

Infection prevention and control in maternal and neonatal care



Module 3. Care of the pregnant woman and baby during uncomplicated labour, childbirth, and the early postnatal period

The symbols explained



You are encouraged to participate in discussion questions, where you can use your own experience and prior knowledge.



You are encouraged to participate in group activities to drill into key topics.



Essential content (not to be missed!).



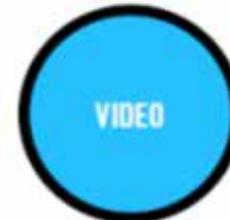
Key reference for consolidating learning.



Some suggested answers to activities/group work.



In-depth case study applying learning into practice.



Video material to supplement learning.



Required reading or reflection outside the training session.

Learning objectives

On completion of this module the participant should be able to demonstrate knowledge of:

- risks factors for infection during uncomplicated labour, childbirth, and the early postnatal period and how to reduce these risks
- water, sanitation, and hygiene requirements to enable appropriate infection prevention and control (IPC) measures during uncomplicated labour, childbirth, and early postnatal care
- appropriate assessments and interventions for identification and prevention of infections during labour, uncomplicated labour, childbirth and the early postnatal period
- the skills needed to apply IPC standard precautions and additional precautions during labour, uncomplicated labour, childbirth and the early postnatal period to prevent health care-associated infections (HAIs)

Core competencies



On completion of this module the participant should be able to:

- apply strict adherence to standard infection prevention practices during admission of the labouring woman, uncomplicated labour, childbirth and the early postnatal period
- integrate standard precautions and additional IPC precautions into day-to-day care of the woman and newborn during uncomplicated labour, childbirth and the early postnatal period
- perform aseptic technique correctly when required during uncomplicated labour and childbirth
- adhere to consistent application of standard precautions during exposure to blood and body fluids, such as amniotic fluid, placenta and vaginal secretions
- assess water, sanitation, and hygiene and IPC indicators during uncomplicated labour, childbirth and early postnatal care

Topics covered



Covered in modules 1 and 2

- Hand hygiene
- Risk assessment at the point of care
- Appropriate use of personal protective equipment based on risk assessment
- Aseptic technique
- Sharps and injection safety and prevention of transmission of bloodborne pathogens
- Safe handling and/or disposal of contaminated patient care items and equipment (waste management)
- Environmental cleaning
- Decontamination and sterilization of reusable equipment
- Screening and prevention activities in antenatal care

Covered in this module

- Prevention of infection during uncomplicated labour, childbirth and early postnatal period
- Preparation of birth equipment
- Clean cord care
- Essential newborn care at birth
- Care of the woman and newborn in the early postnatal period
- Effective communication, and involvement of the woman and birth companion in IPC
- Clinical application of skills learned in modules 1 and 2 to uncomplicated labour, childbirth and the early postnatal period

Relevant clinical settings for this module

Clinical admissions and health facility areas, such as:

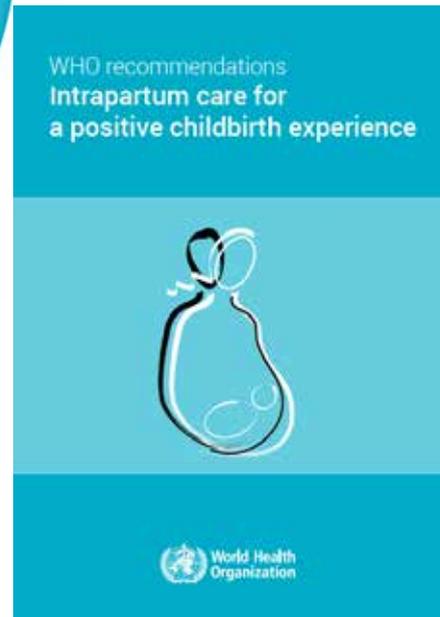
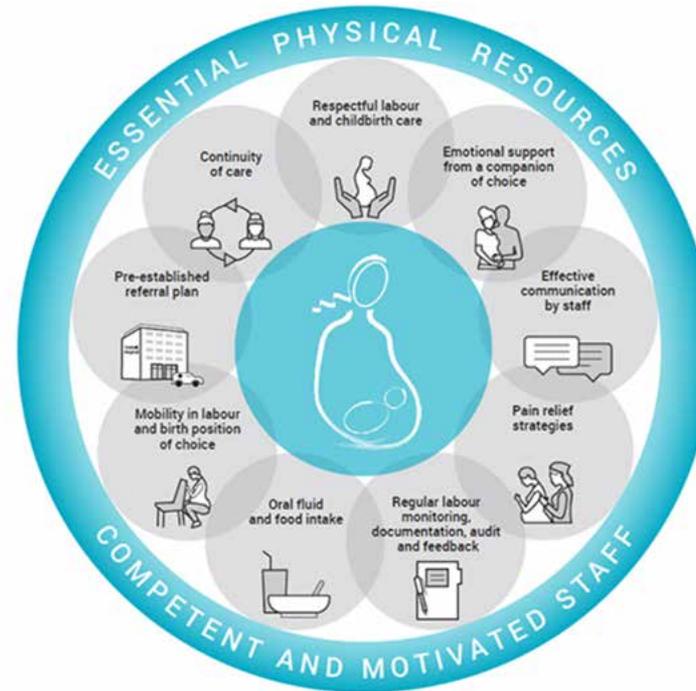
- emergency room
- triage
- ward areas
- labour ward
- postnatal ward



A positive and safe birth environment

Health workers in maternal and newborn care are committed to making childbirth a positive, life-affirming experience for women, their babies and their birth partners

This commitment must come alongside the infection prevention practices that are essential for safe care for the woman and her newborn



Source: WHO recommendations: intrapartum care for a positive childbirth experience. Geneva: World Health Organization; 2018 (<https://www.who.int/publications/i/item/978924155021>)

Characteristics of quality of care: how these relate to IPC

Quality maternity care is defined as care that is safe, effective, timely, efficient, equitable and people-centred



GROUP
WORK

Operational definitions of the characteristics of quality of care

- **Safe** – delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors
- **Effective** – providing services based on scientific knowledge and evidence-based guidelines
- **Timely** – reducing delays in providing and receiving health care
- **Efficient** – delivering health care in a manner that maximizes resource use and avoids waste
- **Equitable** – delivering health care that does not differ in quality according to personal characteristics such as gender, race, ethnicity, geographical location or socioeconomic status
- **People-centred** – providing care that takes into account the preferences and aspirations of individual service users and the culture of their community

Water, sanitation and hygiene (1)

Health-care facilities should have a safe, clean, hygienic environment (**IPC core component 8**) to provide high-quality maternal and newborn care.



