," click "Quick Search." Then, type "hiatal hernia" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on hiatal hernia. You can also use this procedure to view pending patent applications concerning hiatal hernia. Simply go back to the following Web address: <http://www.uspto.gov/main/patents.htm>. Under "Services," click on "Search Patents." Select "Quick Search" under "Patent Applications." Then proceed with the steps listed above.

Vocabulary Builder

Prosthesis: A man-made substitute for a missing body part such as an arm or a leg; also an implant such as for the hip. [NIH]

CHAPTER 5. BOOKS ON HIATAL HERNIA

Overview

This chapter provides bibliographic book references relating to hiatal hernia. You have many options to locate books on hiatal hernia. The simplest method is to go to your local bookseller and inquire about titles that they have in stock or can special order for you. Some patients, however, feel uncomfortable approaching their local booksellers and prefer online sources (e.g. www.amazon.com and www.bn.com). In addition to online booksellers, excellent sources for book titles on hiatal hernia include the Combined Health Information Database and the National Library of Medicine. Once you have found a title that interests you, visit your local public or medical library to see if it is available for loan.

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "hiatal hernia" (or synonyms) into the "For these words:" box. You will only receive results on books. You should check back periodically with this database which is updated every 3 months. The following is a typical result when searching for books on hiatal hernia:

- **Foods That Harm, Foods That Heal: An A-Z Guide to Safe and Healthy Eating**

Source: Pleasantville, NY: Reader's Digest. 1997. 400 p.

Contact: Available from Customer Service, Reader's Digest. Pleasantville, NY 10570. (800) 846-2100. PRICE: \$30.00. ISBN: 0895779129.

Summary: This nutrition reference book features more than 400 photographs and illustrations with more than 400 A to Z entries on a vast range of foods and health concerns, include caffeine, cancer, diabetes, fast food, garlic, heart disease, influenza, osteoporosis, pregnancy, sexually transmitted diseases, and vegetarianism. The book is designed to provide families with information to help understand the close links between foods and wellness. Each food entry provides at-a-glance information on its nutrients (or lack of) and its benefits and drawbacks. Each ailment is accompanied by a list of foods and beverages that are considered safe, and what foods or beverages should be cut down or avoided altogether. Personalized case studies help to illustrate various topics. There are special features on eating during different life stages, from infancy to old age, as well as such issues as genetically altered foods, irradiation, pesticides, and pollution. Other topics include how to cook foods to achieve maximum nutritional benefits; which dietary supplements really work; tips on exercising, storing food, and reading food labels; an instructive analysis of the most popular diet regimens; and controversial foods and additives such as eggs, nitrites, bran, cheese, milk, fat, wine, and alcohol. A glossary defines unfamiliar or technical terms; there is also a listing of organizations that can provide further information and resources. Topics specifically related to digestive diseases include allergic reactions to food, anorexia nervosa, antioxidants, appetite loss, basic food groups, carbohydrates, celiac disease, childhood and adolescent nutrition, cholesterol, constipation, convenience foods, Crohn's disease, diarrhea, dieting and weight control, digestive and malabsorption disorders, diverticulitis, fats, fiber, food poisoning, gastritis, gastroenteritis, gout, hiatal hernia, indigestion and heartburn, intolerance to milk and other foods, irritable bowel syndrome, malnutrition, medicine-food interactions, minerals, obesity, organic and health foods, preparation and storage of food, restaurants and eating out, smoking and diet, sports nutrition, supplements, traveler's health, ulcers, vitamins, and worms and other parasites.

- **Medical Advisor Home Edition: The Complete Guide to Alternative and Conventional Treatments**

Source: Alexandria, VA: Time-Life Books. 1997. 960 p.

Contact: Available from Time-Life Books. 400 Keystone Industrial Park, Dunsmore, PA 18512. PRICE: \$20.00. ISBN: 0783552505.

Summary: This book offers information about 300 health problems, ranging from relatively benign conditions to the most serious diseases. There are symptoms charts which name several related problems and help readers decide which ailment entry to look up. Ailment entries provide a more complete list of symptoms, plus guidelines to discern whether the condition is potentially serious or requires a doctor's attention. Each entry describes the ailment and how it affects the body. Next, the entry outlines the underlying causes of the ailment and the tests and procedures a doctor may use to confirm the diagnosis. The treatment segment presents conventional and alternative recommendations for curing the problem or alleviating the symptoms. Most ailment entries conclude with advice on preventive measures that can be used to maintain health. Alternative treatments discussed include bodywork, acupuncture and acupressure, herbal therapies, homeopathy, lifestyle changes, and nutrition and diet. The book begins with a section on emergency medicine. Also included is a visual diagnostic guide, an atlas to the body, a medicine chest section (describing herbs, homeopathic remedies, and over the counter drugs), a glossary, a subject index, a bibliography, and a list of health associations and organizations. Topics related to digestive diseases include abdominal pain, AIDS, allergies, anal bleeding, anal fissure, anorexia nervosa, bad breath, bowel movement abnormalities, bulimia, celiac disease, cholesterol problems, colitis, colorectal cancer, constipation, Crohn's disease, diarrhea, diverticulitis, flu, food poisoning, gallstones, gas and gas pains, gastritis, gastroenteritis, heartburn, hiatal hernia, hiccups, incontinence, indigestion, irritable bowel syndrome, lactose intolerance, lupus, obesity, pancreatic cancer, pancreatic problems, stomach cancer, stomach ulcers, swallowing difficulty, trichomoniasis, vomiting, and worms. The book is illustrated with line drawings and full-color photographs.

- **Gastrointestinal Diseases and Disorders Sourcebook**

Source: Detroit, MI: Omnigraphics, Inc. 1996. 413 p.

Contact: Available from Omnigraphics, Inc. Penobscot Building, Detroit, MI 48226. (800) 234-1340 or (313) 961-1340. Fax (800) 875-1340 or (313) 961-1383. PRICE: \$75.00. ISBN: 0780800788.

Summary: This health reference book provides nontechnical information about gastrointestinal diseases and disorders. This sourcebook describes the signs and symptoms of many digestive system problems, discusses ongoing research and treatment, provides statistical data, and recommends dietary and lifestyle changes. The book has 46 chapters

arranged in five sections: general information, including how the digestive system works, how to maintain healthy digestion, and statistical data; esophageal problems, including hiatal hernia, heartburn, and chronic pulmonary aspiration in children; stomach problems, notably ulcers and their treatment; intestinal and anorectal disorders; and liver, pancreatic, and gallbladder diseases and disorders, including liver function tests, liver transplants, and liver biopsy. The sourcebook includes numerous charts and graphs; a subject index concludes the volume.

- **Instructions for Patients. 5th ed**

Source: Philadelphia, PA: W.B. Saunders Company. 1994. 598 p.

Contact: Available from W.B. Saunders Company. Book Order Fulfillment, 6277 Sea Harbor Drive, Orlando, FL 32887-4430. (800) 545-2522. Fax (800) 874-6418. PRICE: \$49.95. ISBN: 0721649300 (English); 0721669972 (Spanish).

Summary: This paper-bound book presents a number of patient instruction fact sheets. Each fact sheet includes three sections: basic information on signs and symptoms, causes, risk factors, etc.; treatment; and when to contact one's health care provider. Digestive system topics include food allergy, anal fissure, celiac disease, appendicitis, Crohn's disease, constipation, ulcerative colitis, cirrhosis of the liver, cholecystitis or cholangitis, diarrhea, diverticular disease, gallstones, gastritis, hiatal hernia, hemorrhoids, heartburn, irritable bowel syndrome, and lactose intolerance, among others. The fact sheets are designed to be photocopied and distributed to patients as a reinforcement of oral instructions and as a teaching tool. The book is available in English or Spanish.

- **Indigestion: Living Better with Upper Intestinal Problems from Heartburn to Ulcers and Gallstones**

Source: New York, NY: Oxford University Press. 1992. 227 p.

Contact: Available from Oxford University Press. Order Department, 2001 Evans Road, Cary, NC 27513. (800) 451-7556. Fax (919) 677-1303. PRICE: \$11.95 plus shipping and handling. ISBN: 019508554X.

Summary: This book offers advice on how to take care of and avoid a whole complex of disturbances categorized as indigestion. The author begins with an overview of the anatomy and physiology of digestion, including a chapter on terminology and definitions. After an additional chapter on diagnostic testing, the author turns to specific problems, including acid related problems (heartburn, esophagitis, and hiatal hernia), peptic ulcers, nonulcer dyspepsia, chest pain, gallbladder

problems and gallstones, pancreatic diseases, jaundice, malabsorption and maldigestion, food intolerance and food allergies, the impact of aging on the upper digestive tract (including the role of medications and drug interactions), and the brain gut connection. The appendices of the book offer coverage of related problems, including belching, nausea and vomiting, dry mouth and bitter taste, difficulty in tasting, lump in the throat, butterflies, difficulties in swallowing, delayed stomach emptying, the effects of diabetes on the upper digestive system, and the controversy over yeast. The author hopes to foster a cooperative dialogue between patients and their physicians as they work together to diagnose and manage upper digestive tract problems. A subject index concludes the book. 8 figures. 6 tables.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes & Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). The following have been recently listed with online booksellers as relating to hiatal hernia (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **A Colour Atlas of Trans-Abdominal Gastric Fundoplication (Single Surgical Procedures, Vol 46)** by W.F. Walker, J. G. R. Cumming; ISBN: 0815190816;
<http://www.amazon.com/exec/obidos/ASIN/0815190816/icongroupinterna>
- **A Colour Atlas of Transthoracic Repair of Hiatus Hernia (Single Surgical Procedures, Vol 43)** by Robert Pringle (1987); ISBN: 081516842X;
<http://www.amazon.com/exec/obidos/ASIN/081516842X/icongroupinterna>
- **Esophageal hiatus hernia : rationale and results of anatomic repair** by Thomas Gahagan; ISBN: 0398034893;
<http://www.amazon.com/exec/obidos/ASIN/0398034893/icongroupinterna>
- **Hiatal Hernia Syndrome** (1987); ISBN: 0938257064;
<http://www.amazon.com/exec/obidos/ASIN/0938257064/icongroupinterna>

- **Hiatal Hernia Syndrome: Insidious Link to Major Illness Guide to Healing** by Theodore A. Baroody, Janice R. Swanger (Illustrator) (1987); ISBN: 0961959525;
<http://www.amazon.com/exec/obidos/ASIN/0961959525/icongroupinterna>
- **Hiatal Hernia: The Natural Approach to Overcoming Hiatal and Other Gastro-Intestinal Disorders** by Jack Ritchason (1997); ISBN: 1885670346;
<http://www.amazon.com/exec/obidos/ASIN/1885670346/icongroupinterna>
- **Positive Options for Hiatus Hernia: Self-Help and Treatment** by Tom Smith; ISBN: 0897933184;
<http://www.amazon.com/exec/obidos/ASIN/0897933184/icongroupinterna>
- **The esophagus : reflux and primary motor disorders** by Robert D. Henderson; ISBN: 0683039482;
<http://www.amazon.com/exec/obidos/ASIN/0683039482/icongroupinterna>

The National Library of Medicine Book Index

The National Library of Medicine at the National Institutes of Health has a massive database of books published on healthcare and biomedicine. Go to the following Internet site, <http://locatorplus.gov/>, and then select "Search LOCATORplus." Once you are in the search area, simply type "hiatal hernia" (or synonyms) into the search box, and select "books only." From there, results can be sorted by publication date, author, or relevance. The following was recently catalogued by the National Library of Medicine:¹⁹

- **A memoir on strangulated hernia: from cases occurring in the London Hospital.** Author: by Nathaniel Ward; Year: 1854; London: J. Churchill, 1854

¹⁹ In addition to LOCATORPlus, in collaboration with authors and publishers, the National Center for Biotechnology Information (NCBI) is adapting biomedical books for the Web. The books may be accessed in two ways: (1) by searching directly using any search term or phrase (in the same way as the bibliographic database PubMed), or (2) by following the links to PubMed abstracts. Each PubMed abstract has a "Books" button that displays a facsimile of the abstract in which some phrases are hypertext links. These phrases are also found in the books available at NCBI. Click on hyperlinked results in the list of books in which the phrase is found. Currently, the majority of the links are between the books and PubMed. In the future, more links will be created between the books and other types of information, such as gene and protein sequences and macromolecular structures. See <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books>.

- **Abdominal wall hernias: principles and management.** Author: Robert Bendavid ... [et al.] editors; foreword by Raymond C. Read; preface by René Stoppa; Year: 2001; New York: Springer, c2001; ISBN: 0387950044 (hard cover: alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/0387950044/icongroupinterna>
- **Association of diaphragmatic hiatal hernia and gastroesophageal malignancy.** Author: Michel, Javier Ochoa, 1934-; Year: 1965; [Minneapolis] 1965
- **Colour atlas of transthoracic repair of hiatus hernia.** Author: Robert Pringle; Year: 1987; London: Wolfe Medical Publications; Chicago, Ill.: Year Book Medical Publishers, 1987; ISBN: 081516842X (Year Book Medical Publishers)
<http://www.amazon.com/exec/obidos/ASIN/081516842X/icongroupinterna>
- **Contributions to surgical anatomy.** Author: by John Lizars; [Edinburgh?: s.n., 18--?]
- **Gastroesophageal reflux and hiatal hernia, by nine authors. Edited by David B. Skinner [et al.].** Author: Jacobsson, Sven-Ingemar; Year: 1972; Boston, Little, Brown [c1972]; ISBN: 031679677
- **Hernia healers: an illustrated history.** Author: René Stoppa ... [at el.]; prefaced by Lloyd M. Nyhus; Year: 1998; Paris: Arnette, c1998; ISBN: 2718408715
- **Hernia repair: open vs. laparoscopic approaches.** Author: edited by Guy J. Maddern, Jonathan R. Hiatt, Edward H. Phillips; line illustrations by T.C. Hengst; Year: 1997; New York: Churchill Livingstone, 1997; ISBN: 0443055238
<http://www.amazon.com/exec/obidos/ASIN/0443055238/icongroupinterna>
- **Hernia repair: the laparoscopic approach.** Author: David C. Dunn and Donald Menzies; Year: 1996; Oxford: Cambridge, Mass.; Blackwell Science, 1996; ISBN: 0865429081
<http://www.amazon.com/exec/obidos/ASIN/0865429081/icongroupinterna>
- **Hernia.** Author: edited by Lloyd M. Nyhus, Robert E. Condon; foreword by Keith A. Kelly; with 75 contributors; Year: 1995; Philadelphia: J.B. Lippincott, c1995; ISBN: 0397512864 (alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/0397512864/icongroupinterna>

- **Hiatal hernia: follow-up of a ten-year material.** Author: by Sven-Ingemar Jacobsson; [translated by Patrick Hort]; Year: 1976; Stockholm: [s.n.]: distributed by Almqvist & Wiksell, 1976
- **Incisional hernia.** Author: V. Schumpelick, A.N. Kingsnorth (eds.); Year: 1999; Berlin; New York: Springer, c1999; ISBN: 3540656197 (hard-cover: alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/3540656197/icongroupinterna>
- **Internal intra-abdominal hernias.** Author: Roberto L. Estrada; illustrations by Catherine E. McIntosh Jeffery; Year: 1994; Austin: R.G. Landes; Boca Raton, FL: Worldwide distributor, CRC Press, 1994; ISBN: 1879702916 (hard cover)
<http://www.amazon.com/exec/obidos/ASIN/1879702916/icongroupinterna>
- **Laparoscopic hernia repair: a new standard?** Author: volume editors, M.W. Büchler ... [et al.]; Year: 1995; Basel; New York: Karger, 1995; ISBN: 3805560478 (alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/3805560478/icongroupinterna>
- **Laparoscopic hernia repair.** Author: Michael S. Kavic; Year: 1997; Amsterdam, the Netherlands: Harwood Academic Publishers, c1997; ISBN: 9057025388
<http://www.amazon.com/exec/obidos/ASIN/9057025388/icongroupinterna>
- **Laparoscopic inguinal hernia repair.** Author: edited by Ara Darzi and John R.T. Monson; illustrated by Dee McLean; Year: 1994; Oxford: Isis Medical Media, c1994; ISBN: 1899066012
<http://www.amazon.com/exec/obidos/ASIN/1899066012/icongroupinterna>
- **Letter on the treatment of hernia.** Author: by J.M. Sanderson; Year: 1852; New York: Hood Truss Office, 1852
- **Lichtenstein hernia repairs, and how to do them-- right!** Author: Alex G. Shulman; illustrations by Chuck Wiedeman; Year: 1996; Van Nuys, CA: Wagner Design, c1996; ISBN: 0965352609
<http://www.amazon.com/exec/obidos/ASIN/0965352609/icongroupinterna>
- **Management of abdominal hernias.** Author: H. Brendan Devlin ... [et al.]; illustrations by Gillian Lee; Year: 1998; London; New York: Chapman & Hall Medical, 1998; ISBN: 0412738201 (alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/0412738201/icongroupinterna>

- **Mobile paediatric clinic services and child morbidity in a rural health project area in India.** Author: H.N. Ranganathan, L.D. Puranik; Year: 1989; Canberra, Australia, Australian National University, Dept. of Demography, International Population Dynamics Program, 1989
- **Modern hernia repair: the embryological and anatomical basis for surgery.** Author: Lee John Skandalakis ... [et al.]; Year: 1996; New York: Parthenon Pub. Group, c1996; ISBN: 1850705852
<http://www.amazon.com/exec/obidos/ASIN/1850705852/icongroupinterna>
- **Prostheses and abdominal wall hernias.** Author: [edited by] Robert Bendavid; Year: 1994; Austin: R.G. Landes; Boca Raton, FL: CRC Press [distributor], c1994; ISBN: 1879702703 (hardcover)
<http://www.amazon.com/exec/obidos/ASIN/1879702703/icongroupinterna>
- **Respiratory function in hiatus hernia: pre- and postoperative studies.** Author: by Jerzy Senyk; Year: 1974; Malmö, [Sweden: s.n.], 1974
- **Review of a report of a committee of the American Medical Association on the permanent cure of reducible hernia or rupture.** Author: by George Heaton ..; Year: 1853; Boston: Printed by William Chadwick ..., 1853
- **Surgical treatment of hiatal hernia with symptomatic gastro-oesophageal reflux: a follow-up study.** Author: by Pantalei Gatzinsky; Year: 1979; Göteborg: [s.n.], 1979; ISBN: 9172222611

Chapters on Hiatal Hernia

Frequently, hiatal hernia will be discussed within a book, perhaps within a specific chapter. In order to find chapters that are specifically dealing with hiatal hernia, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and hiatal hernia using the "Detailed Search" option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." By making these selections and typing in "hiatal hernia" (or synonyms) into the "For these words:" box, you will only receive results on chapters in books. The following is a typical result when searching for book chapters on hiatal hernia:

- **Gastroesophageal Reflux Disease (GERD)**

Source: in King, J.E., ed. *Mayo Clinic on Digestive Health*. Rochester, MN: Mayo Clinic. 2000. p. 61-76.