Maternal infection is a cause of many maternal deaths.

Health facilities need investment in:

- 1.** clean water and sanitation
- 2.** infection prevention and control measures
- 3.** training, equipment and supplies

to save lives.

World Health Organization

human reproduction programme
research for impact



Sources: Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241511216>). Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016. (<https://www.who.int/publications/i/item/9789241549929>) (<https://www.who.int/multi-media/details/maternal-infection-is-a-cause-of-many-maternal-deaths>)

Water, sanitation and hygiene (2)



This should include:

- § continuous supplies of clean water at all times, for drinking, cleaning and hand washing in all clinical areas, including labour, childbirth, newborn areas and operating theatres
- § hand hygiene and waste disposal facilities that are functional, reliable, safe and sufficient for the needs of staff, newborns and mothers
- § adequate, safe, clean, well maintained basic facilities (beds, mattresses, bed linen, washing and bathing facilities, toilets)
- § well ventilated areas
- § a continuous supply of electricity, and areas that are well illuminated, particularly at night

Note: water storage tanks can often become sources of contamination if not maintained well

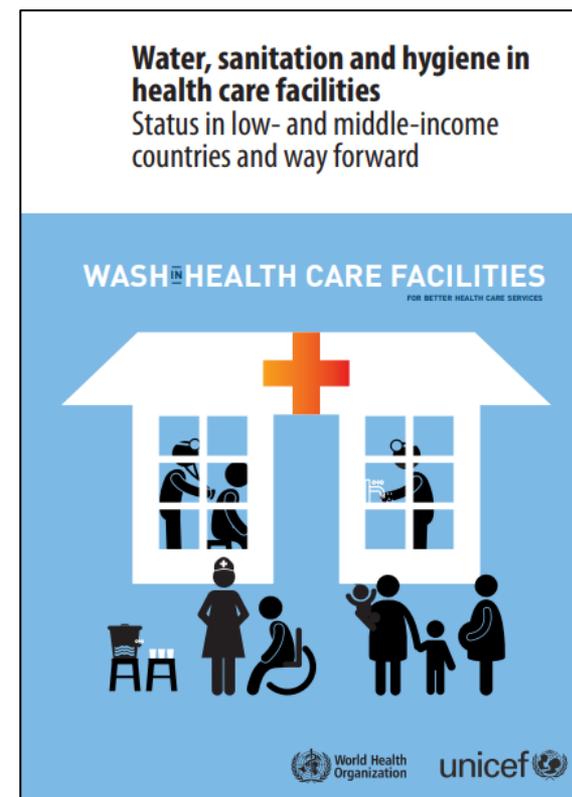
Sources: Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241511216>).
Safe management of wastes from health-care activities. Geneva: World Health Organization. 2014 (<https://www.who.int/publications/i/item/9789241548564>)
Essential environmental health standards in health care. Geneva: World Health Organization. 2008 (<https://www.who.int/publications/i/item/9789241547239>)

Water, sanitation and hygiene (3)

The reasons to improve water, sanitation and hygiene in health-care facilities include higher quality of care, lower risk of HAIs, greater uptake of health services and improvements in staff morale

If these standards are not met:

- the implications for health are severe, as infections may in the very place patients are seeking care
- the implications for dignity are also profound, as women who are in labour may need to walk outside the facility to relieve themselves
- the cost implications have not yet been quantified, but they are likely to be significant



Source: WHO, UNICEF. Water, sanitation and hygiene in health care facilities: status in low- and middle-income countries and way forward. Geneva: World Health Organization; 2015 (<https://apps.who.int/iris/handle/10665/154588>).

Maternity toileting and sanitary facilities

To maintain effective IPC, WHO sets the following quality of care standards

- The health facility should have sanitation facilities on the premises that are usable, appropriately illuminated at night, accessible to people with limited mobility and separated by gender for staff and patients
 - This should include at least one toilet with handwashing stations and soap and water (at least 1 latrine per 20 users for inpatient settings) and a biohazard waste container for disposal of sanitary products
- The health facility should have sufficient trained, competent staff on site, with clear descriptions of their responsibilities for cleaning, operating and maintaining water, sanitation, hygiene and health-care waste facilities

Are these in place in your facility?



Core tasks and best IPC practices during admission of the pregnant woman presenting in labour



Admission of the pregnant woman presenting in labour



Tasks may include:

- taking a history and examination
- taking vital signs
- measuring fundal height and fetal heart rate
- making shared decisions on the labour care plan
- informing the woman and her companion about IPC precautions
- performing vaginal examinations
- ensuring a clean and safe assessment and examination area

Best IPC practices to do this safely include:

- WHO's five moments for hand hygiene
- personal protective equipment (PPE) selection and glove use, according to risk assessment
- environmental cleaning and disinfection – in particular of the patient zone and labour ward
- placement of the woman
- cleaning of equipment, including the sphygmomanometer, thermometer, ultrasound accessories and fetoscope
- aseptic technique
- linen management
- injection safety, including safe sharps practices
- safe handling and disposal of body fluids and infectious waste

On admission (1)

Admission and initial assessment require:

- woman- and family-centred care, while maintaining good IPC practices
- a decision about where the woman will be cared for, based on her risk factors and those of the patients around her



Sources: Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241511216>).
https://www.who.int/reproductivehealth/topics/maternal_perinatal/intrapartum-care-infographics/en/

On admission (2)

Admission and initial assessment require:

- a clean and safe clinical environment where the woman will receive care, to protect her and her newborn from infection
- availability and assessment of room ventilation and water, sanitation and hygiene facilities that are available for the woman, her birth companion and health workers
- appropriate cleaning and/or sterilization of any equipment used for the woman's clinical assessment and care prior to use
- correct disposal of any clinical waste



Sources: Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241511216>).
https://www.who.int/reproductivehealth/topics/maternal_perinatal/intrapartum-care-infographics/en/

Placement of the woman in labour



It is essential on admission to triage the woman presenting in labour based on any risk of infection, and the clinical urgency of her condition

The risk assessment should include:

- any known respiratory diseases, such as tuberculosis, COVID-19 or influenza
- any known diarrhoeal diseases
- any known colonization or infection with multidrug-resistant organisms
- particular susceptibility to infection – such as if the woman is known to be immunocompromised
- an assessment of her birth companion's risks

Birth companions

When admitting a pregnant woman in labour, the role of the birth companion also needs to be considered

In practice:

- women should be allowed and encouraged to choose a companion who can provide physical and emotional support during labour and childbirth
- the companion should be oriented in supporting the woman during labour and childbirth, and in following IPC measures
- both the woman and her companion should be encouraged to participate actively in the woman's care, while applying appropriate IPC practices

Source: Companion of choice during labour and childbirth for improved quality of care: evidence-to-action brief. Geneva: World Health Organization; 2020 (<https://ahpsr.who.int/publications/i/item/WHOSRH2013>).