Contact: Available from Mayo Clinic Health Information. 5505 36th Street, SE, Grand Rapids, MI 49512. (800) 291-1128. Website: www.mayoclinic.com. PRICE: \$14.95 plus shipping and handling. ISBN: 1893005046.

Summary: This chapter on gastroesophageal reflux disease (GERD) is from a comprehensive guidebook from the Mayo Clinic that focuses on a variety of digestive symptoms, including heartburn, abdominal pain, constipation, and diarrhea, and the common conditions that are often responsible for these symptoms. Written in nontechnical language, the book includes practical information on how the digestive system works, factors that can interfere with its normal functioning, and how to prevent digestive problems. This chapter first reviews the key signs and symptoms of GERD, including heartburn, acid reflux (return of the stomach's acid contents to the esophagus), difficulty swallowing, chest pain, persistent coughing, and hoarseness. The authors describe the anatomy of the stomach and esophagus and the lower esophageal sphincter, which serves as the doorway between them. The authors then note the potential risk factors for getting GERD: being overweight, family history, hiatal hernia, smoking, excessive alcohol, pregnancy, asthma, diabetes, peptic ulcer, delayed stomach emptying, connective tissue disorders, and Zollinger-Ellison syndrome. The chapter also reviews the complications of untreated GERD, which include esophageal narrowing (stricture), ulcer, and Barrett's esophagus (a precancerous condition of the esophagus). One sidebar reviews drugs and supplements that can worsen the symptoms of GERD; a section in the chapter also covers medications that can help, including antacids, acid blockers, proton pump inhibitors (PPIs), and motility (prokinetic) agents. A final section briefly reviews the surgical options for treating GERD. 4 figures.

- **Gastroesophageal Reflux Disease**

Source: in Brandt, L., et al., eds. *Clinical Practice of Gastroenterology*. Volume One. Philadelphia, PA: Current Medicine. 1999. p. 21-33.

Contact: Available from W.B. Saunders Company. Order Fulfillment, 6277 Sea Harbor Drive, Orlando, FL 32887. (800) 545-2522. Fax (800) 874-6418 or (407) 352-3445. Website: www.wbsaunders.com. PRICE: \$235.00 plus shipping and handling. ISBN: 0443065209 (two volume set); 0443065217 (volume 1); 0443065225 (volume 2).

Summary: This chapter on gastroesophageal reflux disease (GERD) is from a lengthy textbook that brings practitioners up to date on the complexities of gastroenterology practice, focusing on the essentials of patient care. GERD stems from a failure of the normal antireflux mechanism to protect against abnormal frequency and quantity of gastric acid reflux. GERD is a true pathologic entity that includes more than just heartburn, and it is a cause of considerable morbidity and discomfort. Contributory factors include hiatal hernia, an incompetent lower esophageal sphincter (LES), delayed gastric emptying, biliary and pancreatic components of gastric contents, resistance of the mucosa, and use of tobacco products. Upper gastrointestinal endoscopy is the procedure of choice for diagnosis; 24 hour esophageal pH monitoring is helpful in a minority of patients whose symptoms are not typical of GERD. The basic components of therapy for mild GERD include lifestyle modifications, antacids, and H₂ receptor antagonists; proton pump inhibitors (PPIs) are used for reflux symptoms that are unresponsive to H₂ receptor antagonists and for severe esophagitis. High, frequent doses of H₂ receptor antagonists may achieve complete mucosal healing, but their long term use must be weighed against cost limitations and practicality, both of which influence the decision to prescribe PPIs. Symptom relief, patient satisfaction, and treatment safety remain the desired goals of therapy. 12 figures. 3 tables. 41 references.

- **Gastrointestinal Disorders**

Source: in Lysen, L.K. Quick Reference to Clinical Dietetics. Gaithersburg, MD: Aspen Publishers, Inc. 1997. p. 43-57.

Contact: Available from Aspen Publishers, Inc. Fulfillment, 7201 McKinney Circle, Frederick, MD 21704. (800) 234-1660 or (800) 638-8437. PRICE: \$35.00. ISBN: 0834206293.

Summary: This section on gastrointestinal disorders is from a reference book on clinical dietetics and is part of a chapter on the use of nutrition management for specific medical conditions. Gastrointestinal (GI) disorders often result in maldigestion and malabsorption of nutrients and present as diarrhea. Diarrhea can have severe nutritional consequences through loss of essential nutrients such as water, minerals, vitamins, electrolytes, and micronutrients. Severe diarrhea can disrupt nutrient absorption to such an extent that malnutrition can occur. GI disorders can be both the cause and result of life threatening conditions. Disruption of the normal processes of nutrient digestion and absorption causes malnutrition, which may lead to serious clinical complications. After a brief review of the anatomy of the GI tract, the author discusses digestion, absorption, secretion, motility, adaptation, the immunologic

barrier of the GI tract (the mucosa), nutritional implications in the assessment of the GI tract, factors that may affect the ability to deliver appropriate nutritional support, and specific disorders. These include swallowing difficulties (dysphagia); reflux esophagitis or gastroesophageal reflux disease (GERD); achalasia (motility disorder of the esophagus); esophageal perforation, obstruction, and varices; peptic ulcer disease; gastritis; vomiting; hiatal hernia; gastric outlet obstruction; GI bleeding; dumping syndrome; bezoar formation; absorption disorders; obstruction of the small intestine; lactase deficiency; inflammatory bowel disease; and short bowel syndrome. 7 tables. 10 references.

- **Gastrointestinal Function and Diseases**

Source: in Byyny, R.L. and Speroff, L. *Clinical Guide for the Care of Older Women: Primary and Preventive Care*. 2nd ed. Baltimore, MD: Williams and Wilkins. 1996. p. 353-363.

Contact: Available from Williams and Wilkins. 351 West Camden Street, Baltimore, MD 21201-2436. (800) 638-6423 or (410) 528-8555. Fax (800) 447-8438. PRICE: \$69.00. ISBN: 0683011510.

Summary: This chapter on gastrointestinal function and diseases is from a clinical guidebook for the primary and preventive care of older women. Topics include gastrointestinal changes with aging; esophageal disease, including presbyesophagus, cricopharyngeal achalasia, hiatal hernia and esophageal reflux, achalasia, and esophageal infection; peptic ulcers; nonulcer dyspepsia; diseases of the colon, including diverticular disease, colorectal neoplasms, functional bowel disease, constipation, diarrhea, hemorrhoids and anal fissures; and diseases of the liver, including viral hepatitis, hepatotoxicity from medication, cirrhosis, and cholelithiasis. 33 references.

- **Hiatal Hernia**

Source: in Snape, W.J., ed. *Consultations in Gastroenterology*. Philadelphia, PA: W.B. Saunders Company. 1996. p. 211-218.

Contact: Available from W.B. Saunders Company. Order Fulfillment, 6277 Sea Harbor Drive, Orlando, FL 32887. (800) 545-2522. Fax (800) 874-6418 or (407) 352-3445. PRICE: \$125.00. ISBN: 0721646700.

Summary: This chapter, from a gastroenterology text, reviews hiatal hernia. The authors define three types of esophageal hiatal hernias: the sliding hernia, the rolling or paraesophageal hernia, and the combined sliding-rolling or mixed hernia. The authors discuss incidence and etiology, symptoms, diagnostic considerations, pathophysiology, and therapy. The presence of a paraesophageal hiatal hernia is an indication

for surgical repair. The catastrophic, life threatening complications of bleeding, infarction, and perforation that are part of the natural history of the hernia in about 25 percent of patients drive its surgical correction even in the elderly with a shorter life expectancy. 6 figures. 1 table. 9 references. (AA-M).

- **Paraesophageal Hiatal Hernia**

Source: in *Hernia*. 4th ed. Philadelphia, PA: Lippincott-Raven Publishers. 1995. p. 543-554.

Contact: Available from Lippincott-Raven Publishers. 1185 Avenue of the Americas, New York, NY 10036. (212) 930-9500. Fax (212) 869-3495.

PRICE: \$149 (as of 1995). ISBN: 0397512864.

Summary: This chapter from a medical textbook on the diagnosis and treatment of hernia covers paraesophageal hiatal hernia, in which the fundus herniates into the thorax in association with a normally positioned gastroesophageal junction. Topics include incidence, pathogenesis, clinical presentation, pathophysiology, and therapeutic options. The authors note that symptoms usually are vague, but one-fifth of the patients with paraesophageal hiatal hernia have severe, life-threatening complications, such as incarceration, strangulation, perforation, or hemorrhage. 12 figures. 28 references.

- **Gastrointestinal System**

Source: in Saxon, S.V.; Etten, M.J. *Physical Change and Aging: A Guide for the Helping Professions*. 3rd ed. New York, NY: Tiresias Press, Inc. 1994. p. 176-201.

Contact: Available from Tiresias Press, Inc. 116 Pinehurst Avenue, New York, NY 10033. (212) 568-9570. PRICE: \$24.90. ISBN: 0913292478.

Summary: This chapter on the gastrointestinal (GI) system is from a guide for the helping professions on physical change and aging. Topics include components and functions of the GI system, including digestion, the mouth, the pharynx and esophagus, the stomach, the small intestine, liver, gallbladder, pancreas, and the large intestine; age-related changes in the mouth, esophagus, stomach, and other areas of the GI tract; and age-related disorders, including xerostomia, dysphagia, dental caries, periodontal disease, oral cancer, cancer of the esophagus, hiatal hernia, gastritis, peptic (gastric) ulcer, pernicious anemia, cancer of the stomach, appendicitis, diarrhea, constipation, diverticulosis, colorectal cancer, hemorrhoids, cirrhosis, and gallstones. The authors conclude that many functional disorders and diseases can very likely be avoided by more

careful attention and adherence to healthy diets, regular exercise, stress reduction, and other positive lifestyle regimens. 1 figure. 29 references.

- **Gastrointestinal Diseases**

Source: in Gerber, J.M. Handbook of Preventive and Therapeutic Nutrition. Frederick, MD: Aspen Publishers, Inc. 1993. p. 46-49.

Contact: Available from Aspen Publishers, Inc. 7201 McKinney Circle, Frederick, MD 21701-9782. (800) 638-8437 or (301) 417-7500. PRICE: \$34. ISBN: 0834203189.

Summary: This chapter, from a handbook of preventive and therapeutic nutrition, provides an overview about gastrointestinal diseases. Diseases covered include reflux esophagitis and hiatal hernia; peptic ulcer; irritable bowel syndrome; Crohn's disease (regional enteritis); and ulcerative colitis. In each section, brief information is presented about the clinical features and therapy/management of the condition. One exhibit lists substances that may cause upper gastrointestinal symptoms in some patients. 1 table.

- **Gastrointestinal Conditions**

Source: in Loeb, S., ed. Teaching Patients with Chronic Conditions. Springhouse, PA: Springhouse Corporation. 1992. p. 408-480.

Contact: Available from Springhouse Corporation. 1111 Bethlehem Pike, Springhouse, PA 19477. (800) 346-7844. PRICE: \$29.95; plus \$3.50 shipping and handling. ISBN: 0874344972.

Summary: This chapter, from a book for nurses about education for patients with chronic conditions, addresses gastrointestinal conditions. Conditions covered include irritable bowel syndrome; inflammatory bowel disease; cirrhosis; chronic pancreatitis; hiatal hernia; constipation; and fecal incontinence. The chapter contains information about drug therapy for each condition, noting reactions and important teaching points. Each section lists teaching topics related to that area and provides numerous patient education handouts for photocopying and distribution to patients. Each section concludes with a list of sources of information and support and further readings.

- **Acid in the Gullet: Heartburn, Esophagitis, and Hiatal Hernia**

Source: in Janowitz, H.D. Indigestion: Living Better with Upper Intestinal Problems from Heartburn to Ulcers and Gallstones. New York, NY: Oxford University Press. 1992. p. 41-57.

Contact: Available from Oxford University Press. Order Department, 2001 Evans Road, Cary, NC 27513. (800) 451-7556. Fax (919) 677-1303. PRICE: \$11.95 plus shipping and handling. ISBN: 019508554X.

Summary: This chapter on acid related problems (heartburn, esophagitis, and hiatal hernia) is from a book that offers advice on how to take care of and avoid the whole complex of disturbances categorized as indigestion. The author reviews each of these three problems, covering their causes, symptoms, and the physiology of what is happening. Heartburn arises in the esophagus and results from the presence of the stomach's acid contents in the lower end of the esophagus. The acid has a direct irritating result because tissues there are not normally exposed to or prepared for the acid (compared to the stomach, which has a protective mucosal lining). The most important anatomical device protecting against heartburn is the lower esophageal sphincter (LES, which guards the opening between the esophagus and the stomach). The author explores the problem that can arise with a hiatal hernia, which can impair the LES's ability to prevent reflux of the stomach's contents into the esophagus. The LES pressure is also affected after a meal of fatty foods, by smoking, and by the presence of acid in the stomach (including the role of stomach emptying). The author also discusses diagnostic testing for acid reflux; treatment options, including habits and dietary modifications, and drug therapy; and general measures for relieving heartburn, including the role of exercise. Following is a discussion of the condition of active inflammation of the esophagus (esophagitis), including its diagnosis, medical treatment, surgery, and the problem of Barrett's esophagus. The chapter concludes with a discussion of the treatment options for hiatal hernia, focusing on the decision about surgical treatment for the condition.

General Home References

In addition to references for hiatal hernia, you may want a general home medical guide that spans all aspects of home healthcare. The following list is a recent sample of such guides (sorted alphabetically by title; hyperlinks provide rankings, information, and reviews at Amazon.com):

- **The Digestive System (21st Century Health and Wellness)** by Regina Avraham; Library Binding (February 2000), Chelsea House Publishing (Library); ISBN: 0791055264;
<http://www.amazon.com/exec/obidos/ASIN/0791055264/icongroupinterna>
- **American College of Physicians Complete Home Medical Guide (with Interactive Human Anatomy CD-ROM)** by David R. Goldmann (Editor),

American College of Physicians; Hardcover - 1104 pages, Book & CD-Rom edition (1999), DK Publishing; ISBN: 0789444127;
<http://www.amazon.com/exec/obidos/ASIN/0789444127/icongroupinterna>

- **The American Medical Association Guide to Home Caregiving** by the American Medical Association (Editor); Paperback - 256 pages 1 edition (2001), John Wiley & Sons; ISBN: 0471414093;
<http://www.amazon.com/exec/obidos/ASIN/0471414093/icongroupinterna>
- **Anatomica : The Complete Home Medical Reference** by Peter Forrestal (Editor); Hardcover (2000), Book Sales; ISBN: 1740480309;
<http://www.amazon.com/exec/obidos/ASIN/1740480309/icongroupinterna>
- **The HarperCollins Illustrated Medical Dictionary : The Complete Home Medical Dictionary** by Ida G. Dox, et al; Paperback - 656 pages 4th edition (2001), Harper Resource; ISBN: 0062736469;
<http://www.amazon.com/exec/obidos/ASIN/0062736469/icongroupinterna>
- **Mayo Clinic Guide to Self-Care: Answers for Everyday Health Problems** by Philip Hagen, M.D. (Editor), et al; Paperback - 279 pages, 2nd edition (December 15, 1999), Kensington Publishing Corp.; ISBN: 0962786578;
<http://www.amazon.com/exec/obidos/ASIN/0962786578/icongroupinterna>
- **The Merck Manual of Medical Information : Home Edition (Merck Manual of Medical Information Home Edition (Trade Paper))** by Robert Berkow (Editor), Mark H. Beers, M.D. (Editor); Paperback - 1536 pages (2000), Pocket Books; ISBN: 0671027263;
<http://www.amazon.com/exec/obidos/ASIN/0671027263/icongroupinterna>

Vocabulary Builder

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Anorectal: Pertaining to the anus and rectum or to the junction region between the two. [EU]

Anorexia: Lack or loss of the appetite for food. [EU]

Antioxidant: One of many widely used synthetic or natural substances added to a product to prevent or delay its deterioration by action of oxygen in the air. Rubber, paints, vegetable oils, and prepared foods commonly contain antioxidants. [EU]

Appendicitis: Acute inflammation of the vermiform appendix. [NIH]

Aspiration: The act of inhaling. [EU]

Benign: Not malignant; not recurrent; favourable for recovery. [EU]

Biliary: Pertaining to the bile, to the bile ducts, or to the gallbladder. [EU]

Biopsy: The removal and examination, usually microscopic, of tissue from the living body, performed to establish precise diagnosis. [EU]