Group interactive questions

- How can the woman and her companion be involved and oriented in the IPC aspects of intrapartum care?
- How can safe IPC practices be maintained while ensuring woman- and family-centred care?



Participation of the woman and family in IPC



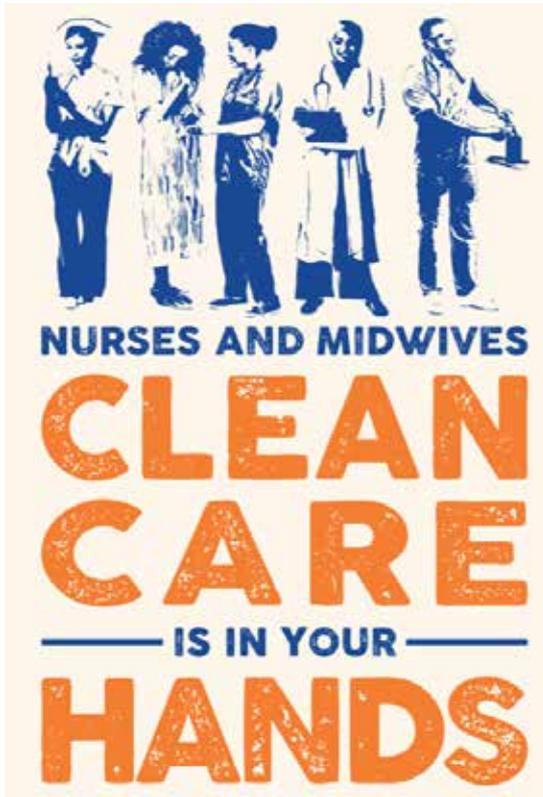
In groups, read the paper in your student handbooks

Questions for discussion

- What are the main findings of this review?
- What are the reasons women and their birth companions may find it difficult to engage in IPC practices during labour in a health-care setting?
- Do you think involving women and their birth companions in IPC practices is important? Why or why not?



Hand hygiene



Hand hygiene is a central skill for effective IPC in health-care settings

In this module we will practise application of hand hygiene during labour and childbirth



For more on hand hygiene, visit:
[WHO OpenWHO course: Standard precautions: Hand hygiene.](https://www.who.int/courses/standard-precautions/hand-hygiene)

Sources: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>).

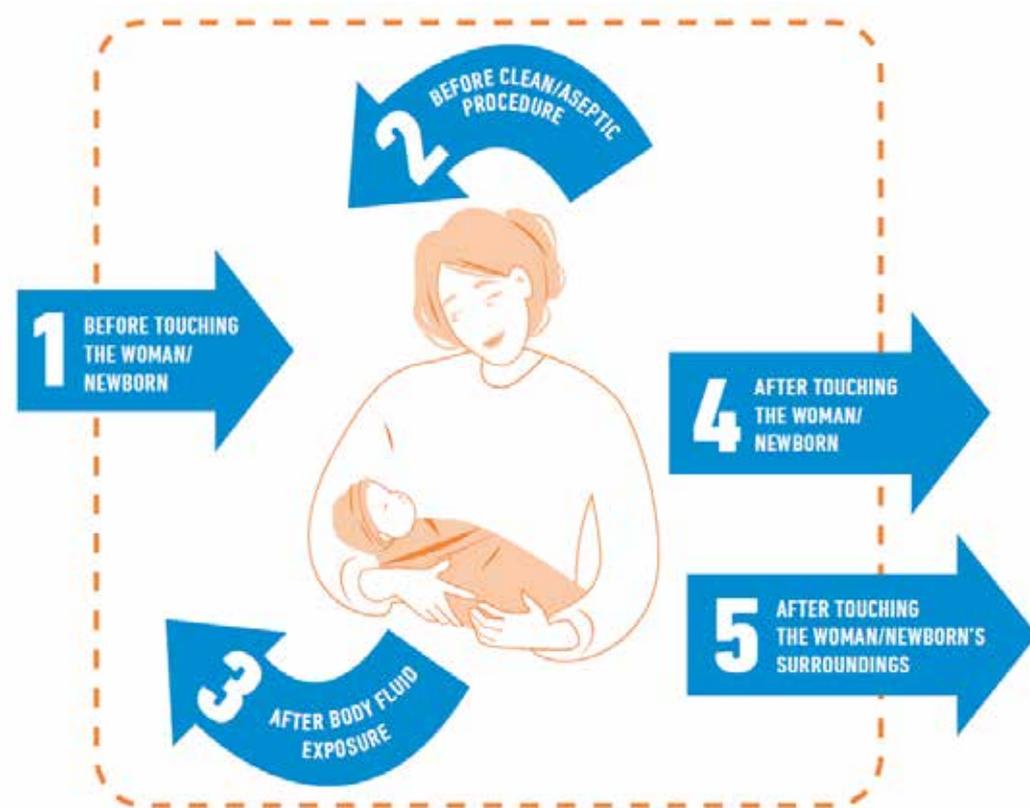
Your five moments for hand hygiene in antenatal care. Geneva: World Health Organization; 2021

Hand hygiene video. Geneva: World Health Organization; 2009 (<https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/training-tools>)

The patient zone

The need for hand hygiene is closely connected with health-care workers' activities within the area surrounding each patient. This is called the **patient zone**, as identified by the dotted area

Spacing of 1 metre needs to be maintained between zones of different patients

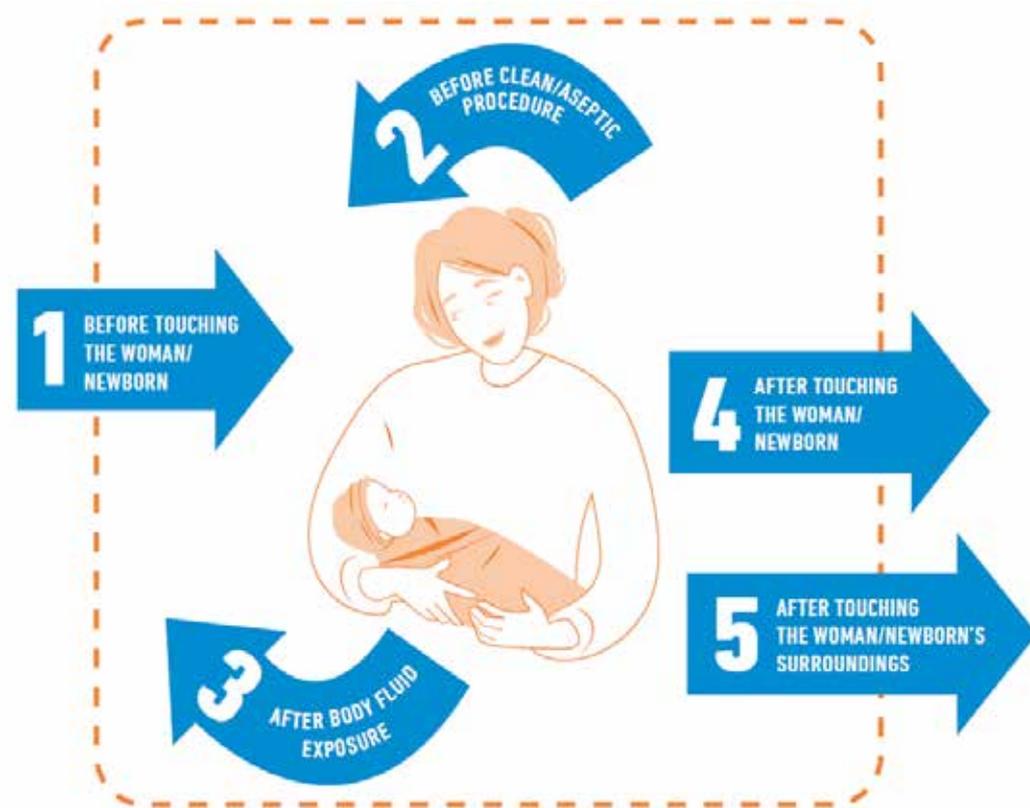


Sources: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>).
Your five moments for hand hygiene in antenatal care. Geneva: World Health Organization; 2021 (<https://www.who.int/campaigns/world-hand-hygiene-day/2020>)

The patient zone during labour and childbirth and the early postnatal period

During labour, childbirth and the early postnatal period the patient zone includes:

- the woman
- the newborn
- all inanimate surfaces that are temporarily but exclusively dedicated to them
- items touched by or in direct physical contact with them



Sources: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>).
Your five moments for hand hygiene in antenatal care. Geneva: World Health Organization; 2021 (<https://www.who.int/campaigns/world-hand-hygiene-day/2020>)

WHO's five moments for hand hygiene

- When a woman and her birth companion are admitted into the clinical area, they should be informed about the importance and resources for hand hygiene
- Hand hygiene must be performed by health-care workers within the patient zone when indicated according to WHO's five moments for hand hygiene
- This requires hand hygiene facilities to be available to staff, the woman and her companion
 - Including soap, clean water and single-use towels

YOUR 5 MOMENTS FOR HAND HYGIENE CARE IN A MATERNITY UNIT



Sources: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>).
Your five moments for hand hygiene in antenatal care. Geneva: World Health Organization; 2021 (<https://www.who.int/campaigns/world-hand-hygiene-day/2020>)

Handrubbing and handwashing

An alcohol-based handrub is the preferred means for routine hand hygiene

It is time-saving, more effective and better tolerated than handwashing

There are occasions when hands must be cleaned with soap and water, however:

- when visibly dirty or visibly soiled with blood or other body fluids or after using the toilet
- if exposure to potential spore-forming pathogens is strongly suspected or proven, including outbreaks of *Clostridium difficile*
- if alcohol-based handrub is not available

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED!

Duration of the entire procedure: 20-30 seconds



How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB!

Duration of the entire procedure: 40-60 seconds



Hand hygiene opportunities in the workflow (1)

During examination of the woman during labour, strict hand hygiene measures are necessary according to the principles of WHO's five moments for hand hygiene

It is extremely important to meet the requirements for hand hygiene, despite the high frequency of hand hygiene opportunities

This is of particular importance given the high risk for puerperal infection and transmission of infections to the newborn, other patients and health workers due to repetitive invasive procedures and the presence of body fluids



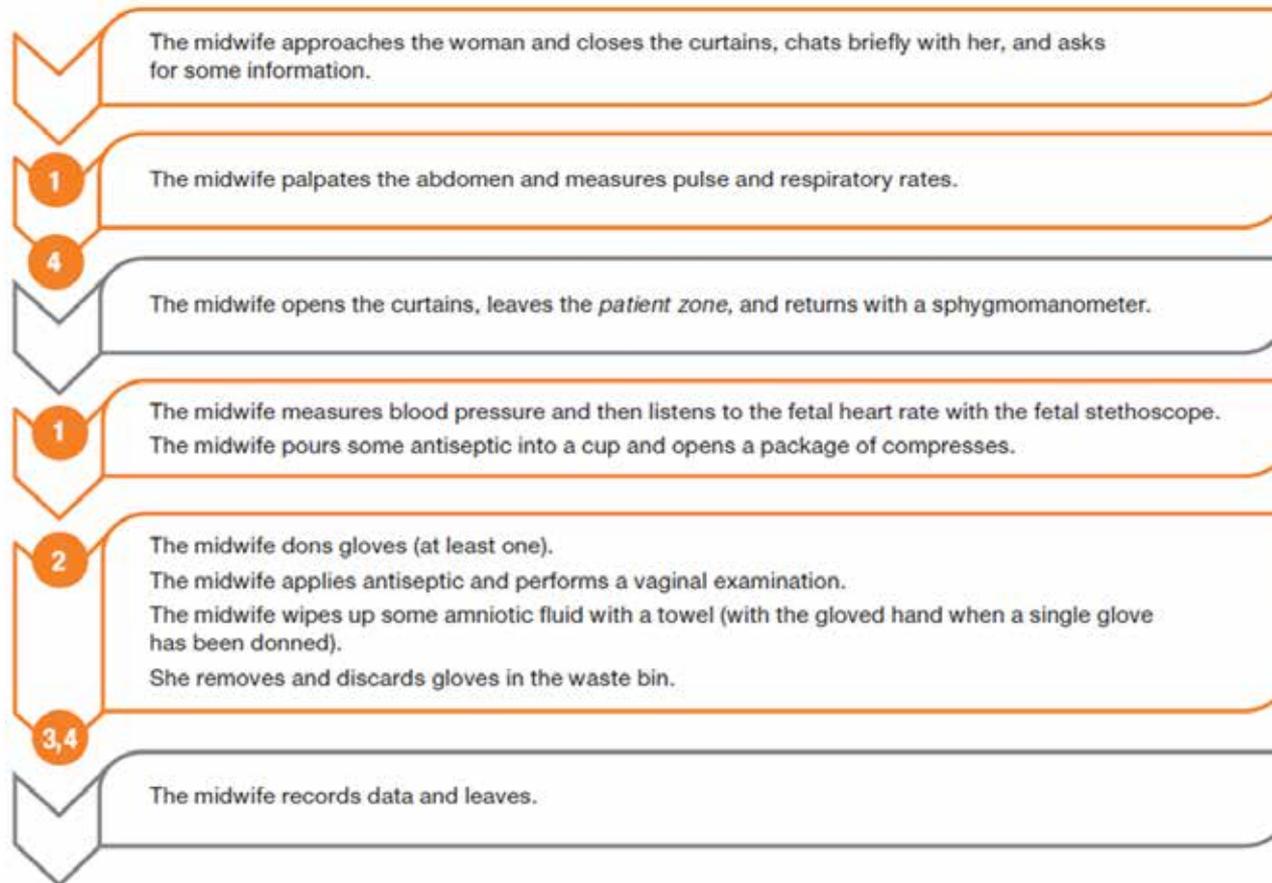
Hand hygiene efficacy depends on the environmental contamination. When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Source: Hand hygiene in outpatient and home-based care and long-term care facilities: a guide to the application of the WHO multimodal hand hygiene improvement strategy and the "my five moments for hand hygiene" approach. Geneva: World Health Organization; 2012 (<https://apps.who.int/iris/handle/10665/78060>).