Butterflies: Slender-bodied diurnal insects having large, broad wings often strikingly colored and patterned. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH₂O)_n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Chemotherapy: The treatment of disease by means of chemicals that have a specific toxic effect upon the disease - producing microorganisms or that selectively destroy cancerous tissue. [EU]

Cholangitis: Inflammation of a bile duct. [EU]

Cholecystitis: Inflammation of the gallbladder. [EU]

Cholelithiasis: The presence or formation of gallstones. [EU]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Cirrhosis: Liver disease characterized pathologically by loss of the normal microscopic lobular architecture, with fibrosis and nodular regeneration. The term is sometimes used to refer to chronic interstitial inflammation of any organ. [EU]

Colorectal: Pertaining to or affecting the colon and rectum. [EU]

Demography: Statistical interpretation and description of a population with reference to distribution, composition, or structure. [NIH]

Dietetics: The study and regulation of the diet. [NIH]

Dyspepsia: Impairment of the power of function of digestion; usually applied to epigastric discomfort following meals. [EU]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Fats: One of the three main classes of foods and a source of energy in the body. Fats help the body use some vitamins and keep the skin healthy. They also serve as energy stores for the body. In food, there are two types of fats: saturated and unsaturated. [NIH]

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Gastroenteritis: An acute inflammation of the lining of the stomach and

intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella* species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gout: Hereditary metabolic disorder characterized by recurrent acute arthritis, hyperuricemia and deposition of sodium urate in and around the joints, sometimes with formation of uric acid calculi. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hepatitis: Inflammation of the liver. [EU]

Hiccup: A spasm of the diaphragm that causes a sudden inhalation followed by rapid closure of the glottis which produces a sound. [NIH]

Hoarseness: An unnaturally deep or rough quality of voice. [NIH]

Incarceration: Abnormal retention or confinement of a body part; specifically : a constriction of the neck of a hernial sac so that the hernial contents become irreducible. [EU]

Incontinence: Inability to control excretory functions, as defecation (faecal i.) or urination (urinary i.). [EU]

Infarction: 1. the formation of an infarct. 2. an infarct. [EU]

Influenza: An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva, and by headache and severe, often generalized, myalgia. [NIH]

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [NIH]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Micronutrients: Essential dietary elements or organic compounds that are required in only small quantities for normal physiologic processes to occur. [NIH]

Nausea: An unpleasant sensation, vaguely referred to the epigastrium and abdomen, and often culminating in vomiting. [EU]

Neoplasms: New abnormal growth of tissue. Malignant neoplasms show a greater degree of anaplasia and have the properties of invasion and metastasis, compared to benign neoplasms. [NIH]

Oral: Pertaining to the mouth, taken through or applied in the mouth, as an

oral medication or an oral thermometer. [EU]

Osteoporosis: Reduction in the amount of bone mass, leading to fractures after minimal trauma. [EU]

Paediatric: Of or relating to the care and medical treatment of children; belonging to or concerned with paediatrics. [EU]

Perforation: 1. the act of boring or piercing through a part. 2. a hole made through a part or substance. [EU]

Pernicious: Tending to a fatal issue. [EU]

Vegetarianism: Dietary practice of consuming only vegetables, grains, and nuts. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Xerostomia: Dryness of the mouth from salivary gland dysfunction, as in Sjögren's syndrome. [EU]

CHAPTER 6. MULTIMEDIA ON HIATAL HERNIA

Overview

Information on hiatal hernia can come in a variety of formats. Among multimedia sources, video productions, slides, audiotapes, and computer databases are often available. In this chapter, we show you how to keep current on multimedia sources of information on hiatal hernia. We start with sources that have been summarized by federal agencies, and then show you how to find bibliographic information catalogued by the National Library of Medicine. If you see an interesting item, visit your local medical library to check on the availability of the title.

Video Recordings

Most diseases do not have a video dedicated to them. If they do, they are often rather technical in nature. An excellent source of multimedia information on hiatal hernia is the Combined Health Information Database. You will need to limit your search to "video recording" and "hiatal hernia" using the "Detailed Search" option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. To find video productions, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Videorecording (videotape, videocassette, etc.)." By making these selections and typing "hiatal hernia" (or synonyms) into the "For these words:" box, you will only receive results on video productions. The following is a typical result when searching for video recordings on hiatal hernia:

- **Extinguishing Heartburn**

Source: Madison, WI: University of Wisconsin Hospitals and Clinics, Department of Outreach Education. 1995. (videocassette).

Contact: Available from University of Wisconsin Hospital and Clinics. Picture of Health, 702 North Blackhawk Avenue, Suite 215, Madison, WI 53705-3357. (800) 757-4354 or (608) 263-6510. Fax (608) 262-7172. PRICE: \$19.95 plus shipping and handling; bulk copies available. Order number 091395A.

Summary: Heartburn, or acid indigestion, can limit daily activities and productivity. This videotape is one in a series of health promotion programs called 'Picture of Health,' produced by the University of Wisconsin. In this program, moderated by Mary Lee and featuring gastroenterologist John Wyman, the common symptoms, diagnosis, and management of heartburn are covered. Dr. Wyman stresses that any chest pain requires a medical evaluation to rule out other causes such as heart disease. Dr. Wyman defines heartburn as a symptom of gastroesophageal reflux disease (GERD), which is the reflux or return of stomach contents into the esophagus. Dr. Wyman reviews the anatomy and physiology of the gastrointestinal (GI) tract, including the lower esophageal sphincter (LES) and LES pressures. Risk factors for GERD include certain diet and lifestyle choices, smoking, obesity, pregnancy, and the regular use of certain foods and beverages. The program then reviews tips to control heartburn, including elevate the head of the bed, lose any excess weight, do not lie down immediately following a meal, and decrease portion size at mealtimes. Dr. Wyman recommends that people coping with heartburn eliminate acidic foods and any other foods that cause individual symptoms from their diet. The program briefly covers the use of antacids and the role of hiatal hernia and reflux. The program concludes by referring viewers to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

Bibliography: Multimedia on Hiatal Hernia

The National Library of Medicine is a rich source of information on healthcare-related multimedia productions including slides, computer software, and databases. To access the multimedia database, go to the following Web site: <http://locatorplus.gov/>. Select "Search LOCATORplus." Once in the search area, simply type in hiatal hernia (or synonyms). Then, in the option box provided below the search box, select "Audiovisuals and Computer Files." From there, you can choose to sort results by publication

date, author, or relevance. The following multimedia has been indexed on hiatal hernia. For more information, follow the hyperlink indicated:

- **[motion picture]**. Source: [produced by Temple University]; Year: 1950; Format: Case of lower esophageal ring with record of transient gastric hernia; [S.l.: s.n., 1950]
- **Atlas of gastrointestinal surgery**. Source: Ward D. O'Sullivan; Year: 1974; Format: Slide; Philadelphia: Davis, c1974
- **Collis-Nissen hiatal hernia operation**. Source: author, Mark B. Orringer; produced by DG, Davis & Geck, Medical Device Division; Year: 1988; Format: Videorecording; [Wayne, N.J.]: American Cyanamid, c1988
- **Common gastric lesions**. Source: National Medical Audiovisual Center; Year: 1974; Format: Motion picture; [Atlanta]: The Center, [1974]
- **Focus, stomach pains**. Source: a public service of the American College of Physicians, in association with MEDECommunications; a production of Silvermine Films, Inc; Year: 1985; Format: Videorecording; [Philadelphia, Pa.]: The College, c1985
- **Gastric cardioplasty**. Source: Videosurgery; Year: 1977; Format: Videorecording; Don Mills, Ont.: Southam Business Publications, c1977
- **Gastroplasty & hiatus hernia repair**. Source: Videosurgery; Year: 1978; Format: Videorecording; Don Mills, Ont.: Southam Business Publications, [1978]
- **Hiatal hernia : a panel discussion**. Source: American College of Surgeons; Year: 1980; Format: Sound recording; [Chicago]: The College, [1980]
- **Hiatus hernia: fact or fancy**. Source: Faculty of Health Sciences, McMaster University ... [et al.]; Year: 1976; Format: Videorecording; Hamilton, Ont.: The University, 1976
- **Laparoscopic esophagectomy with proximal esophageal intussusception ; Primary diaphragmatic repair of large paraesophageal hernias; Technical aspects of re-operative laparoscopic fundoplication surgery**. Source: Society American Gastrointestinal; Year: 1998; Format: Videorecording; Woodbury, CT: Ciné-Med, [1998]
- **Laparoscopic fundoplication : Nissen and Toupet techniques**. Source: MedAscend; Year: 1997; Format: Electronic resource; Atlanta, Ga.: MedAscend, c1997
- **Laparoscopic fundoplication in paraesophageal and large mixed hernias**. Source: from the Film Library and the Clinical Congress of ACS; University of Milan, Department of General and Oncologic Surgery; Year: 1997; Format: Videorecording; [Woodbury, Conn.]: Ciné-Med, distributor, [1997]

- **Laparoscopic hernia.** Source: Society American Gastrointestinal Endoscopic Surgeons; produced and distributed by Ciné-Med; Year: 2000; Format: Videorecording; Woodbury, CT: Ciné-Med, c2000
- **Laparoscopic Nissen fundoplication and hiatus hernia repair.** Source: from the Film Library and the Clinical Congress of ACS; produced in cooperation with Sherman Hospital; Year: 1992; Format: Videorecording; Woodbury, CT: Ciné Med, [1992]
- **Laparoscopic Nissen fundoplication.** Source: produced by Ciné-Med; Year: 1994; Format: Videorecording; Woodbury, Conn.: Ciné-Med, c1994
- **Laparoscopic paraesophageal hernia repair (type II and III).** Source: from the Film Library and the Clinical Congress of ACS, the Cleveland Clinic Foundation; Year: 1998; Format: Videorecording; [Woodbury, Conn.]: Ciné-Med, [1998]
- **Laparoscopic repair of a type IV paraesophageal hernia.** Source: American College of Surgeons; from the Film Library and the Clinical Congress of ACS; produced by the University of Pittsburgh Medical Center, Department of Surgery and Creative S; Year: 1997; Format: Videorecording; [Woodbury, Conn.]: Ciné-Med, distributor, c1997
- **Laparoscopic repair of giant paraesophageal hernia (PEH) with Collis gastroplasty.** Source: from the Film Library and Clinical Congress of ACS, UPMC Health System; Year: 2001; Format: Videorecording; Woodbury, CT: Ciné-Med, [2001]
- **Laparoscopic repair of large paraesophageal hiatal hernias.** Source: from the Film Library and the Clinical Congress of ACS; produced by Innerlight Productions; Year: 1997; Format: Videorecording; [Woodbury, Conn.]: Ciné-Med, distributor, [1997]
- **Laparoscopic repair of paraesophageal hernia ; Totally endoscopic transhiatal esophagectomy; Laparoscopic repair of incarcerated parahiatal hernia.** Source: Society American Gastrointestinal Endoscopic Surgeons, SAGES; produced by Ciné-Med; Year: 1997; Format: Videorecording; Woodbury, Conn.: Ciné-Med, [1997?]
- **Laparoscopic repair of paraesophageal hernia with partial fundoplication : an anatomic approach.** Source: from the Film Library and the Clinical Congress of ACS; produced by the Mount Sinai School of Medicine, Department of Telemedicine/Medical; Year: 1999; Format: Videorecording; Woodbury, CT: Ciné-Med, c1999
- **Laparoscopic repair of paraesophageal hernias.** Source: an educational service provided by DG, Davis+Geck; produced by Cine'-Med; Year: 1993; Format: Videorecording; Woodbury, Conn.: American Cyanamid Co., c1993

- **Minimally invasive repair of congenital diaphragmatic hernias.** Source: from the Film Library and the Clinical Congress of ACS; Year: 2001; Format: Videorecording; Woodbury, CT: Ciné-Med, [2001]
- **Paraesophageal diaphragmatic hernia through enlarged esophageal hiatus.** Source: [production company unknown]; S.W. Harrington; Year: 1935; Format: Motion picture; [S.l.: s.n., 1935]
- **Reconstruction of the cardia and hiatal hernia repair : Belsey Mark IV technique.** Source: David B. Skinner; produced by the Dept. of Photography, Johns Hopkins Univ. School of Medicine; Year: 1969; Format: Motion picture; [Baltimore]: Skinner; [Danbury, Conn.: for loan by Davis and Geck], 1969
- **Repair of hiatus hernia and aortic aneurysm.** Source: produced by Ciné-Med; Year: 1987; Format: Videorecording; Woodbury, Conn.: Ciné-Med, 1987
- **Transthoracic repair of sliding hiatus hernia with reflux esophagitis by the Mark IV technique.** Source: Arthur E. Baue ... [et al.]; produced by Davis and Geck; Year: 1970; Format: Motion picture; Danbury, Conn.: Davis & Geck; [Atlanta: for loan by National Medical Audiovisual Center], 1970
- **Video-assisted transthoracic hiatal hernioplasty : stapled, uncut gastroplasty & fundoplication.** Source: from the Film Library and the Clinical Congress of ACS; Year: 1995; Format: Videorecording; Woodbury, CT: Ciné-Med, [1995]

Vocabulary Builder

Aneurysm: A sac formed by the dilatation of the wall of an artery, a vein, or the heart. The chief signs of arterial aneurysm are the formation of a pulsating tumour, and often a bruit (aneurysmal bruit) heard over the swelling. Sometimes there are symptoms from pressure on contiguous parts. [EU]

Lesion: Any pathological or traumatic discontinuity of tissue or loss of function of a part. [EU]

Proximal: Nearest; closer to any point of reference; opposed to distal. [EU]

Telemedicine: Delivery of health services via remote telecommunications. This includes interactive consultative and diagnostic services. [NIH]

CHAPTER 7. PHYSICIAN GUIDELINES AND DATABASES

Overview

Doctors and medical researchers rely on a number of information sources to help patients with their conditions. Many will subscribe to journals or newsletters published by their professional associations or refer to specialized textbooks or clinical guides published for the medical profession. In this chapter, we focus on databases and Internet-based guidelines created or written for this professional audience.

NIH Guidelines

For the more common diseases, The National Institutes of Health publish guidelines that are frequently consulted by physicians. Publications are typically written by one or more of the various NIH Institutes. For physician guidelines, commonly referred to as “clinical” or “professional” guidelines, you can visit the following Institutes:

- Office of the Director (OD); guidelines consolidated across agencies available at <http://www.nih.gov/health/consumer/conkey.htm>
- National Institute of General Medical Sciences (NIGMS); fact sheets available at <http://www.nigms.nih.gov/news/facts/>
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines:
<http://www.nlm.nih.gov/medlineplus/healthtopics.html>
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at
<http://www.niddk.nih.gov/health/health.htm>

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.²⁰ Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:²¹

- **Bioethics:** Access to published literature on the ethical, legal and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.:
http://www.nlm.nih.gov/databases/databases_bioethics.html
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/ AIDS research:
<http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html>
- **NLM Online Exhibitions:** Describes “Exhibitions in the History of Medicine”: <http://www.nlm.nih.gov/exhibition/exhibition.html>. Additional resources for historical scholarship in medicine:
<http://www.nlm.nih.gov/hmd/hmd.html>
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: <http://www.ncbi.nlm.nih.gov/>
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy:
http://www.nlm.nih.gov/databases/databases_population.html
- **Cancer Information:** Access to cancer-oriented databases:
http://www.nlm.nih.gov/databases/databases_cancer.html

²⁰ Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINEplus (<http://medlineplus.gov/> or <http://www.nlm.nih.gov/medlineplus/databases.html>).

²¹ See <http://www.nlm.nih.gov/databases/databases.html>.

- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: <http://www.profiles.nlm.nih.gov/>
- **Chemical Information:** Provides links to various chemical databases and references: <http://sis.nlm.nih.gov/Chem/ChemMain.html>
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html
- **Space Life Sciences:** Provides links and information to space-based research (including NASA):
http://www.nlm.nih.gov/databases/databases_space.html
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences:
http://www.nlm.nih.gov/databases/databases_medline.html
- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health:
<http://sis.nlm.nih.gov/Tox/ToxMain.html>
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies:
http://www.nlm.nih.gov/research/visible/visible_human.html

While all of the above references may be of interest to physicians who study and treat hiatal hernia, the following are particularly noteworthy.

The Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to “Brochure/Pamphlet,” “Fact Sheet,” or “Information Package” and hiatal hernia using the “Detailed Search” option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. To find associations, use the drop boxes at the bottom of the search page where “You may refine your search by.” For the publication date, select “All Years,” select your preferred language, and the format option “Fact Sheet.” By making these selections and typing “hiatal hernia” (or synonyms) into the “For these words:” box above, you will only receive results on fact sheets dealing with hiatal hernia. The following is a sample result:

- **Sensitive Gut: A Harvard Health Letter Special Report**

Source: Boston, MA: Harvard Medical School Health Publications Group. 1996. 39 p.

Contact: Available from Harvard Medical School Health Publications Group. Department GUT, P.O. Box 380, Boston, MA 02117. (617) 432-1485. Fax (617) 432-1506. PRICE: \$16.00 (as of 1996); bulk discounts available.

Summary: This report focuses on five functional gastrointestinal (GI) disorders: gastroesophageal reflux disease (GERD), nonulcer dyspepsia, irritable bowel syndrome (IBS), constipation, and excessive gas. The author first introduces the anatomy and physiology of the GI tract, emphasizing the process of digestion. The following five sections present a discussion of the definition, causes, diagnosis, and therapy for each of the disorders. Specific topics include the hiatal hernia connection to GERD, antireflux drug therapy, surgery, *Helicobacter pylori* infection, psychological factors in dyspepsia, the role of stress in IBS, the types of constipation, belching, and flatulence. The report concludes with an overview of recommended good gut hygiene, an appendix summarizing drugs used to treat functional gastrointestinal disorders, and a glossary of terms. 10 figures. 5 tables.