Hand hygiene opportunities in the workflow (2)

Childbirth and delivery assistance – during labour

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



In groups, identify the hand hygiene moments that occur through the flowchart

When is it appropriate to use alcohol-based handrub, or soap and water?



Source: Hand hygiene in outpatient and home-based care and long-term care facilities: a guide to the application of the WHO multimodal hand hygiene improvement strategy and the “my five moments for hand hygiene” approach. Geneva: World Health Organization; 2012 (<https://apps.who.int/iris/handle/10665/78060>).

Respiratory hygiene and cough etiquette (1)

For pregnant women with respiratory symptoms, source control measures should be applied

Women with respiratory symptoms should:

- wear a mask when others are present
- cover their nose and mouth with a tissue when coughing/sneezing
- dispose of used tissues in a waste bin
- perform hand hygiene after contact with respiratory secretions

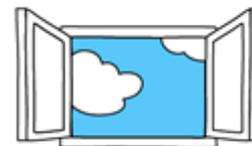
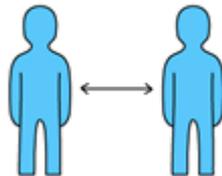


Source: Standard precautions in health care. Geneva: World Health Organization; 2007 (<https://www.who.int/publications/m/item/standard-precautions-in-health-care>).

Respiratory hygiene and cough etiquette (2)

Health-care facilities should:

- place acute febrile respiratory symptomatic patients at least 1 metre (3 feet) away from others in common waiting areas, if possible
- post visual alerts at the entrance to health-care facilities, instructing people with respiratory symptoms to practise respiratory hygiene/cough etiquette
- make hand hygiene resources, tissues and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses
- ensure adequate ventilation in all patient care areas.



Health workers should:

- perform hand hygiene after contact with respiratory secretions
- wear a medical mask in the context of the COVID-19 pandemic

Cleaning the patient zone between patients (1)

When a woman in labour is admitted, the surfaces in her patient zone need to be clean

- It is essential to prevent infection transmission to her from the previous patient who used that space
- Effective hand hygiene requires that the surfaces health professionals touch should also be clean



Cleaning the patient zone between patients (2)

- Clean and disinfect:
 - high-touch surfaces and floors, with a focus on the patient zone
 - any surface (including walls) that is visibly soiled with blood or body fluids
 - all six sides of mattress and the bed surfaces
 - blood or body fluid spills promptly
- Decontaminate (clean and disinfect or sterilize) reusable medical devices
- Wash laundry and bed linen after every patient use



For more on cleaning, visit: [OpenWHO course Standard precautions: Environmental cleaning and disinfection](#)



Bed occupancy, avoiding overcrowding and adequate staffing



Facility overcrowding can:

- increase the risk of HAIs, nosocomial outbreaks and the spread of antimicrobial resistance
- lead to inadequate health-care worker staffing levels

To avoid overcrowding on admission and throughout the hospital stay, the facility should ensure:

- no more than one patient per bed
- spacing of at least 1 metre between the edges of beds
- overall occupancy that does not exceed the designed total bed capacity of the facility
- a referral system in case the facility reaches full capacity

IPC core component 7: WHO recommends adequate bed occupancy, avoiding overcrowding and adequate staffing as a core component of effective IPC programmes

Source: Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549929>).

Clinical application of environmental cleaning in intrapartum care

In groups, discuss the environmental surfaces, equipment and devices that need to be decontaminated for use when admitting labouring woman for an uncomplicated birth



List the items that need to be decontaminated and consider the following questions:

- When do these need to be decontaminated?
- Who decontaminates these items?
- How do these need to be decontaminated?
- If some items need to be treated differently, why is this?
- What are the different treatments required?

Using personal protective equipment (PPE) (1)

Based on the risk assessment, PPE may be required to care for the woman

It is vital to assess the risk of exposure to body fluids or contaminated surfaces **before** any health-care activity: **this should be routine**

Select PPE based on the risk assessment:

- facial protection: mask and eye protection or a face shield
- clean non-sterile gloves
- a clean, non-sterile fluid-resistant gown



Using personal protective equipment (PPE) (2)



Facial protection (eyes, nose and mouth): wear a surgical or procedure mask and eye protection (face shield, goggles) to protect mucous membranes of the eyes, nose and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions



Gown: wear a gown (ideally fluid-resistant) to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions

Remove the soiled gown as soon as possible



Perform hand hygiene before putting on and after removing PPE, and according to WHO's five moments for hand hygiene

Aseptic technique



When caring for labouring women during uncomplicated labour and childbirth, there are many occasions where aseptic technique may be required.