The NLM Gateway²²

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing “one-stop searching” for many of NLM’s information resources or databases.²³ One target audience for the Gateway is the Internet user who is new to NLM’s online resources and does not know what information is available or how best to search for it. This audience may include physicians and other healthcare providers, researchers, librarians, students, and, increasingly, patients, their families, and the public.²⁴ To use the NLM Gateway, simply go to the search site at

²² Adapted from NLM: <http://gateway.nlm.nih.gov/gw/Cmd?Overview.x>.

²³ The NLM Gateway is currently being developed by the Lister Hill National Center For Biomedical Communications (Lhncbc) at the National Library Of Medicine (NLM) of the National Institutes Of Health (NIH).

²⁴ Other Users May Find the Gateway Useful for an Overall Search of NLM’s Information Resources. Some searchers may locate what they need immediately, while others will utilize the Gateway as an adjunct tool to other NLM search services such as PubMed® and MEDLINEplus®. The Gateway connects users with multiple NLM retrieval systems while

<http://gateway.nlm.nih.gov/gw/Cmd>. Type “hiatal hernia” (or synonyms) into the search box and click “Search.” The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	343326
Books / Periodicals / Audio Visual	2561
Consumer Health	292
Meeting Abstracts	3093
Other Collections	100
Total	349372

HSTAT²⁵

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.²⁶ HSTAT’s audience includes healthcare providers, health service researchers, policy makers, insurance companies, consumers, and the information professionals who serve these groups. HSTAT provides access to a wide variety of publications, including clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ’s Put Prevention Into Practice.²⁷ Simply search by “hiatal hernia” (or synonyms) at the following Web site: <http://text.nlm.nih.gov>.

also providing a search interface for its own collections. These collections include various types of information that do not logically belong in PubMed, LOCATORplus, or other established NLM retrieval systems (e.g., meeting announcements and pre-1966 journal citations). The Gateway will provide access to the information found in an increasing number of NLM retrieval systems in several phases.

²⁵ Adapted from HSTAT: <http://www.nlm.nih.gov/pubs/factsheets/hstat.html>.

²⁶ The HSTAT URL is <http://hstat.nlm.nih.gov/>.

²⁷ Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration’s Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force’s *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

Coffee Break: Tutorials for Biologists²⁸

Some patients may wish to have access to a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. To this end, we recommend “Coffee Break,” a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.²⁹ Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.³⁰ This site has new articles every few weeks, so it can be considered an online magazine of sorts, and intended for general background information. You can access the Coffee Break Web site at <http://www.ncbi.nlm.nih.gov/Coffeebreak/>.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are a few examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see <http://www.ohsu.edu/clinweb/>.
- **Image Engine:** Multimedia electronic medical record system that integrates a wide range of digitized clinical images with textual data stored in the University of Pittsburgh Medical Center’s MARS electronic medical record system; see the following Web site: <http://www.cml.upmc.edu/cml/imageengine/imageEngine.html>.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see <http://www.mwsearch.com/>.
- **MedWeaver:** Prototype system that allows users to search differential diagnoses for any list of signs and symptoms, to search medical

²⁸ Adapted from <http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html>.

²⁹ The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

³⁰ After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

literature, and to explore relevant Web sites; see <http://www.med.virginia.edu/~wmd4n/medweaver.html>.

- **Metaphrase:** Middleware component intended for use by both caregivers and medical records personnel. It converts the informal language generally used by caregivers into terms from formal, controlled vocabularies; see the following Web site: <http://www.lexical.com/Metaphrase.html>.

The Genome Project and Hiatal Hernia

With all the discussion in the press about the Human Genome Project, it is only natural that physicians, researchers, and patients want to know about how human genes relate to hiatal hernia. In the following section, we will discuss databases and references used by physicians and scientists who work in this area.

Online Mendelian Inheritance in Man (OMIM)

The Online Mendelian Inheritance in Man (OMIM) database is a catalog of human genes and genetic disorders authored and edited by Dr. Victor A. McKusick and his colleagues at Johns Hopkins and elsewhere. OMIM was developed for the World Wide Web by the National Center for Biotechnology Information (NCBI).³¹ The database contains textual information, pictures, and reference information. It also contains copious links to NCBI's Entrez database of MEDLINE articles and sequence information.

To search the database, go to <http://www.ncbi.nlm.nih.gov/Omim/searchomim.html>. Type "hiatal hernia" (or synonyms) in the search box, and click "Submit Search." If too many results appear, you can narrow the search by adding the word "clinical." Each report will have additional links to related research and databases. By following these links, especially the link titled "Database Links," you will be exposed to numerous specialized databases that are largely used by the scientific community. These databases are overly technical and seldom used by the general public, but offer an abundance of

³¹ Adapted from <http://www.ncbi.nlm.nih.gov/>. Established in 1988 as a national resource for molecular biology information, NCBI creates public databases, conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information--all for the better understanding of molecular processes affecting human health and disease.

information. The following is an example of the results you can obtain from the OMIM for hiatal hernia:

- **Cohen Syndrome**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?216550>
- **Cutis Laxa**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?123700>
- **Esophageal Ring, Lower**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?133240>
- **Gastrocutaneous Syndrome**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?137270>
- **Hernia, Hiatus**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?142400>
- **Hypertelorism with Esophageal Abnormality and Hypospadias**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?145410>
- **Spastic Paraplegia 9, Autosomal Dominant; Spg9**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?601162>
- **Sucrosuria, Hiatus Hernia and Mental Retardation**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?272000>
- **Tylosis with Esophageal Cancer**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?148500>

Genes and Disease (NCBI - Map)

The Genes and Disease database is produced by the National Center for Biotechnology Information of the National Library of Medicine at the National Institutes of Health. This Web site categorizes each disorder by the system of the body associated with it. Go to <http://www.ncbi.nlm.nih.gov/disease/>, and browse the system pages to have a full view of important conditions linked to human genes. Since this

site is regularly updated, you may wish to re-visit it from time to time. The following systems and associated disorders are addressed:

- **Immune System:** Fights invaders.
Examples: Asthma, autoimmune polyglandular syndrome, Crohn's disease, DiGeorge syndrome, familial Mediterranean fever, immunodeficiency with Hyper-IgM, severe combined immunodeficiency.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Immune.html>
- **Metabolism:** Food and energy.
Examples: Adreno-leukodystrophy, Atherosclerosis, Best disease, Gaucher disease, Glucose galactose malabsorption, Gyrate atrophy, Juvenile onset diabetes, Obesity, Paroxysmal nocturnal hemoglobinuria, Phenylketonuria, Refsum disease, Tangier disease, Tay-Sachs disease.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Metabolism.html>
- **Muscle and Bone:** Movement and growth.
Examples: Duchenne muscular dystrophy, Ellis-van Creveld syndrome, Marfan syndrome, myotonic dystrophy, spinal muscular atrophy.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Muscle.html>
- **Signals:** Cellular messages.
Examples: Ataxia telangiectasia, Baldness, Cockayne syndrome, Glaucoma, SRY: sex determination, Tuberous sclerosis, Waardenburg syndrome, Werner syndrome.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Signals.html>
- **Transporters:** Pumps and channels.
Examples: Cystic Fibrosis, deafness, diastrophic dysplasia, Hemophilia A, long-QT syndrome, Menkes syndrome, Pendred syndrome, polycystic kidney disease, sickle cell anemia, Wilson's disease, Zellweger syndrome.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Transporters.html>

Entrez

Entrez is a search and retrieval system that integrates several linked databases at the National Center for Biotechnology Information (NCBI). These databases include nucleotide sequences, protein sequences, macromolecular structures, whole genomes, and MEDLINE through PubMed. Entrez provides access to the following databases:

- **PubMed:** Biomedical literature (PubMed),
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=PubMed>

- **Nucleotide Sequence Database (Genbank):**
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide>
- **Protein Sequence Database:**
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Protein>
- **Structure:** Three-dimensional macromolecular structures,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Structure>
- **Genome:** Complete genome assemblies,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Genome>
- **PopSet:** Population study data sets,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Popset>
- **OMIM:** Online Mendelian Inheritance in Man,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM>
- **Taxonomy:** Organisms in GenBank,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Taxonomy>
- **Books:** Online books,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=books>
- **ProbeSet:** Gene Expression Omnibus (GEO),
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=geo>
- **3D Domains:** Domains from Entrez Structure,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=geo>
- **NCBI's Protein Sequence Information Survey Results:**
Web site: <http://www.ncbi.nlm.nih.gov/About/proteinsurvey/>

To access the Entrez system at the National Center for Biotechnology Information, go to <http://www.ncbi.nlm.nih.gov/entrez/>, and then select the database that you would like to search. The databases available are listed in the drop box next to "Search." In the box next to "for," enter "hiatal hernia" (or synonyms) and click "Go."

Jablonski's Multiple Congenital Anomaly/Mental Retardation (MCA/MR) Syndromes Database³²

This online resource can be quite useful. It has been developed to facilitate the identification and differentiation of syndromic entities. Special attention is given to the type of information that is usually limited or completely omitted in existing reference sources due to space limitations of the printed form.

At the following Web site you can also search across syndromes using http://www.nlm.nih.gov/mesh/jablonski/syndrome_toc/toc_a.html. A keyword search can be performed using the at the following Internet site: http://www.nlm.nih.gov/mesh/jablonski/syndrome_db.html.

The Genome Database³³

Established at Johns Hopkins University in Baltimore, Maryland in 1990, the Genome Database (GDB) is the official central repository for genomic mapping data resulting from the Human Genome Initiative. In the spring of 1999, the Bioinformatics Supercomputing Centre (BiSC) at the Hospital for Sick Children in Toronto, Ontario assumed the management of GDB. The Human Genome Initiative is a worldwide research effort focusing on structural analysis of human DNA to determine the location and sequence of the estimated 100,000 human genes. In support of this project, GDB stores and curates data generated by researchers worldwide who are engaged in the mapping effort of the Human Genome Project (HGP). GDB's mission is to provide scientists with an encyclopedia of the human genome which is continually revised and updated to reflect the current state of scientific knowledge. Although GDB has historically focused on gene mapping, its focus will broaden as the Genome Project moves from mapping to sequence, and finally, to functional analysis.

To access the GDB, simply go to the following hyperlink: <http://www.gdb.org/>. Search "All Biological Data" by "Keyword." Type "hiatal hernia" (or synonyms) into the search box, and review the results. If more than one word is used in the search box, then separate each one with the word "and" or "or" (using "or" might be useful when using synonyms). This database is extremely technical as it was created for specialists. The

³² Adapted from the National Library of Medicine:
http://www.nlm.nih.gov/mesh/jablonski/about_syndrome.html.

³³ Adapted from the Genome Database:
<http://gdbwww.gdb.org/gdb/aboutGDB.html#mission>.

articles are the results which are the most accessible to non-professionals and often listed under the heading "Citations." The contact names are also accessible to non-professionals.

Specialized References

The following books are specialized references written for professionals interested in hiatal hernia (sorted alphabetically by title, hyperlinks provide rankings, information, and reviews at Amazon.com):

- **Blackwell's Primary Care Essentials: Gastrointestinal Disease** by David W. Hay; Paperback, 1st edition (December 15, 2001), Blackwell Science Inc; ISBN: 0632045035;
<http://www.amazon.com/exec/obidos/ASIN/0632045035/icongroupinterna>
- **Gastrointestinal Problems** by Martin S. Lipsky, M.D. (Editor), Richard Sadovsky, M.D. (Editor); Paperback - 194 pages, 1st edition (August 15, 2000), Lippincott, Williams & Wilkins Publishers; ISBN: 0781720540;
<http://www.amazon.com/exec/obidos/ASIN/0781720540/icongroupinterna>
- **Rome II: The Functional Gastrointestinal Disorders** by Douglas A. Drossman (Editor); Paperback - 800 pages, 2nd edition (March 1, 2000), Degnon Associates Inc.; ISBN: 0965683729;
<http://www.amazon.com/exec/obidos/ASIN/0965683729/icongroupinterna>

Vocabulary Builder

Flatulence: The presence of excessive amounts of air or gases in the stomach or intestine, leading to distention of the organs. [EU]

Hypertelorism: Abnormal increase in the interorbital distance due to overdevelopment of the lesser wings of the sphenoid. [NIH]

Hypospadias: A developmental anomaly in the male in which the urethra opens on the underside of the penis or on the perineum. [NIH]

Paraplegia: Paralysis of the legs and lower part of the body. [EU]

Spastic: 1. of the nature of or characterized by spasms. 2. hypertonic, so that the muscles are stiff and the movements awkward. 3. a person exhibiting spasticity, such as occurs in spastic paralysis or in cerebral palsy. [EU]

PART III. APPENDICES

ABOUT PART III

Part III is a collection of appendices on general medical topics which may be of interest to patients with hiatal hernia and related conditions.

APPENDIX A. RESEARCHING YOUR MEDICATIONS

Overview

There are a number of sources available on new or existing medications which could be prescribed to patients with hiatal hernia. While a number of hard copy or CD-Rom resources are available to patients and physicians for research purposes, a more flexible method is to use Internet-based databases. In this chapter, we will begin with a general overview of medications. We will then proceed to outline official recommendations on how you should view your medications. You may also want to research medications that you are currently taking for other conditions as they may interact with medications for hiatal hernia. Research can give you information on the side effects, interactions, and limitations of prescription drugs used in the treatment of hiatal hernia. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

Your Medications: The Basics³⁴

The Agency for Health Care Research and Quality has published extremely useful guidelines on how you can best participate in the medication aspects of hiatal hernia. Taking medicines is not always as simple as swallowing a pill. It can involve many steps and decisions each day. The AHCRQ recommends that patients with hiatal hernia take part in treatment decisions. Do not be afraid to ask questions and talk about your concerns. By taking a moment to ask questions early, you may avoid problems later. Here are some points to cover each time a new medicine is prescribed:

³⁴ This section is adapted from AHCRQ: <http://www.ahcpr.gov/consumer/ncpiebro.htm>.

- Ask about all parts of your treatment, including diet changes, exercise, and medicines.
- Ask about the risks and benefits of each medicine or other treatment you might receive.
- Ask how often you or your doctor will check for side effects from a given medication.

Do not hesitate to ask what is important to you about your medicines. You may want a medicine with the fewest side effects, or the fewest doses to take each day. You may care most about cost, or how the medicine might affect how you live or work. Or, you may want the medicine your doctor believes will work the best. Telling your doctor will help him or her select the best treatment for you.

Do not be afraid to “bother” your doctor with your concerns and questions about medications for hiatal hernia. You can also talk to a nurse or a pharmacist. They can help you better understand your treatment plan. Feel free to bring a friend or family member with you when you visit your doctor. Talking over your options with someone you trust can help you make better choices, especially if you are not feeling well. Specifically, ask your doctor the following:

- The name of the medicine and what it is supposed to do.
- How and when to take the medicine, how much to take, and for how long.
- What food, drinks, other medicines, or activities you should avoid while taking the medicine.
- What side effects the medicine may have, and what to do if they occur.
- If you can get a refill, and how often.
- About any terms or directions you do not understand.
- What to do if you miss a dose.
- If there is written information you can take home (most pharmacies have information sheets on your prescription medicines; some even offer large-print or Spanish versions).

Do not forget to tell your doctor about all the medicines you are currently taking (not just those for hiatal hernia). This includes prescription medicines and the medicines that you buy over the counter. Then your doctor can avoid giving you a new medicine that may not work well with the medications you take now. When talking to your doctor, you may wish to

prepare a list of medicines you currently take, the reason you take them, and how you take them. Be sure to include the following information for each:

- Name of medicine
- Reason taken
- Dosage
- Time(s) of day

Also include any over-the-counter medicines, such as:

- Laxatives
- Diet pills
- Vitamins
- Cold medicine
- Aspirin or other pain, headache, or fever medicine
- Cough medicine
- Allergy relief medicine
- Antacids
- Sleeping pills
- Others (include names)

Learning More about Your Medications

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications your doctor has recommended for hiatal hernia. One such source is the United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the “U.S. Pharmacopeia (USP).” Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at www.usp.org. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially

derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database.³⁵

While the FDA database is rather large and difficult to navigate, the Pharmacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: <http://www.nlm.nih.gov/medlineplus/druginformation.html>. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopoeia (USP). It is important to read the disclaimer by the USP (<http://www.nlm.nih.gov/medlineplus/drugdisclaimer.html>) before using the information provided.

Of course, we as editors cannot be certain as to what medications you are taking. Therefore, we have compiled a list of medications associated with the treatment of hiatal hernia. Once again, due to space limitations, we only list a sample of medications and provide hyperlinks to ample documentation (e.g. typical dosage, side effects, drug-interaction risks, etc.). The following drugs have been mentioned in the Pharmacopeia and other sources as being potentially applicable to hiatal hernia:

Antacids

- **Oral - U.S. Brands:** Advanced Formula Di-Gel; Alamag; Alamag Plus; Alenic Alka; Alenic Alka Extra Strength; Alka-Mints; Alkets; Alkets Extra Strength; Almacone; Almacone II; AlternaGEL; Alu-Cap; Aludrox; Alu-Tab; Amitone; Amphojel; Antacid Gelcaps; Antacid Liquid; Antacid L
<http://www.nlm.nih.gov/medlineplus/druginfo/antacidsoral202047.html>

Caffeine

- **Systemic - U.S. Brands:** Cafcit; Caffeine Caplets; Dexitac Stay Alert Stimulant; Enerjets; Keep Alert; Maximum Strength SnapBack Stimulant Powders; NoDoz Maximum Strength Caplets; Pep-Back; Quick Pep; Ultra Pep-Back; Vivarin
<http://www.nlm.nih.gov/medlineplus/druginfo/caffeinestemic202105.html>

³⁵ Though cumbersome, the FDA database can be freely browsed at the following site: www.fda.gov/cder/da/da.htm.

Omeprazole

- **Systemic - U.S. Brands:** Prilosec
<http://www.nlm.nih.gov/medlineplus/druginfo/omeprazolesystemic202423.html>

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. You may be able to access these sources from your local medical library or your doctor's office.

Reuters Health Drug Database

The Reuters Health Drug Database can be searched by keyword at the hyperlink: <http://www.reutershealth.com/frame2/drug.html>. The following medications are listed in the Reuters' database as associated with hiatal hernia (including those with contraindications):³⁶

- **Dicyclomine HCl**
http://www.reutershealth.com/atoz/html/Dicyclomine_HCl.htm
- **Glycopyrrolate**
<http://www.reutershealth.com/atoz/html/Glycopyrrolate.htm>
- **Magaldrate**
<http://www.reutershealth.com/atoz/html/Magaldrate.htm>
- **Magnesium Oxide**
http://www.reutershealth.com/atoz/html/Magnesium_Oxide.htm
- **Minocycline**
<http://www.reutershealth.com/atoz/html/Minocycline.htm>
- **Propantheline Bromide**
http://www.reutershealth.com/atoz/html/Propantheline_Bromide.htm

Mosby's GenRx

Mosby's GenRx database (also available on CD-Rom and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information.

³⁶ Adapted from *A to Z Drug Facts* by Facts and Comparisons.

Information can be obtained at the following hyperlink:
<http://www.genrx.com/Mosby/PhyGenRx/group.html>.

Physicians Desk Reference

The Physicians Desk Reference database (also available in CD-Rom and book format) is a full-text drug database. The database is searchable by brand name, generic name or by indication. It features multiple drug interactions reports. Information can be obtained at the following hyperlink:
http://physician.pdr.net/physician/templates/en/acl/psuser_t.htm.

Other Web Sites

A number of additional Web sites discuss drug information. As an example, you may like to look at **www.drugs.com** which reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. which allows users to download articles on various drugs and therapeutics for a nominal fee:
<http://www.medletter.com/>.

Contraindications and Interactions (Hidden Dangers)

Some of the medications mentioned in the previous discussions can be problematic for patients with hiatal hernia--not because they are used in the treatment process, but because of contraindications, or side effects. Medications with contraindications are those that could react with drugs used to treat hiatal hernia or potentially create deleterious side effects in patients with hiatal hernia. You should ask your physician about any contraindications, especially as these might apply to other medications that you may be taking for common ailments.

Drug-drug interactions occur when two or more drugs react with each other. This drug-drug interaction may cause you to experience an unexpected side effect. Drug interactions may make your medications less effective, cause unexpected side effects, or increase the action of a particular drug. Some drug interactions can even be harmful to you.

Be sure to read the label every time you use a nonprescription or prescription drug, and take the time to learn about drug interactions. These precautions may be critical to your health. You can reduce the risk of

potentially harmful drug interactions and side effects with a little bit of knowledge and common sense.

Drug labels contain important information about ingredients, uses, warnings, and directions which you should take the time to read and understand. Labels also include warnings about possible drug interactions. Further, drug labels may change as new information becomes available. This is why it's especially important to read the label every time you use a medication. When your doctor prescribes a new drug, discuss all over-the-counter and prescription medications, dietary supplements, vitamins, botanicals, minerals and herbals you take as well as the foods you eat. Ask your pharmacist for the package insert for each prescription drug you take. The package insert provides more information about potential drug interactions.

A Final Warning

At some point, you may hear of alternative medications from friends, relatives, or in the news media. Advertisements may suggest that certain alternative drugs can produce positive results for patients with hiatal hernia. Exercise caution--some of these drugs may have fraudulent claims, and others may actually hurt you. The Food and Drug Administration (FDA) is the official U.S. agency charged with discovering which medications are likely to improve the health of patients with hiatal hernia. The FDA warns patients to watch out for³⁷:

- Secret formulas (real scientists share what they know)
- Amazing breakthroughs or miracle cures (real breakthroughs don't happen very often; when they do, real scientists do not call them amazing or miracles)
- Quick, painless, or guaranteed cures
- If it sounds too good to be true, it probably isn't true.

If you have any questions about any kind of medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at www.fda.gov.

³⁷ This section has been adapted from <http://www.fda.gov/opacom/lowlit/medfraud.html>.

General References

In addition to the resources provided earlier in this chapter, the following general references describe medications (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **Drug Development: Molecular Targets for Gi Diseases** by Timothy S. Gaginella (Editor), Antonio Guglietta (Editor); Hardcover - 288 pages (December 1999), Humana Press; ISBN: 0896035891;
<http://www.amazon.com/exec/obidos/ASIN/0896035891/icongroupinterna>
- **Drug Therapy for Gastrointestinal and Liver Diseases** by Michael J.G. Farthing, M.D. (Editor), Anne B. Ballinger (Editor); Hardcover - 346 pages, 1st edition (August 15, 2001), Martin Dunitz Ltd.; ISBN: 1853177334;
<http://www.amazon.com/exec/obidos/ASIN/1853177334/icongroupinterna>
- **Immunopharmacology of the Gastrointestinal System (Handbook of Immunopharmacology)** by John L. Wallace (Editor); Hardcover (October 1997), Academic Press; ISBN: 0127328602;
<http://www.amazon.com/exec/obidos/ASIN/0127328602/icongroupinterna>
- **A Pharmacologic Approach to Gastrointestinal Disorders** by James H. Lewis, M.D. (Editor); Hardcover - (February 1994), Lippincott, Williams & Wilkins; ISBN: 0683049704;
<http://www.amazon.com/exec/obidos/ASIN/0683049704/icongroupinterna>

APPENDIX B. RESEARCHING NUTRITION

Overview

Since the time of Hippocrates, doctors have understood the importance of diet and nutrition to patients' health and well-being. Since then, they have accumulated an impressive archive of studies and knowledge dedicated to this subject. Based on their experience, doctors and healthcare providers may recommend particular dietary supplements to patients with hiatal hernia. Any dietary recommendation is based on a patient's age, body mass, gender, lifestyle, eating habits, food preferences, and health condition. It is therefore likely that different patients with hiatal hernia may be given different recommendations. Some recommendations may be directly related to hiatal hernia, while others may be more related to the patient's general health. These recommendations, themselves, may differ from what official sources recommend for the average person.

In this chapter we will begin by briefly reviewing the essentials of diet and nutrition that will broadly frame more detailed discussions of hiatal hernia. We will then show you how to find studies dedicated specifically to nutrition and hiatal hernia.

Food and Nutrition: General Principles

What Are Essential Foods?

Food is generally viewed by official sources as consisting of six basic elements: (1) fluids, (2) carbohydrates, (3) protein, (4) fats, (5) vitamins, and (6) minerals. Consuming a combination of these elements is considered to be a healthy diet:

- **Fluids** are essential to human life as 80-percent of the body is composed of water. Water is lost via urination, sweating, diarrhea, vomiting, diuretics (drugs that increase urination), caffeine, and physical exertion.
- **Carbohydrates** are the main source for human energy (thermoregulation) and the bulk of typical diets. They are mostly classified as being either simple or complex. Simple carbohydrates include sugars which are often consumed in the form of cookies, candies, or cakes. Complex carbohydrates consist of starches and dietary fibers. Starches are consumed in the form of pastas, breads, potatoes, rice, and other foods. Soluble fibers can be eaten in the form of certain vegetables, fruits, oats, and legumes. Insoluble fibers include brown rice, whole grains, certain fruits, wheat bran and legumes.
- **Proteins** are eaten to build and repair human tissues. Some foods that are high in protein are also high in fat and calories. Food sources for protein include nuts, meat, fish, cheese, and other dairy products.
- **Fats** are consumed for both energy and the absorption of certain vitamins. There are many types of fats, with many general publications recommending the intake of unsaturated fats or those low in cholesterol.

Vitamins and minerals are fundamental to human health, growth, and, in some cases, disease prevention. Most are consumed in your diet (exceptions being vitamins K and D which are produced by intestinal bacteria and sunlight on the skin, respectively). Each vitamin and mineral plays a different role in health. The following outlines essential vitamins:

- **Vitamin A** is important to the health of your eyes, hair, bones, and skin; sources of vitamin A include foods such as eggs, carrots, and cantaloupe.
- **Vitamin B¹**, also known as thiamine, is important for your nervous system and energy production; food sources for thiamine include meat, peas, fortified cereals, bread, and whole grains.
- **Vitamin B²**, also known as riboflavin, is important for your nervous system and muscles, but is also involved in the release of proteins from

nutrients; food sources for riboflavin include dairy products, leafy vegetables, meat, and eggs.

- **Vitamin B³**, also known as niacin, is important for healthy skin and helps the body use energy; food sources for niacin include peas, peanuts, fish, and whole grains
- **Vitamin B⁶**, also known as pyridoxine, is important for the regulation of cells in the nervous system and is vital for blood formation; food sources for pyridoxine include bananas, whole grains, meat, and fish.
- **Vitamin B¹²** is vital for a healthy nervous system and for the growth of red blood cells in bone marrow; food sources for vitamin B12 include yeast, milk, fish, eggs, and meat.
- **Vitamin C** allows the body's immune system to fight various diseases, strengthens body tissue, and improves the body's use of iron; food sources for vitamin C include a wide variety of fruits and vegetables.
- **Vitamin D** helps the body absorb calcium which strengthens bones and teeth; food sources for vitamin D include oily fish and dairy products.
- **Vitamin E** can help protect certain organs and tissues from various degenerative diseases; food sources for vitamin E include margarine, vegetables, eggs, and fish.
- **Vitamin K** is essential for bone formation and blood clotting; common food sources for vitamin K include leafy green vegetables.
- **Folic Acid** maintains healthy cells and blood and, when taken by a pregnant woman, can prevent her fetus from developing neural tube defects; food sources for folic acid include nuts, fortified breads, leafy green vegetables, and whole grains.

It should be noted that one can overdose on certain vitamins which become toxic if consumed in excess (e.g. vitamin A, D, E and K).

Like vitamins, minerals are chemicals that are required by the body to remain in good health. Because the human body does not manufacture these chemicals internally, we obtain them from food and other dietary sources. The more important minerals include:

- **Calcium** is needed for healthy bones, teeth, and muscles, but also helps the nervous system function; food sources for calcium include dry beans, peas, eggs, and dairy products.
- **Chromium** is helpful in regulating sugar levels in blood; food sources for chromium include egg yolks, raw sugar, cheese, nuts, beets, whole grains, and meat.

- **Fluoride** is used by the body to help prevent tooth decay and to reinforce bone strength; sources of fluoride include drinking water and certain brands of toothpaste.
- **Iodine** helps regulate the body's use of energy by synthesizing into the hormone thyroxine; food sources include leafy green vegetables, nuts, egg yolks, and red meat.
- **Iron** helps maintain muscles and the formation of red blood cells and certain proteins; food sources for iron include meat, dairy products, eggs, and leafy green vegetables.
- **Magnesium** is important for the production of DNA, as well as for healthy teeth, bones, muscles, and nerves; food sources for magnesium include dried fruit, dark green vegetables, nuts, and seafood.
- **Phosphorous** is used by the body to work with calcium to form bones and teeth; food sources for phosphorous include eggs, meat, cereals, and dairy products.
- **Selenium** primarily helps maintain normal heart and liver functions; food sources for selenium include wholegrain cereals, fish, meat, and dairy products.
- **Zinc** helps wounds heal, the formation of sperm, and encourage rapid growth and energy; food sources include dried beans, shellfish, eggs, and nuts.

The United States government periodically publishes recommended diets and consumption levels of the various elements of food. Again, your doctor may encourage deviations from the average official recommendation based on your specific condition. To learn more about basic dietary guidelines, visit the Web site: <http://www.health.gov/dietaryguidelines/>. Based on these guidelines, many foods are required to list the nutrition levels on the food's packaging. Labeling Requirements are listed at the following site maintained by the Food and Drug Administration: <http://www.cfsan.fda.gov/~dms/lab-cons.html>. When interpreting these requirements, the government recommends that consumers become familiar with the following abbreviations before reading FDA literature:³⁸

- **DVs (Daily Values):** A new dietary reference term that will appear on the food label. It is made up of two sets of references, DRVs and RDIs.
- **DRVs (Daily Reference Values):** A set of dietary references that applies to fat, saturated fat, cholesterol, carbohydrate, protein, fiber, sodium, and potassium.

³⁸ Adapted from the FDA: <http://www.fda.gov/fdac/special/foodlabel/dvs.html>.

- **RDIs (Reference Daily Intakes):** A set of dietary references based on the Recommended Dietary Allowances for essential vitamins and minerals and, in selected groups, protein. The name “RDI” replaces the term “U.S. RDA.”
- **RDAs (Recommended Dietary Allowances):** A set of estimated nutrient allowances established by the National Academy of Sciences. It is updated periodically to reflect current scientific knowledge.

What Are Dietary Supplements?³⁹

Dietary supplements are widely available through many commercial sources, including health food stores, grocery stores, pharmacies, and by mail. Dietary supplements are provided in many forms including tablets, capsules, powders, gel-tabs, extracts, and liquids. Historically in the United States, the most prevalent type of dietary supplement was a multivitamin/mineral tablet or capsule that was available in pharmacies, either by prescription or “over the counter.” Supplements containing strictly herbal preparations were less widely available. Currently in the United States, a wide array of supplement products are available, including vitamin, mineral, other nutrients, and botanical supplements as well as ingredients and extracts of animal and plant origin.

The Office of Dietary Supplements (ODS) of the National Institutes of Health is the official agency of the United States which has the expressed goal of acquiring “new knowledge to help prevent, detect, diagnose, and treat disease and disability, from the rarest genetic disorder to the common cold.”⁴⁰ According to the ODS, dietary supplements can have an important impact on the prevention and management of disease and on the maintenance of health.⁴¹ The ODS notes that considerable research on the effects of dietary supplements has been conducted in Asia and Europe where the use of plant products, in particular, has a long tradition. However, the

³⁹ This discussion has been adapted from the NIH:

<http://ods.od.nih.gov/whatare/whatare.html>.

⁴⁰ Contact: The Office of Dietary Supplements, National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: (301) 435-2920, Fax: (301) 480-1845, E-mail: ods@nih.gov.

⁴¹ Adapted from <http://ods.od.nih.gov/about/about.html>. The Dietary Supplement Health and Education Act defines dietary supplements as “a product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, mineral, amino acid, herb or other botanical; or a dietary substance for use to supplement the diet by increasing the total dietary intake; or a concentrate, metabolite, constituent, extract, or combination of any ingredient described above; and intended for ingestion in the form of a capsule, powder, softgel, or gelcap, and not represented as a conventional food or as a sole item of a meal or the diet.”

overwhelming majority of supplements have not been studied scientifically. To explore the role of dietary supplements in the improvement of health care, the ODS plans, organizes, and supports conferences, workshops, and symposia on scientific topics related to dietary supplements. The ODS often works in conjunction with other NIH Institutes and Centers, other government agencies, professional organizations, and public advocacy groups.

To learn more about official information on dietary supplements, visit the ODS site at <http://ods.od.nih.gov/whatare/whatare.html>. Or contact:

The Office of Dietary Supplements
National Institutes of Health
Building 31, Room 1B29
31 Center Drive, MSC 2086
Bethesda, Maryland 20892-2086
Tel: (301) 435-2920
Fax: (301) 480-1845
E-mail: ods@nih.gov

Finding Studies on Hiatal Hernia

The NIH maintains an office dedicated to patient nutrition and diet. The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.⁴² IBIDS is available to the public free of charge through the ODS Internet page: <http://ods.od.nih.gov/databases/ibids.html>.

After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only. We recommend that you start with the Consumer Database. While you may not find references for the topics that are of most interest to you, check back periodically as this database is frequently updated. More studies can be

⁴² Adapted from <http://ods.od.nih.gov>. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

found by searching the Full IBIDS Database. Healthcare professionals and researchers generally use the third option, which lists peer-reviewed citations. In all cases, we suggest that you take advantage of the “Advanced Search” option that allows you to retrieve up to 100 fully explained references in a comprehensive format. Type “hiatal hernia” (or synonyms) into the search box. To narrow the search, you can also select the “Title” field.

The following information is typical of that found when using the “Full IBIDS Database” when searching using “hiatal hernia” (or a synonym):

- **Congenital esophageal hiatal hernia in the Chinese shar-pei dog.**
 Author(s): Department of Clinical Studies, School of Veterinary Medicine, University of Pennsylvania, Philadelphia 19104-6010.
 Source: Callan, M B Washabau, R J Saunders, H M Kerr, L Prymak, C Holt, D J-Vet-Intern-Med. 1993 Jul-August; 7(4): 210-5 0891-6640
- **Epizootics of diaphragmatic hernias in swine.**
 Author(s): Veterinary Diagnostic Laboratory, College of Veterinary Medicine, Iowa State University, Ames 50011.
 Source: Schwartz, K J J-Vet-Diagn-Invest. 1991 October; 3(4): 362-4 1040-6387
- **Hiatal hernia and diaphragmatic eventration in a leopard (*Panthera pardus*).**
 Author(s): Department of Comparative Medicine, College of Veterinary Medicine, University of Tennessee, Knoxville 37901-1071, USA.
 Source: Kearns, K S Jones, M P Bright, R M Toal, R DeNovo, R Orosz, S J-Zoo-Wildl-Med. 2000 September; 31(3): 379-82 1042-7260
- **Laparoscopic repair of paraesophageal hiatal hernias.**
 Author(s): Department of Surgery, University of California, San Francisco, 94143-0475, USA.
 Source: Gantert, W A Patti, M G Arcerito, M Feo, C Stewart, L DePinto, M Bhojrul, S Rangel, S Tyrrell, D Fujino, Y Mulvihill, S J Way, L W J-Am-Coll-Surg. 1998 April; 186(4): 428-32; discussion 432-3 1072-7515
- **Large hiatal hernias, anemia, and linear gastric erosion: studies of etiology and medical therapy.**
 Author(s): Medical Center, Beaver, Pennsylvania.
 Source: Moskovitz, M Fadden, R Min, T Jansma, D Gavalier, J Am-J-Gastroenterol. 1992 May; 87(5): 622-6 0002-9270

- **Long-term outcome of medical and surgical treatment of hiatal hernias in dogs and cats: 27 cases (1978-1996).**

Author(s): Department of Small Animal Clinical Sciences, College of Veterinary Medicine, University of Tennessee, Knoxville 37901-1071, USA.