The following are some examples:

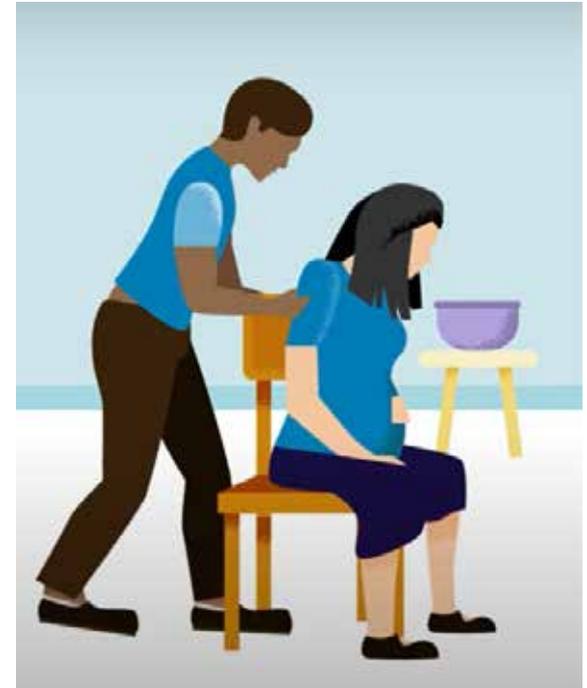
- blood sampling
- vaginal examination
- vaginal cleansing

Aseptic technique example: vaginal examination

Steps	Vaginal examination example
Identify parts for examination and equipment needed	Vaginal canal, sterile gloves, lubricant jelly, any swabs required, speculum Explain the procedure and gain consent before proceeding
Manage the environment	Ensure surfaces for equipment are clean. Ensure the examination couch is clean. Protect the woman and maintain dignity with a private area for examination
Decontaminate and protect self and equipment	Perform hand hygiene Wear sterile gloves when examining the vagina Select PPE appropriate to patient risk assessment
Manage the aseptic field	Ensure the examination field is protected from possible contamination, i.e. using a cover Place sterile components, i.e. gloves, on sterile surfaces only
Use a 'Non-touch' technique	However, after hand hygiene and applying sterile gloves, do not touch any other surfaces that may cause contamination of gloves or hands before examining the vagina. Additionally, do not touch sterile equipment with hands or contaminated gloves.
Decontaminate	Remove gloves and perform hand hygiene. Explain findings to the woman. Reapply clean gloves and clean the equipment surfaces and examination couch. Decontaminate any reusable equipment and dispose of waste appropriately. Remove gloves and perform hand hygiene

Source: "The ANTT-Approach" An International Campaign designed to promote the essential elements of safe aseptic technique. 2019 (<http://www.antt.org>)

Core tasks and best IPC practices in the first stage of labour



Core tasks and best IPC practices in the first stage of labour



Tasks may include:

- ensuring clean patient bedspace
- preparing the birth equipment
- taking vital signs
- monitoring contractions
- providing pain relief during labour (massages, epidural, intramuscular injections)
- vaginal examinations
- augmentation with oxytocin (only if required)
- performing amniotomy (only if required)
- in and out urinary catheterization (only if required)

Best IPC practices to do this safely include:

- WHO's five moments for hand hygiene
- PPE selection and glove use, according to risk assessment
- environmental cleaning and disinfection – in particular of the patient zone and delivery room
- placement of the woman
- cleaning of equipment, including the sphygmomanometer, thermometer, ultrasound accessories and fetoscope
- cleaning and sterilization of medical devices and surgical instruments (such as scalpels)
- aseptic technique
- linen management
- injection safety, including safe sharps disposal
- safe handling and disposal of body fluids and infective waste

Preventing infections during the first stage of labour (1)

THROUGHOUT HOSPITAL STAY

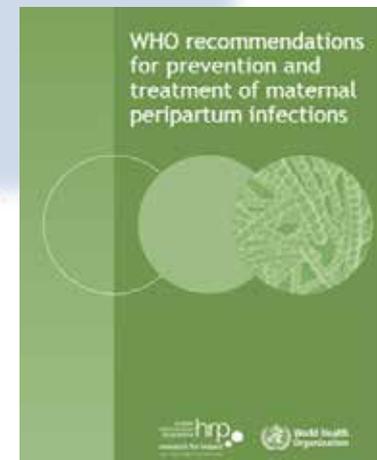
- Follow the **WHO 5 MOMENTS FOR HAND HYGIENE** instructions

BEFORE DELIVERY

- **DO NOT SHAVE** the perineal and pubic areas before vaginal births

VAGINAL DELIVERY

- **PERFORM VAGINAL EXAMINATIONS EVERY 4 HOURS** in routine assessment of active first stage of labour
- **DO NOT PERFORM VAGINAL CLEANSING** with chlorhexidine, even in Group B Streptococcus (GBS) colonisation



Source: WHO recommendations for prevention and treatment of maternal peripartum infections. Geneva: World Health Organization; 2015 (<https://www.who.int/publications/i/item/9789241549363>).

Preventing infections during the first stage of labour (2)



THROUGHOUT HOSPITAL STAY

- Follow the **WHO 5 MOMENTS FOR HAND HYGIENE** instructions

.....

BEFORE DELIVERY

- **DO NOT SHAVE** the perineal and pubic areas before vaginal births

.....

VAGINAL DELIVERY

- **PERFORM VAGINAL EXAMINATIONS EVERY 4 HOURS** in routine assessment of active first stage of labour
- **DO NOT PERFORM VAGINAL CLEANSING** with chlorhexidine, even in Group B Streptococcus (GBS) colonisation

This was covered in module 1

The best current evidence suggests that shaving has no clinical benefit: it does not reduce perineal wound infections or febrile episodes

The best current evidence shows that in vaginal births no clinical benefit is seen from vaginal cleansing with chlorhexidine

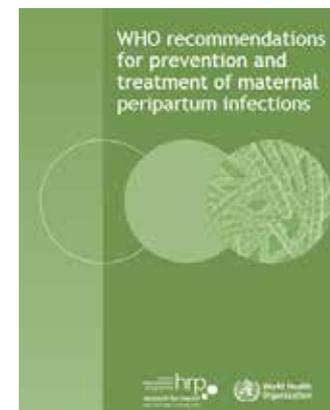
Reducing the frequency of examinations can reduce infection risk, but sometimes more frequent examinations will be needed, based on the condition of the mother and newborn