Source: Lorinson, D Bright, R M J-Am-Vet-Med-Assoc. 1998 August 1; 213(3): 381-4 0003-1488

- **What is your diagnosis? Sliding hiatal hernia.**

Author(s): Allington Veterinary Centre, Maidstone, Kent.

Source: van Dongen, P J-Small-Anim-Pract. 1997 September; 38(9): 379, 424 0022-4510

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition:
<http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0>
- The United States Department of Agriculture's Web site dedicated to nutrition information: www.nutrition.gov
- The Food and Drug Administration's Web site for federal food safety information: www.foodsafety.gov
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General:
<http://www.surgeongeneral.gov/topics/obesity/>
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: <http://vm.cfsan.fda.gov/>
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: <http://www.usda.gov/cnpp/>
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: <http://www.nal.usda.gov/fnic/>
- Food and Nutrition Service sponsored by the United States Department of Agriculture: <http://www.fns.usda.gov/fns/>

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: <http://search.aol.com/cat.adp?id=174&layer=&from=subcats>
- Family Village: http://www.familyvillage.wisc.edu/med_nutrition.html
- Google: <http://directory.google.com/Top/Health/Nutrition/>
- Healthnotes: <http://www.thedacare.org/healthnotes/>
- Open Directory Project: <http://dmoz.org/Health/Nutrition/>
- Yahoo.com: <http://dir.yahoo.com/Health/Nutrition/>
- WebMD® Health: <http://my.webmd.com/nutrition>
- WholeHealthMD.com:
<http://www.wholehealthmd.com/reflib/0,1529,,00.html>

The following is a specific Web list relating to hiatal hernia; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Minerals**

- **Magnesium**

- Source: Healthnotes, Inc.; www.healthnotes.com

- Hyperlink:

- <http://www.thedacare.org/healthnotes/Concern/GERD.htm>

- **Magnesium Carbonate**

- Source: Healthnotes, Inc.; www.healthnotes.com

- Hyperlink:

- <http://www.thedacare.org/healthnotes/Concern/GERD.htm>

- **Food and Diet**

- **Beverages**

- Source: Healthnotes, Inc.; www.healthnotes.com

- Hyperlink:

- <http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Chili

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Chocolate

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

French fries

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Milk

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Obesity

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Weight Loss

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Wine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/GERD.htm>

Vocabulary Builder

The following vocabulary builder defines words used in the references in this chapter that have not been defined in previous chapters:

Glycopyrrolate: A muscarinic antagonist used as an antispasmodic, in some disorders of the gastrointestinal tract, and to reduce salivation with some

anesthetics. [NIH]

Minocycline: A semisynthetic antibiotic effective against tetracycline-resistant staphylococcus infections. [NIH]

Pharmacist: A person trained to prepare and distribute medicines and to give information about them. [NIH]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

At a medical library you can find medical texts and reference books, consumer health publications, specialty newspapers and magazines, as well as medical journals. In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Before going to the library, highlight the references mentioned in this sourcebook that you find interesting. Focus on those items that are not available via the Internet, and ask the reference librarian for help with your search. He or she may know of additional resources that could be helpful to you. Most importantly, your local public library and medical libraries have Interlibrary Loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. NLM's interlibrary loan services are only available to libraries. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.⁴³

⁴³ Adapted from the NLM: <http://www.nlm.nih.gov/psd/cas/interlibrary.html>.

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit <http://nmlm.gov/members/adv.html> or call 1-800-338-7657.

Medical Libraries Open to the Public

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries that are generally open to the public and have reference facilities. The following is the NLM's list plus hyperlinks to each library Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located):⁴⁴

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), <http://www.uab.edu/infonet/>
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute), <http://www.asmi.org/LIBRARY.HTM>
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), <http://www.samaritan.edu/library/bannerlibs.htm>
- **California:** Kris Kelly Health Information Center (St. Joseph Health System), <http://www.humboldt1.com/~kkhic/index.html>
- **California:** Community Health Library of Los Gatos (Community Health Library of Los Gatos), <http://www.healthlib.org/orgresources.html>
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, <http://www.colapublib.org/services/chips.html>
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), <http://www-med.stanford.edu/healthlibrary/>

⁴⁴ Abstracted from <http://www.nlm.nih.gov/medlineplus/libraries.html>.

- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), <http://sfghdean.ucsf.edu/barnett/PERC/default.asp>
- **California:** Redwood Health Library (Petaluma Health Care District), <http://www.phcd.org/rdwplib.html>
- **California:** San José PlaneTree Health Library, <http://planetreesanjose.org/>
- **California:** Sutter Resource Library (Sutter Hospitals Foundation), <http://go.sutterhealth.org/comm/resc-library/sac-resources.html>
- **California:** University of California, Davis. Health Sciences Libraries
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System), <http://www.valleycare.com/library.html>
- **California:** Washington Community Health Resource Library (Washington Community Health Resource Library), <http://www.healthlibrary.org/>
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), <http://www.exempla.org/conslib.htm>
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), <http://www.harthosp.org/library/>
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), <http://library.uchc.edu/department/hnet/>
- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital), <http://www.waterburyhospital.com/library/consumer.shtml>
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute), http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine), <http://www.delamed.org/chls.html>
- **Georgia:** Family Resource Library (Medical College of Georgia), http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm
- **Georgia:** Health Resource Center (Medical Center of Central Georgia), <http://www.mccg.org/hrc/hrchome.asp>
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library), <http://hml.org/CHIS/>

- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center), <http://www.nicon.org/DeArmond/index.htm>
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Northwestern Memorial Hospital, Health Learning Center), http://www.nmh.org/health_info/hlc.html
- **Illinois:** Medical Library (OSF Saint Francis Medical Center), <http://www.osfsaintfrancis.org/general/library/>
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital), <http://www.centralbap.com/education/community/library.htm>
- **Kentucky:** University of Kentucky - Health Information Library (University of Kentucky, Chandler Medical Center, Health Information Library), <http://www.mc.uky.edu/PatientEd/>
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation), <http://www.ochsner.org/library/>
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, <http://lib-sh.lsuhscc.edu/>
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital), <http://www.fchn.org/fmh/lib.htm>
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center), <http://www.cmmc.org/library/library.html>
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare), <http://www.emh.org/hll/hpl/guide.htm>
- **Maine:** Maine Medical Center Library (Maine Medical Center), <http://www.mmc.org/library/>
- **Maine:** Parkview Hospital, <http://www.parkviewhospital.org/communit.htm#Library>
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center), <http://www.smmc.org/services/service.php3?choice=10>
- **Maine:** Stephens Memorial Hospital Health Information Library (Western Maine Health), http://www.wmhcc.com/hil_frame.html
- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), <http://www.umanitoba.ca/libraries/units/health/reference/chis.html>
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre), <http://www.deerlodge.mb.ca/library/libraryservices.shtml>

- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Md., Dept. of Public Libraries, Wheaton Regional Library), <http://www.mont.lib.md.us/healthinfo/hic.asp>
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), <http://www.baystatehealth.com/1024/>
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), <http://med-libwww.bu.edu/library/lib.html>
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital), <http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm>
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital), http://www.nebh.org/health_lib.asp
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital), <http://www.southcoast.org/library/>
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), <http://www.mgh.harvard.edu/library/chrcindex.html>
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School), <http://healthnet.umassmed.edu/>
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), <http://www.botsfordlibrary.org/consumer.htm>
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), <http://www.providence-hospital.org/library/>
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), <http://www.mgh.org/center.html>
- **Michigan:** Patient Education Resource Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center), <http://www.cancer.med.umich.edu/learn/leares.htm>
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information, <http://www.sladen.hfhs.org/library/consumer/index.html>
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center), <http://www.saintpatrick.org/chi/librarydetail.php3?ID=41>

- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), <http://caphis.mlanet.org/directory/index.html>
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, <http://nnlm.gov/>
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), <http://nnlm.gov/members/>
- **Nevada:** Health Science Library, West Charleston Library (Las Vegas Clark County Library District), http://www.lvccld.org/special_collections/medical/index.htm
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library), <http://www.dartmouth.edu/~biomed/resources.html#conshealth.html>
- **New Jersey:** Consumer Health Library (Rahway Hospital), <http://www.rahwayhospital.com/library.htm>
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center), <http://www.englewoodhospital.com/links/index.htm>
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center), <http://www.geocities.com/ResearchTriangle/9360/>
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, <http://www.nypl.org/branch/health/links.html>
- **New York:** Health Information Center (Upstate Medical University, State University of New York), <http://www.upstate.edu/library/hic/>
- **New York:** Health Sciences Library (Long Island Jewish Medical Center), <http://www.lij.edu/library/library.html>
- **New York:** ViaHealth Medical Library (Rochester General Hospital), <http://www.nyam.org/library/>
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), <http://www.akrongeneral.org/hwlibrary.htm>
- **Oklahoma:** Saint Francis Health System Patient/Family Resource Center (Saint Francis Health System), <http://www.sfh-tulsa.com/patientfamilycenter/default.asp>

- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center), <http://www.mcmc.net/phrc/>
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center), <http://www.hmc.psu.edu/commhealth/>
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center), <http://www.geisinger.edu/education/commlib.shtml>
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital), <http://www.mth.org/healthwellness.html>
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System), <http://www.hsls.pitt.edu/chi/hhrcinfo.html>
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), <http://www.collphyphil.org/koopp1.shtml>
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System), <http://www.shscare.org/services/lrc/index.asp>
- **Pennsylvania:** Medical Library (UPMC Health System), <http://www.upmc.edu/passavant/library.htm>
- **Quebec, Canada:** Medical Library (Montreal General Hospital), <http://ww2.mcgill.ca/mghlib/>
- **South Dakota:** Rapid City Regional Hospital - Health Information Center (Rapid City Regional Hospital, Health Information Center), <http://www.rcrh.org/education/LibraryResourcesConsumers.htm>
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), <http://hwh.library.tmc.edu/>
- **Texas:** Matustik Family Resource Center (Cook Children's Health Care System), http://www.cookchildrens.com/Matustik_Library.html
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), <http://www.kvch.com/>
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center), <http://www.swmedctr.com/Home/>

APPENDIX D. YOUR RIGHTS AND INSURANCE

Overview

Any patient with hiatal hernia faces a series of issues related more to the healthcare industry than to the medical condition itself. This appendix covers two important topics in this regard: your rights and responsibilities as a patient, and how to get the most out of your medical insurance plan.

Your Rights as a Patient

The President's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry has created the following summary of your rights as a patient.⁴⁵

Information Disclosure

Consumers have the right to receive accurate, easily understood information. Some consumers require assistance in making informed decisions about health plans, health professionals, and healthcare facilities. Such information includes:

- **Health plans.** Covered benefits, cost-sharing, and procedures for resolving complaints, licensure, certification, and accreditation status, comparable measures of quality and consumer satisfaction, provider network composition, the procedures that govern access to specialists and emergency services, and care management information.

⁴⁵Adapted from Consumer Bill of Rights and Responsibilities:
<http://www.hcqualitycommission.gov/press/cbor.html#head1>.

- **Health professionals.** Education, board certification, and recertification, years of practice, experience performing certain procedures, and comparable measures of quality and consumer satisfaction.
- **Healthcare facilities.** Experience in performing certain procedures and services, accreditation status, comparable measures of quality, worker, and consumer satisfaction, and procedures for resolving complaints.
- **Consumer assistance programs.** Programs must be carefully structured to promote consumer confidence and to work cooperatively with health plans, providers, payers, and regulators. Desirable characteristics of such programs are sponsorship that ensures accountability to the interests of consumers and stable, adequate funding.

Choice of Providers and Plans

Consumers have the right to a choice of healthcare providers that is sufficient to ensure access to appropriate high-quality healthcare. To ensure such choice, the Commission recommends the following:

- **Provider network adequacy.** All health plan networks should provide access to sufficient numbers and types of providers to assure that all covered services will be accessible without unreasonable delay -- including access to emergency services 24 hours a day and 7 days a week. If a health plan has an insufficient number or type of providers to provide a covered benefit with the appropriate degree of specialization, the plan should ensure that the consumer obtains the benefit outside the network at no greater cost than if the benefit were obtained from participating providers.
- **Women's health services.** Women should be able to choose a qualified provider offered by a plan -- such as gynecologists, certified nurse midwives, and other qualified healthcare providers -- for the provision of covered care necessary to provide routine and preventative women's healthcare services.
- **Access to specialists.** Consumers with complex or serious medical conditions who require frequent specialty care should have direct access to a qualified specialist of their choice within a plan's network of providers. Authorizations, when required, should be for an adequate number of direct access visits under an approved treatment plan.
- **Transitional care.** Consumers who are undergoing a course of treatment for a chronic or disabling condition (or who are in the second or third trimester of a pregnancy) at the time they involuntarily change health

plans or at a time when a provider is terminated by a plan for other than cause should be able to continue seeing their current specialty providers for up to 90 days (or through completion of postpartum care) to allow for transition of care.

- ***Choice of health plans.*** Public and private group purchasers should, wherever feasible, offer consumers a choice of high-quality health insurance plans.

Access to Emergency Services

Consumers have the right to access emergency healthcare services when and where the need arises. Health plans should provide payment when a consumer presents to an emergency department with acute symptoms of sufficient severity--including severe pain--such that a "prudent layperson" could reasonably expect the absence of medical attention to result in placing that consumer's health in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of any bodily organ or part.

Participation in Treatment Decisions

Consumers have the right and responsibility to fully participate in all decisions related to their healthcare. Consumers who are unable to fully participate in treatment decisions have the right to be represented by parents, guardians, family members, or other conservators. Physicians and other health professionals should:

- Provide patients with sufficient information and opportunity to decide among treatment options consistent with the informed consent process.
- Discuss all treatment options with a patient in a culturally competent manner, including the option of no treatment at all.
- Ensure that persons with disabilities have effective communications with members of the health system in making such decisions.
- Discuss all current treatments a consumer may be undergoing.
- Discuss all risks, benefits, and consequences to treatment or nontreatment.
- Give patients the opportunity to refuse treatment and to express preferences about future treatment decisions.

- Discuss the use of advance directives -- both living wills and durable powers of attorney for healthcare -- with patients and their designated family members.
- Abide by the decisions made by their patients and/or their designated representatives consistent with the informed consent process.

Health plans, health providers, and healthcare facilities should:

- Disclose to consumers factors -- such as methods of compensation, ownership of or interest in healthcare facilities, or matters of conscience -- that could influence advice or treatment decisions.
- Assure that provider contracts do not contain any so-called "gag clauses" or other contractual mechanisms that restrict healthcare providers' ability to communicate with and advise patients about medically necessary treatment options.
- Be prohibited from penalizing or seeking retribution against healthcare professionals or other health workers for advocating on behalf of their patients.

Respect and Nondiscrimination

Consumers have the right to considerate, respectful care from all members of the healthcare industry at all times and under all circumstances. An environment of mutual respect is essential to maintain a quality healthcare system. To assure that right, the Commission recommends the following:

- Consumers must not be discriminated against in the delivery of healthcare services consistent with the benefits covered in their policy, or as required by law, based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, genetic information, or source of payment.
- Consumers eligible for coverage under the terms and conditions of a health plan or program, or as required by law, must not be discriminated against in marketing and enrollment practices based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, genetic information, or source of payment.

Confidentiality of Health Information

Consumers have the right to communicate with healthcare providers in confidence and to have the confidentiality of their individually identifiable

healthcare information protected. Consumers also have the right to review and copy their own medical records and request amendments to their records.

Complaints and Appeals

Consumers have the right to a fair and efficient process for resolving differences with their health plans, healthcare providers, and the institutions that serve them, including a rigorous system of internal review and an independent system of external review. A free copy of the Patient's Bill of Rights is available from the American Hospital Association.⁴⁶

Patient Responsibilities

Treatment is a two-way street between you and your healthcare providers. To underscore the importance of finance in modern healthcare as well as your responsibility for the financial aspects of your care, the President's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry has proposed that patients understand the following "Consumer Responsibilities."⁴⁷ In a healthcare system that protects consumers' rights, it is reasonable to expect and encourage consumers to assume certain responsibilities. Greater individual involvement by the consumer in his or her care increases the likelihood of achieving the best outcome and helps support a quality-oriented, cost-conscious environment. Such responsibilities include:

- Take responsibility for maximizing healthy habits such as exercising, not smoking, and eating a healthy diet.
- Work collaboratively with healthcare providers in developing and carrying out agreed-upon treatment plans.
- Disclose relevant information and clearly communicate wants and needs.
- Use your health insurance plan's internal complaint and appeal processes to address your concerns.
- Avoid knowingly spreading disease.

⁴⁶ To order your free copy of the Patient's Bill of Rights, telephone 312-422-3000 or visit the American Hospital Association's Web site: <http://www.aha.org>. Click on "Resource Center," go to "Search" at bottom of page, and then type in "Patient's Bill of Rights." The Patient's Bill of Rights is also available from Fax on Demand, at 312-422-2020, document number 471124.

⁴⁷ Adapted from <http://www.hcqualitycommission.gov/press/cbor.html#head1>.

- Recognize the reality of risks, the limits of the medical science, and the human fallibility of the healthcare professional.
- Be aware of a healthcare provider's obligation to be reasonably efficient and equitable in providing care to other patients and the community.
- Become knowledgeable about your health plan's coverage and options (when available) including all covered benefits, limitations, and exclusions, rules regarding use of network providers, coverage and referral rules, appropriate processes to secure additional information, and the process to appeal coverage decisions.
- Show respect for other patients and health workers.
- Make a good-faith effort to meet financial obligations.
- Abide by administrative and operational procedures of health plans, healthcare providers, and Government health benefit programs.

Choosing an Insurance Plan

There are a number of official government agencies that help consumers understand their healthcare insurance choices.⁴⁸ The U.S. Department of Labor, in particular, recommends ten ways to make your health benefits choices work best for you.⁴⁹

1. Your options are important. There are many different types of health benefit plans. Find out which one your employer offers, then check out the plan, or plans, offered. Your employer's human resource office, the health plan administrator, or your union can provide information to help you match your needs and preferences with the available plans. The more information you have, the better your healthcare decisions will be.

2. Reviewing the benefits available. Do the plans offered cover preventive care, well-baby care, vision or dental care? Are there deductibles? Answers to these questions can help determine the out-of-pocket expenses you may face. Matching your needs and those of your family members will result in the best possible benefits. Cheapest may not always be best. Your goal is high quality health benefits.

⁴⁸ More information about quality across programs is provided at the following AHRQ Web site:

<http://www.ahrq.gov/consumer/qntascii/qnthplan.htm>.

⁴⁹ Adapted from the Department of Labor:

<http://www.dol.gov/dol/pwba/public/pubs/health/top10-text.html>.

3. Look for quality. The quality of healthcare services varies, but quality can be measured. You should consider the quality of healthcare in deciding among the healthcare plans or options available to you. Not all health plans, doctors, hospitals and other providers give the highest quality care. Fortunately, there is quality information you can use right now to help you compare your healthcare choices. Find out how you can measure quality. Consult the U.S. Department of Health and Human Services publication “Your Guide to Choosing Quality Health Care” on the Internet at www.ahcpr.gov/consumer.

4. Your plan’s summary plan description (SPD) provides a wealth of information. Your health plan administrator can provide you with a copy of your plan’s SPD. It outlines your benefits and your legal rights under the Employee Retirement Income Security Act (ERISA), the federal law that protects your health benefits. It should contain information about the coverage of dependents, what services will require a co-pay, and the circumstances under which your employer can change or terminate a health benefits plan. Save the SPD and all other health plan brochures and documents, along with memos or correspondence from your employer relating to health benefits.

5. Assess your benefit coverage as your family status changes. Marriage, divorce, childbirth or adoption, and the death of a spouse are all life events that may signal a need to change your health benefits. You, your spouse and dependent children may be eligible for a special enrollment period under provisions of the Health Insurance Portability and Accountability Act (HIPAA). Even without life-changing events, the information provided by your employer should tell you how you can change benefits or switch plans, if more than one plan is offered. If your spouse’s employer also offers a health benefits package, consider coordinating both plans for maximum coverage.

6. Changing jobs and other life events can affect your health benefits. Under the Consolidated Omnibus Budget Reconciliation Act (COBRA), you, your covered spouse, and your dependent children may be eligible to purchase extended health coverage under your employer’s plan if you lose your job, change employers, get divorced, or upon occurrence of certain other events. Coverage can range from 18 to 36 months depending on your situation. COBRA applies to most employers with 20 or more workers and requires your plan to notify you of your rights. Most plans require eligible individuals to make their COBRA election within 60 days of the plan’s notice. Be sure to follow up with your plan sponsor if you don’t receive notice, and make sure you respond within the allotted time.

7. HIPAA can also help if you are changing jobs, particularly if you have a medical condition. HIPAA generally limits pre-existing condition exclusions to a maximum of 12 months (18 months for late enrollees). HIPAA also requires this maximum period to be reduced by the length of time you had prior “creditable coverage.” You should receive a certificate documenting your prior creditable coverage from your old plan when coverage ends.

8. Plan for retirement. Before you retire, find out what health benefits, if any, extend to you and your spouse during your retirement years. Consult with your employer’s human resources office, your union, the plan administrator, and check your SPD. Make sure there is no conflicting information among these sources about the benefits you will receive or the circumstances under which they can change or be eliminated. With this information in hand, you can make other important choices, like finding out if you are eligible for Medicare and Medigap insurance coverage.

9. Know how to file an appeal if your health benefits claim is denied. Understand how your plan handles grievances and where to make appeals of the plan’s decisions. Keep records and copies of correspondence. Check your health benefits package and your SPD to determine who is responsible for handling problems with benefit claims. Contact PWBA for customer service assistance if you are unable to obtain a response to your complaint.

10. You can take steps to improve the quality of the healthcare and the health benefits you receive. Look for and use things like Quality Reports and Accreditation Reports whenever you can. Quality reports may contain consumer ratings -- how satisfied consumers are with the doctors in their plan, for instance-- and clinical performance measures -- how well a healthcare organization prevents and treats illness. Accreditation reports provide information on how accredited organizations meet national standards, and often include clinical performance measures. Look for these quality measures whenever possible. Consult “Your Guide to Choosing Quality Health Care” on the Internet at www.ahcpr.gov/consumer.

Medicare and Medicaid

Illness strikes both rich and poor families. For low-income families, Medicaid is available to defer the costs of treatment. The Health Care Financing Administration (HCFA) administers Medicare, the nation’s largest health insurance program, which covers 39 million Americans. In the following pages, you will learn the basics about Medicare insurance as well as useful

contact information on how to find more in-depth information about Medicaid.⁵⁰

Who is Eligible for Medicare?

Generally, you are eligible for Medicare if you or your spouse worked for at least 10 years in Medicare-covered employment and you are 65 years old and a citizen or permanent resident of the United States. You might also qualify for coverage if you are under age 65 but have a disability or End-Stage Renal disease (permanent kidney failure requiring dialysis or transplant). Here are some simple guidelines:

You can get Part A at age 65 without having to pay premiums if:

- You are already receiving retirement benefits from Social Security or the Railroad Retirement Board.
- You are eligible to receive Social Security or Railroad benefits but have not yet filed for them.
- You or your spouse had Medicare-covered government employment.

If you are under 65, you can get Part A without having to pay premiums if:

- You have received Social Security or Railroad Retirement Board disability benefit for 24 months.
- You are a kidney dialysis or kidney transplant patient.

Medicare has two parts:

- Part A (Hospital Insurance). Most people do not have to pay for Part A.
- Part B (Medical Insurance). Most people pay monthly for Part B.

Part A (Hospital Insurance)

Helps Pay For: Inpatient hospital care, care in critical access hospitals (small facilities that give limited outpatient and inpatient services to people in rural areas) and skilled nursing facilities, hospice care, and some home healthcare.

⁵⁰ This section has been adapted from the Official U.S. Site for Medicare Information: <http://www.medicare.gov/Basics/Overview.asp>.

Cost: Most people get Part A automatically when they turn age 65. You do not have to pay a monthly payment called a premium for Part A because you or a spouse paid Medicare taxes while you were working.

If you (or your spouse) did not pay Medicare taxes while you were working and you are age 65 or older, you still may be able to buy Part A. If you are not sure you have Part A, look on your red, white, and blue Medicare card. It will show "Hospital Part A" on the lower left corner of the card. You can also call the Social Security Administration toll free at 1-800-772-1213 or call your local Social Security office for more information about buying Part A. If you get benefits from the Railroad Retirement Board, call your local RRB office or 1-800-808-0772. For more information, call your Fiscal Intermediary about Part A bills and services. The phone number for the Fiscal Intermediary office in your area can be obtained from the following Web site: <http://www.medicare.gov/Contacts/home.asp>.

Part B (Medical Insurance)

Helps Pay For: Doctors, services, outpatient hospital care, and some other medical services that Part A does not cover, such as the services of physical and occupational therapists, and some home healthcare. Part B helps pay for covered services and supplies when they are medically necessary.

Cost: As of 2001, you pay the Medicare Part B premium of \$50.00 per month. In some cases this amount may be higher if you did not choose Part B when you first became eligible at age 65. The cost of Part B may go up 10% for each 12-month period that you were eligible for Part B but declined coverage, except in special cases. You will have to pay the extra 10% cost for the rest of your life.

Enrolling in Part B is your choice. You can sign up for Part B anytime during a 7-month period that begins 3 months before you turn 65. Visit your local Social Security office, or call the Social Security Administration at 1-800-772-1213 to sign up. If you choose to enroll in Part B, the premium is usually taken out of your monthly Social Security, Railroad Retirement, or Civil Service Retirement payment. If you do not receive any of the above payments, Medicare sends you a bill for your part B premium every 3 months. You should receive your Medicare premium bill in the mail by the 10th of the month. If you do not, call the Social Security Administration at 1-800-772-1213, or your local Social Security office. If you get benefits from the Railroad Retirement Board, call your local RRB office or 1-800-808-0772. For more information, call your Medicare carrier about bills and services. The

phone number for the Medicare carrier in your area can be found at the following Web site: <http://www.medicare.gov/Contacts/home.asp>. You may have choices in how you get your healthcare including the Original Medicare Plan, Medicare Managed Care Plans (like HMOs), and Medicare Private Fee-for-Service Plans.

Medicaid

Medicaid is a joint federal and state program that helps pay medical costs for some people with low incomes and limited resources. Medicaid programs vary from state to state. People on Medicaid may also get coverage for nursing home care and outpatient prescription drugs which are not covered by Medicare. You can find more information about Medicaid on the HCFA.gov Web site at <http://www.hcfa.gov/medicaid/medicaid.htm>.

States also have programs that pay some or all of Medicare's premiums and may also pay Medicare deductibles and coinsurance for certain people who have Medicare and a low income. To qualify, you must have:

- Part A (Hospital Insurance),
- Assets, such as bank accounts, stocks, and bonds that are not more than \$4,000 for a single person, or \$6,000 for a couple, and
- A monthly income that is below certain limits.

For more information on these programs, look at the Medicare Savings Programs brochure,
<http://www.medicare.gov/Library/PDFNavigation/PDFInterim.asp?Language=English&Type=Pub&PubID=10126>. There are also Prescription Drug Assistance Programs available. Find information on these programs which offer discounts or free medications to individuals in need at <http://www.medicare.gov/Prescription/Home.asp>.

NORD's Medication Assistance Programs

Finally, the National Organization for Rare Disorders, Inc. (NORD) administers medication programs sponsored by humanitarian-minded pharmaceutical and biotechnology companies to help uninsured or under-insured individuals secure life-saving or life-sustaining drugs.⁵¹ NORD

⁵¹ Adapted from NORD: http://www.rarediseases.org/cgi-bin/nord/progserv#patient?id=rPIzL9oD&mv_pc=30.

programs ensure that certain vital drugs are available “to those individuals whose income is too high to qualify for Medicaid but too low to pay for their prescribed medications.” The program has standards for fairness, equity, and unbiased eligibility. It currently covers some 14 programs for nine pharmaceutical companies. NORD also offers early access programs for investigational new drugs (IND) under the approved “Treatment INDs” programs of the Food and Drug Administration (FDA). In these programs, a limited number of individuals can receive investigational drugs that have yet to be approved by the FDA. These programs are generally designed for rare diseases or disorders. For more information, visit www.rarediseases.org.

Additional Resources

In addition to the references already listed in this chapter, you may need more information on health insurance, hospitals, or the healthcare system in general. The NIH has set up an excellent guidance Web site that addresses these and other issues. Topics include:⁵²

- Health Insurance:
<http://www.nlm.nih.gov/medlineplus/healthinsurance.html>
- Health Statistics:
<http://www.nlm.nih.gov/medlineplus/healthstatistics.html>
- HMO and Managed Care:
<http://www.nlm.nih.gov/medlineplus/managedcare.html>
- Hospice Care: <http://www.nlm.nih.gov/medlineplus/hospicecare.html>
- Medicaid: <http://www.nlm.nih.gov/medlineplus/medicaid.html>
- Medicare: <http://www.nlm.nih.gov/medlineplus/medicare.html>
- Nursing Homes and Long-term Care:
<http://www.nlm.nih.gov/medlineplus/nursinghomes.html>
- Patient’s Rights, Confidentiality, Informed Consent, Ombudsman Programs, Privacy and Patient Issues:
<http://www.nlm.nih.gov/medlineplus/patientissues.html>
- Veteran’s Health, Persian Gulf War, Gulf War Syndrome, Agent Orange:
<http://www.nlm.nih.gov/medlineplus/veteranshealth.html>

⁵² You can access this information at:

<http://www.nlm.nih.gov/medlineplus/healthsystem.html>.

Vocabulary Builder

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccial, rodlike or bacillary, and spiral or spirochetal. [NIH]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Iodine: A nonmetallic element of the halogen group that is represented by the atomic symbol I, atomic number 53, and atomic weight of 126.90. It is a nutritionally essential element, especially important in thyroid hormone synthesis. In solution, it has anti-infective properties and is used topically. [NIH]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Overdose: 1. to administer an excessive dose. 2. an excessive dose. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Thermoregulation: Heat regulation. [EU]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries and glossaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: <http://www.nlm.nih.gov/medlineplus/encyclopedia.html>
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.):
<http://www.medterms.com/Script/Main/hp.asp>
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.):
<http://www.intelihealth.com/IH/>
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish:
<http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html>
- On-line Medical Dictionary (CancerWEB):
<http://www.graylab.ac.uk/omd/>
- Technology Glossary (National Library of Medicine) - Health Care Technology: <http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm>
- Terms and Definitions (Office of Rare Diseases):
http://rarediseases.info.nih.gov/ord/glossary_a-e.html

Beyond these, MEDLINEplus contains a very user-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia Web site address is <http://www.nlm.nih.gov/medlineplus/encyclopedia.html>. ADAM is also available on commercial Web sites such as [drkoop.com](http://www.drkoop.com/) (<http://www.drkoop.com/>) and Web MD (http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a). Topics of interest can be researched by using keywords before continuing elsewhere, as these basic definitions and concepts will be useful in more advanced areas of research. You may choose to print various pages specifically relating to hiatal hernia and keep them on file. The NIH, in particular, suggests that patients with hiatal hernia visit the following Web sites in the ADAM Medical Encyclopedia:

- **Basic Guidelines for Hiatal Hernia**

Esophagitis

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/001153.htm>

Hiatal hernia

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/001137.htm>

Hiatal hernia repair

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002925.htm>

Peptic ulcer

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000206.htm>

- **Signs & Symptoms for Hiatal Hernia**

Belching

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003080.htm>

Bowel sounds

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003137.htm>

Burping

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003080.htm>

Chest pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003079.htm>

Dysphagia

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003115.htm>

Dyspnea

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003075.htm>

Heartburn

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003114.htm>

Hernia

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003100.htm>

Muscle

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003193.htm>

Obesity

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003101.htm>

Problems breathing

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003075.htm>

Swallowing difficulty

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003115.htm>

Vomiting

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003117.htm>

Wheezing

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003070.htm>

- **Diagnostics and Tests for Hiatal Hernia**

ALT

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003473.htm>

ANA

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003535.htm>

Barium swallow X-ray

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003816.htm>

Differential

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm>

EGD (esophagogastroduodenoscopy)

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003888.htm>

Endoscopy

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003338.htm>

Esophageal manometry

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003884.htm>

Gastric acid

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003883.htm>

X-ray

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003337.htm>

- **Background Topics for Hiatal Hernia**

Aspiration

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002216.htm>

Bleeding

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000045.htm>

Chronic

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002312.htm>

Pulmonary (lung) aspiration

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000036.htm>

Smoking

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002032.htm>

Symptomatic

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002293.htm>

Weight reduction

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/001940.htm>

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries and glossaries:

- Medical Dictionaries: Medical & Biological (World Health Organization):
<http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical>
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library):
<http://mel.lib.mi.us/health/health-dictionaries.html>
- Patient Education: Glossaries (DMOZ Open Directory Project):
http://dmoz.org/Health/Education/Patient_Education/Glossaries/
- Web of Online Dictionaries (Bucknell University):
<http://www.yourdictionary.com/diction5.html#medicine>

HIATAL HERNIA GLOSSARY

The following is a complete glossary of terms used in this sourcebook. The definitions are derived from official public sources including the National Institutes of Health [NIH] and the European Union [EU]. After this glossary, we list a number of additional hardbound and electronic glossaries and dictionaries that you may wish to consult.