Antibiotic prophylaxis in a normal first stage of labour

In most circumstances, antibiotic prophylaxis is not required in a normal first stage of labour

No antibiotic prophylaxis is required in the case of prelabour rupture of membranes at or near term

However, antibiotic prophylaxis is required for confirmed vaginal colonization with group B *Streptococcus*, in labour



Note: antibiotic prophylaxis and other special circumstances will be discussed in more detail in module 4

Establishing whether the woman needs antibiotics



When admitting the woman for labour, WHO advises administration of antibiotics in any of the following cases:

- if the mother's temperature is ≥ 38 °C
- if she has a history of foul-smelling vaginal discharge

It is vital also to take note of the antenatal record, to identify any additional indications for antibiotics, such as group B *Streptococcus* vaginal colonization

Remember:

- always check for allergies before administration of any medication
- follow local or national guidance to confirm the recommended antibiotic for these circumstances

Sources: WHO recommendations for prevention and treatment of maternal peripartum infections. Geneva: World Health Organization; 2015 (<https://www.who.int/publications/i/item/9789241549363>).

Managing complications in pregnancy and childbirth: a guide for midwives and doctors – second edition. Geneva: World Health Organization; 2017. (<https://www.who.int/publications/i/item/9789241565493>)

Preparing the birth equipment

A key activity in the first stage of labour is preparation of the birth equipment

It is essential to have a clear plan and chain of responsibilities to ensure that the equipment needed is:

- available
- clean and decontaminated, as appropriate
- efficiently placed
- collected in the shortest possible time
- set up in such a way to avoid contamination of the patient, hands and surfaces

Group discussion and task

In your groups, discuss the following questions:

- Who prepares the delivery equipment and when in your current practice?
- Can this be improved upon?
- What is available in your setting to help with this – for example, pre-made kits?
- Could your setting make or outsource any such resources?

Practical session: practise setting up the birth equipment in groups of three using the resources usually available in your setting

Remember to include tasks in aseptic technique such as surface cleaning and hand hygiene

Time this activity: how quickly can you set up the birth equipment while maintaining best infection prevention practice?

In your group, **make three checklists** of:

- all the birth equipment
- IPC equipment
- IPC actions needed to prepare for the birth



Specific birth equipment to get ready

- Sterile delivery “pack” including cord clamps/ ties and swabs
- Syringes and needles, intravenous access materials
- Urinary catheter
- Suture material for episiotomy or tear
- Receiving blanket, two clean towels for drying and wrapping, bonnet and booties
- Weighting scales
- Self-inflating bag and mask – neonatal size – and suction device
- Infant stethoscope
- Vitamin K, ophthalmic ointment

ANSWERS

Did your group add anything else?

Checklist of IPC actions and equipment needed to prepare for birth

IPC actions include:

- checking that all essential and emergency equipment is available and clean (all equipment must be cleaned between patients)
- checking the integrity and sterility of all materials that need to be sterile, such as delivery pack, suture packs
- checking mattresses and other furniture for integrity
- ensuring that all surfaces are clean and disinfected (surfaces in the patient zone and at the point of care must be cleaned between patients)
- ensuring fresh and clean linen
- cleaning curtains/screens/partitions around the bed.
- checking fridge temperatures
- discussing with the woman and her companion how they can take part in IPC practices during childbirth – particularly hand hygiene

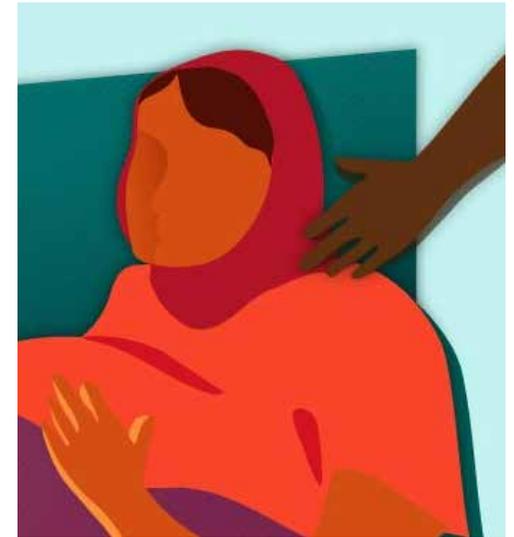
Equipment needed includes:

- hand hygiene supplies: soap, water, single-use towels and alcohol-based handrub close to the point of care
- PPE, according to exposure risk and to allow adherence to aseptic technique: gloves (utility and sterile), long plastic apron and eye protection – remember to consider this for the woman and her companion, as appropriate
- sharps containers
- waste segregation facilities, according to local policy
- a receptacle for soiled linens
- cleaning products to clean surfaces and the birth equipment

Did your group add anything else?

ANSWERS

Core tasks and best IPC practices in the second stage of labour



Core tasks and best IPC practices in the second stage of labour



Tasks may include:

- applying all skills discussed in the first stage
- ensuring everything is ready for the birth of the newborn
- creating a positive childbirth environment
- performing an episiotomy (only if required)

Best IPC practices to do this safely include:

- WHO's five moments for hand hygiene
- PPE selection and glove use, according to risk assessment
- environmental cleaning and disinfection – in particular of the patient zone and delivery room
- placement of the woman
- cleaning of equipment, including the sphygmomanometer, thermometer, ultrasound accessories and fetoscope
- cleaning and sterilization of medical devices and surgical instruments (such as scalpels)
- aseptic technique
- linen management
- injection safety, including safe sharps disposal
- safe handling and disposal of body fluids and infective waste

Hand hygiene during childbirth: practical session

In your groups, read the paper in the student handbook
This study deals with the issue of recontamination of hands in a maternity unit

CASE STUDY

Brainstorm the following questions as a group:



- What can the birth attendant touch during the birth process?
- What would mean that it is necessary to perform hand hygiene ?
- What are the particular challenges for recontamination of hands in your setting?
- How can these be addressed?