Abdomen: That portion of the body that lies between the thorax and the pelvis. [NIH]

Acidity: L. aciditas) the quality of being acid or sour; containing acid (hydrogen ions). [EU]

Adenocarcinoma: A malignant epithelial tumor with a glandular organization. [NIH]

Alimentary: Pertaining to food or nutritive material, or to the organs of digestion. [EU]

Anatomical: Pertaining to anatomy, or to the structure of the organism. [EU]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Aneurysm: A sac formed by the dilatation of the wall of an artery, a vein, or the heart. The chief signs of arterial aneurysm are the formation of a pulsating tumour, and often a bruit (aneurysmal bruit) heard over the swelling. Sometimes there are symptoms from pressure on contiguous parts. [EU]

Anorectal: Pertaining to the anus and rectum or to the junction region between the two. [EU]

Anorexia: Lack or loss of the appetite for food. [EU]

Antioxidant: One of many widely used synthetic or natural substances added to a product to prevent or delay its deterioration by action of oxygen in the air. Rubber, paints, vegetable oils, and prepared foods commonly contain antioxidants. [EU]

Appendicitis: Acute inflammation of the vermiform appendix. [NIH]

Aspiration: The act of inhaling. [EU]

Atony: Lack of normal tone or strength. [EU]

Atypical: Irregular; not conformable to the type; in microbiology, applied specifically to strains of unusual type. [EU]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms:

round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Barium: An element of the alkaline earth group of metals. It has an atomic symbol Ba, atomic number 56, and atomic weight 138. All of its acid-soluble salts are poisonous. [NIH]

Benign: Not malignant; not recurrent; favourable for recovery. [EU]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Biliary: Pertaining to the bile, to the bile ducts, or to the gallbladder. [EU]

Biopsy: The removal and examination, usually microscopic, of tissue from the living body, performed to establish precise diagnosis. [EU]

Butterflies: Slender-bodied diurnal insects having large, broad wings often strikingly colored and patterned. [NIH]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH₂O)_n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Cardia: That part of the stomach surrounded by the esophagogastric junction, characterized by the lack of acid-forming cells. [NIH]

Chemotherapy: The treatment of disease by means of chemicals that have a specific toxic effect upon the disease - producing microorganisms or that selectively destroy cancerous tissue. [EU]

Cholangitis: Inflammation of a bile duct. [EU]

Cholecystitis: Inflammation of the gallbladder. [EU]

Cholelithiasis: The presence or formation of gallstones. [EU]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Chronic: Persisting over a long period of time. [EU]

Cirrhosis: Liver disease characterized pathologically by loss of the normal microscopic lobular architecture, with fibrosis and nodular regeneration. The term is sometimes used to refer to chronic interstitial inflammation of any organ. [EU]

Colitis: Inflammation of the colon. [EU]

Colorectal: Pertaining to or affecting the colon and rectum. [EU]

- Concomitant:** Accompanying; accessory; joined with another. [EU]
- Constipation:** Infrequent or difficult evacuation of the faeces. [EU]
- Constitutional:** 1. affecting the whole constitution of the body; not local. 2. pertaining to the constitution. [EU]
- Contractility:** Capacity for becoming short in response to a suitable stimulus. [EU]
- Degenerative:** Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]
- Demography:** Statistical interpretation and description of a population with reference to distribution, composition, or structure. [NIH]
- Diaphragm:** The musculofibrous partition that separates the thoracic cavity from the abdominal cavity. Contraction of the diaphragm increases the volume of the thoracic cavity aiding inspiration. [NIH]
- Diarrhea:** Passage of excessively liquid or excessively frequent stools. [NIH]
- Dietetics:** The study and regulation of the diet. [NIH]
- Distal:** Remote; farther from any point of reference; opposed to proximal. In dentistry, used to designate a position on the dental arch farther from the median line of the jaw. [EU]
- Diverticulitis:** Inflammation of a diverticulum, especially inflammation related to colonic diverticula, which may undergo perforation with abscess formation. Sometimes called left-sided or L-sides appendicitis. [EU]
- Duodenum:** The first or proximal portion of the small intestine, extending from the pylorus to the jejunum; so called because it is about 12 fingerbreadths in length. [EU]
- Dyspepsia:** Impairment of the power of function of digestion; usually applied to epigastric discomfort following meals. [EU]
- Dysphagia:** Difficulty in swallowing. [EU]
- Dyspnea:** Difficult or labored breathing. [NIH]
- Electrolyte:** A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]
- Endocrinology:** A subspecialty of internal medicine concerned with the metabolism, physiology, and disorders of the endocrine system. [NIH]
- Endoscopy:** Visual inspection of any cavity of the body by means of an endoscope. [EU]
- Epithelium:** The covering of internal and external surfaces of the body, including the lining of vessels and other small cavities. It consists of cells joined by small amounts of cementing substances. Epithelium is classified

into types on the basis of the number of layers deep and the shape of the superficial cells. [EU]

Esophagitis: Inflammation, acute or chronic, of the esophagus caused by bacteria, chemicals, or trauma. [NIH]

Fats: One of the three main classes of foods and a source of energy in the body. Fats help the body use some vitamins and keep the skin healthy. They also serve as energy stores for the body. In food, there are two types of fats: saturated and unsaturated. [NIH]

Fibrosis: The formation of fibrous tissue; fibroid or fibrous degeneration [EU]

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Flatulence: The presence of excessive amounts of air or gases in the stomach or intestine, leading to distention of the organs. [EU]

Gastritis: Inflammation of the stomach. [EU]

Gastroenteritis: An acute inflammation of the lining of the stomach and intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella* species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gastrointestinal: Pertaining to or communicating with the stomach and intestine, as a gastrointestinal fistula. [EU]

Gastrostomy: Creation of an artificial external opening into the stomach for nutritional support or gastrointestinal compression. [NIH]

Glycopyrrolate: A muscarinic antagonist used as an antispasmodic, in some disorders of the gastrointestinal tract, and to reduce salivation with some anesthetics. [NIH]

Gout: Hereditary metabolic disorder characterized by recurrent acute arthritis, hyperuricemia and deposition of sodium urate in and around the joints, sometimes with formation of uric acid calculi. [NIH]

Groin: The external junctural region between the lower part of the abdomen and the thigh. [NIH]

Heartburn: Substernal pain or burning sensation, usually associated with regurgitation of gastric juice into the esophagus. [NIH]

Helicobacter: A genus of gram-negative, spiral-shaped bacteria that is pathogenic and has been isolated from the intestinal tract of mammals, including humans. [NIH]

Hematology: A subspecialty of internal medicine concerned with

morphology, physiology, and pathology of the blood and blood-forming tissues. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hemorrhoids: Varicosities of the hemorrhoidal venous plexuses. [NIH]

Hepatitis: Inflammation of the liver. [EU]

Hernia: (he protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. [EU]

Hiccup: A spasm of the diaphragm that causes a sudden inhalation followed by rapid closure of the glottis which produces a sound. [NIH]

Histamine: 1H-Imidazole-4-ethanamine. A depressor amine derived by enzymatic decarboxylation of histidine. It is a powerful stimulant of gastric secretion, a constrictor of bronchial smooth muscle, a vasodilator, and also a centrally acting neurotransmitter. [NIH]

Hoarseness: An unnaturally deep or rough quality of voice. [NIH]

Hypertelorism: Abnormal increase in the interorbital distance due to overdevelopment of the lesser wings of the sphenoid. [NIH]

Hypospadias: A developmental anomaly in the male in which the urethra opens on the underside of the penis or on the perineum. [NIH]

Hypotension: Abnormally low blood pressure; seen in shock but not necessarily indicative of it. [EU]

Hypotensive: Characterized by or causing diminished tension or pressure, as abnormally low blood pressure. [EU]

Incarceration: Abnormal retention or confinement of a body part; specifically : a constriction of the neck of a hernial sac so that the hernial contents become irreducible. [EU]

Incontinence: Inability to control excretory functions, as defecation (faecal i.) or urination (urinary i.). [EU]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

Infarction: 1. the formation of an infarct. 2. an infarct. [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Influenza: An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva,

and by headache and severe, often generalized, myalgia. [NIH]

Intrinsic: Situated entirely within or pertaining exclusively to a part. [EU]

Invasive: 1. having the quality of invasiveness. 2. involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Iodine: A nonmetallic element of the halogen group that is represented by the atomic symbol I, atomic number 53, and atomic weight of 126.90. It is a nutritionally essential element, especially important in thyroid hormone synthesis. In solution, it has anti-infective properties and is used topically. [NIH]

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [NIH]

Laparoscopy: Examination, therapy or surgery of the abdomen's interior by means of a laparoscope. [NIH]

Laryngitis: Inflammation of the larynx, a condition attended with dryness and soreness of the throat, hoarseness, cough and dysphagia. [EU]

Lesion: Any pathological or traumatic discontinuity of tissue or loss of function of a part. [EU]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Malignant: Tending to become progressively worse and to result in death. Having the properties of anaplasia, invasion, and metastasis; said of tumours. [EU]

Micronutrients: Essential dietary elements or organic compounds that are required in only small quantities for normal physiologic processes to occur. [NIH]

Microorganism: A microscopic organism; those of medical interest include bacteria, viruses, fungi and protozoa. [EU]

Minocycline: A semisynthetic antibiotic effective against tetracycline-resistant staphylococcus infections. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Motility: The ability to move spontaneously. [EU]

Myopathy: Any disease of a muscle. [EU]

Nausea: An unpleasant sensation, vaguely referred to the epigastrium and abdomen, and often culminating in vomiting. [EU]

Neoplasms: New abnormal growth of tissue. Malignant neoplasms show a greater degree of anaplasia and have the properties of invasion and metastasis, compared to benign neoplasms. [NIH]

Neural: 1. pertaining to a nerve or to the nerves. 2. situated in the region of the spinal axis, as the neutral arch. [EU]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Nitrogen: An element with the atomic symbol N, atomic number 7, and atomic weight 14. Nitrogen exists as a diatomic gas and makes up about 78% of the earth's atmosphere by volume. It is a constituent of proteins and nucleic acids and found in all living cells. [NIH]

Oesophagitis: Inflammation of the esophagus. [EU]

Oral: Pertaining to the mouth, taken through or applied in the mouth, as an oral medication or an oral thermometer. [EU]

Osteoporosis: Reduction in the amount of bone mass, leading to fractures after minimal trauma. [EU]

Overdose: 1. to administer an excessive dose. 2. an excessive dose. [EU]

Paediatric: Of or relating to the care and medical treatment of children; belonging to or concerned with paediatrics. [EU]

Pancreas: An organ behind the lower part of the stomach that is about the size of a hand. It makes insulin so that the body can use glucose (sugar) for energy. It also makes enzymes that help the body digest food. Spread all over the pancreas are areas called the islets of Langerhans. The cells in these areas each have a special purpose. The alpha cells make glucagon, which raises the level of glucose in the blood; the beta cells make insulin; the delta cells make somatostatin. There are also the PP cells and the D1 cells, about which little is known. [NIH]

Pancreatitis: Inflammation (pain, tenderness) of the pancreas; it can make the pancreas stop working. It is caused by drinking too much alcohol, by disease in the gallbladder, or by a virus. [NIH]

Paraplegia: Paralysis of the legs and lower part of the body. [EU]

Pathologic: 1. indicative of or caused by a morbid condition. 2. pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Pediatrics: A medical specialty concerned with maintaining health and providing medical care to children from birth to adolescence. [NIH]

Peptic: Pertaining to pepsin or to digestion; related to the action of gastric juices. [EU]

Perforation: 1. the act of boring or piercing through a part. 2. a hole made through a part or substance. [EU]

Peristalsis: The wormlike movement by which the alimentary canal or other tubular organs provided with both longitudinal and circular muscle fibres propel their contents. It consists of a wave of contraction passing along the tube for variable distances. [EU]

Peritonitis: Inflammation of the peritoneum; a condition marked by exudations in the peritoneum of serum, fibrin, cells, and pus. It is attended by abdominal pain and tenderness, constipation, vomiting, and moderate fever. [EU]

Pernicious: Tending to a fatal issue. [EU]

Pharmacist: A person trained to prepare and distribute medicines and to give information about them. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Postoperative: Occurring after a surgical operation. [EU]

Postprandial: Occurring after dinner, or after a meal; postcibal. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Prevalence: The number of people in a given group or population who are reported to have a disease. [NIH]

Prolapse: 1. the falling down, or sinking, of a part or viscus; procidentia. 2. to undergo such displacement. [EU]

Prosthesis: A man-made substitute for a missing body part such as an arm or a leg; also an implant such as for the hip. [NIH]

Proximal: Nearest; closer to any point of reference; opposed to distal. [EU]

Pulmonary: Pertaining to the lungs. [EU]

Radiography: The making of film records (radiographs) of internal structures of the body by passage of x-rays or gamma rays through the body to act on specially sensitized film. [EU]

Receptor: 1. a molecular structure within a cell or on the surface characterized by (1) selective binding of a specific substance and (2) a specific physiologic effect that accompanies the binding, e.g., cell-surface receptors for peptide hormones, neurotransmitters, antigens, complement

fragments, and immunoglobulins and cytoplasmic receptors for steroid hormones. 2. a sensory nerve terminal that responds to stimuli of various kinds. [EU]

Rectal: Pertaining to the rectum (= distal portion of the large intestine). [EU]

Reflux: A backward or return flow. [EU]

Regurgitation: A backward flowing, as the casting up of undigested food, or the backward flowing of blood into the heart, or between the chambers of the heart when a valve is incompetent. [EU]

Resection: Excision of a portion or all of an organ or other structure. [EU]

Retrograde: 1. moving backward or against the usual direction of flow. 2. degenerating, deteriorating, or catabolic. [EU]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Secretion: 1. the process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. any substance produced by secretion. [EU]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Spastic: 1. of the nature of or characterized by spasms. 2. hypertonic, so that the muscles are stiff and the movements awkward. 3. a person exhibiting spasticity, such as occurs in spastic paralysis or in cerebral palsy. [EU]

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Sphincter: A ringlike band of muscle fibres that constricts a passage or closes a natural orifice; called also musculus sphincter. [EU]

Stenosis: Narrowing or stricture of a duct or canal. [EU]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the

duodenum. [NIH]

Symptomatic: 1. pertaining to or of the nature of a symptom. 2. indicative (of a particular disease or disorder). 3. exhibiting the symptoms of a particular disease but having a different cause. 4. directed at the allaying of symptoms, as symptomatic treatment. [EU]

Systemic: Pertaining to or affecting the body as a whole. [EU]

Telemedicine: Delivery of health services via remote telecommunications. This includes interactive consultative and diagnostic services. [NIH]

Thermoregulation: Heat regulation. [EU]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Toxin: A poison; frequently used to refer specifically to a protein produced by some higher plants, certain animals, and pathogenic bacteria, which is highly toxic for other living organisms. Such substances are differentiated from the simple chemical poisons and the vegetable alkaloids by their high molecular weight and antigenicity. [EU]

Ulcer: A break in the skin; a deep sore. People with diabetes may get ulcers from minor scrapes on the feet or legs, from cuts that heal slowly, or from the rubbing of shoes that do not fit well. Ulcers can become infected. [NIH]

Urea: One of the chief waste products of the body. When the body breaks down food, it uses what it needs and throws the rest away as waste. The kidneys flush the waste from the body in the form of urea, which is in the urine. [NIH]

Urology: A surgical specialty concerned with the study, diagnosis, and treatment of diseases of the urinary tract in both sexes and the genital tract in the male. It includes the specialty of andrology which addresses both male genital diseases and male infertility. [NIH]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vegetarianism: Dietary practice of consuming only vegetables, grains, and nuts. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Xerostomia: Dryness of the mouth from salivary gland dysfunction, as in Sjögren's syndrome. [EU]

General Dictionaries and Glossaries

While the above glossary is essentially complete, the dictionaries listed here cover virtually all aspects of medicine, from basic words and phrases to more advanced terms (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **Dictionary of Medical Acronyms & Abbreviations** by Stanley Jablonski (Editor), Paperback, 4th edition (2001), Lippincott Williams & Wilkins Publishers, ISBN: 1560534605,
<http://www.amazon.com/exec/obidos/ASIN/1560534605/icongroupinterna>
- **Dictionary of Medical Terms : For the Nonmedical Person (Dictionary of Medical Terms for the Nonmedical Person, Ed 4)** by Mikel A. Rothenberg, M.D, et al, Paperback - 544 pages, 4th edition (2000), Barrons Educational Series, ISBN: 0764112015,
<http://www.amazon.com/exec/obidos/ASIN/0764112015/icongroupinterna>
- **A Dictionary of the History of Medicine** by A. Sebastian, CD-Rom edition (2001), CRC Press-Parthenon Publishers, ISBN: 185070368X,
<http://www.amazon.com/exec/obidos/ASIN/185070368X/icongroupinterna>
- **Dorland's Illustrated Medical Dictionary (Standard Version)** by Dorland, et al, Hardcover - 2088 pages, 29th edition (2000), W B Saunders Co, ISBN: 0721662544,
<http://www.amazon.com/exec/obidos/ASIN/0721662544/icongroupinterna>
- **Dorland's Electronic Medical Dictionary** by Dorland, et al, Software, 29th Book & CD-Rom edition (2000), Harcourt Health Sciences, ISBN: 0721694934,
<http://www.amazon.com/exec/obidos/ASIN/0721694934/icongroupinterna>
- **Dorland's Pocket Medical Dictionary (Dorland's Pocket Medical Dictionary, 26th Ed)** Hardcover - 912 pages, 26th edition (2001), W B Saunders Co, ISBN: 0721682812,
<http://www.amazon.com/exec/obidos/ASIN/0721682812/icongroupinterna/103-4193558-7304618>
- **Melloni's Illustrated Medical Dictionary (Melloni's Illustrated Medical Dictionary, 4th Ed)** by Melloni, Hardcover, 4th edition (2001), CRC Press-Parthenon Publishers, ISBN: 85070094X,
<http://www.amazon.com/exec/obidos/ASIN/85070094X/icongroupinterna>
- **Stedman's Electronic Medical Dictionary Version 5.0 (CD-ROM for Windows and Macintosh, Individual)** by Stedmans, CD-ROM edition (2000), Lippincott Williams & Wilkins Publishers, ISBN: 0781726328,
<http://www.amazon.com/exec/obidos/ASIN/0781726328/icongroupinterna>

- **Stedman's Medical Dictionary** by Thomas Lathrop Stedman, Hardcover - 2098 pages, 27th edition (2000), Lippincott, Williams & Wilkins, ISBN: 068340007X,
<http://www.amazon.com/exec/obidos/ASIN/068340007X/icongroupinterna>
- **Tabers Cyclopedic Medical Dictionary (Thumb Index)** by Donald Venes (Editor), et al, Hardcover - 2439 pages, 19th edition (2001), F A Davis Co, ISBN: 0803606540,
<http://www.amazon.com/exec/obidos/ASIN/0803606540/icongroupinterna>

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