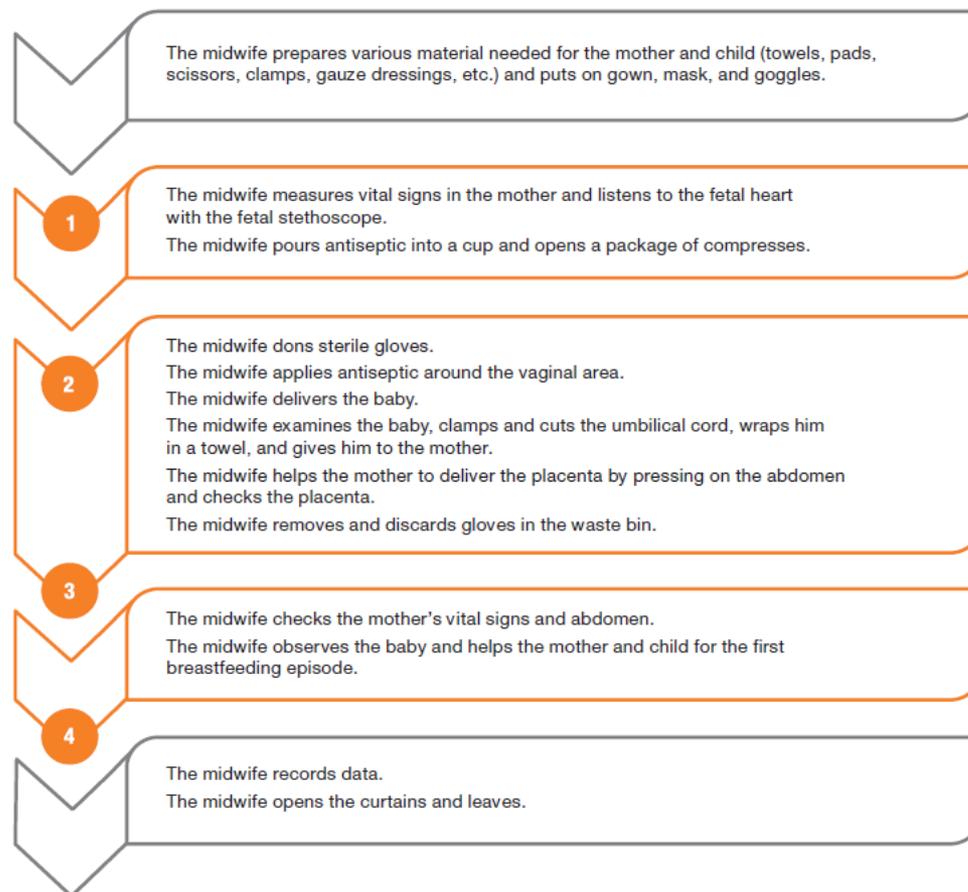
Hand hygiene opportunities in the workflow: childbirth

In groups, identify the hand hygiene moments that occur through the flowchart

When is it appropriate to use alcohol-based handrub, or soap and water?

Childbirth and delivery assistance – at time of delivery

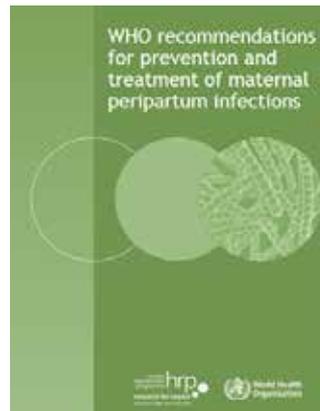
● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



Source: Hand hygiene in outpatient and home-based care and long-term care facilities: a guide to the application of the WHO multimodal hand hygiene improvement strategy and the “my five moments for hand hygiene” approach. Geneva: World Health Organization; 2012 (<https://apps.who.int/iris/handle/10665/78060>).

Antibiotic prophylaxis in the second stage of labour

Antibiotic prophylaxis is **not** required for labour, including if an episiotomy is performed



Note: antibiotic prophylaxis and other special circumstances will be discussed in more detail in module 4

Source: WHO recommendations for prevention and treatment of maternal peripartum infections. Geneva: World Health Organization; 2015
(<https://www.who.int/publications/i/item/9789241549363>)

Core tasks and best IPC practices for care of the newborn at the time of birth



Core tasks and IPC practices for care of the newborn at the time of birth



Tasks may include:

- drying and stimulating the newborn
- assessing breathing and colour
- cutting and clamping the umbilical cord
- keeping the newborn warm and promoting skin-to-skin contact
- initiating breastfeeding
- providing vitamin K injection
- providing eye (conjunctival) care
- examining the newborn

Best IPC practices to do this safely include:

- WHO's five moments for hand hygiene
- PPE selection and glove use, according to risk assessment
- environmental cleaning and disinfection – in particular of the patient zone
- cleaning of equipment, including the sphygmomanometer and thermometer
- aseptic technique
- linen management
- injection safety, including safe sharps disposal
- safe handling and disposal of body fluids and infective waste

IPC considerations for care of the newborn immediately after birth (1)



- Ensure use of a clean receiver cloth when the newborn is delivered
- Change gloves before clamping and cutting the cord (if only one health-care provider is present): **gloves following the birth will be contaminated with body fluids**
- Use sterile equipment for clamping and cutting the cord
- Replace surgical forceps with sterile, cord clamp

Sources: WHO, UNFPA, UNICEF. Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice – third edition. Geneva: World Health Organization; 2015.

(<https://www.who.int/publications/i/item/pregnancy-childbirth-postpartum-and-newborn-care>)

Managing complications in pregnancy and childbirth: a guide for midwives and doctors – second edition. Geneva: World Health Organization; 2017. (<https://www.who.int/publications/i/item/9789241565493>)

IPC considerations for care of the newborn immediately after birth (2)



- Wipe the eyes of the neonate with sterile cotton to remove secretions and debris
- Administer topical prophylaxis



- Avoid damage to the newborn's skin from excessive drying, manipulation or other trauma.



- Use safe injection practices when administering vitamin K

Sources: WHO, UNFPA, UNICEF. Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice – third edition. Geneva: World Health Organization; 2015.

(<https://www.who.int/publications/i/item/pregnancy-childbirth-postpartum-and-newborn-care>)

Managing complications in pregnancy and childbirth: a guide for midwives and doctors – second edition. Geneva: World Health Organization; 2017. (<https://www.who.int/publications/i/item/9789241565493>)

Clean cord care

Clean cord care is essential to prevent neonatal infections

When cutting the cord, ensure:

- clean hands of the birth attendant
- a clean birth surface
- clean cord cutting
- clean cord tying



After cutting the cord, ensure clean care of the cord stump

Write down in your student handbooks what is required for each of these four actions to be sterile or clean, then compare answers with your group

Sources: WHO, UNFPA, UNICEF. Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice – third edition. Geneva: World Health Organization; 2015. (<https://www.who.int/publications/i/item/pregnancy-childbirth-postpartum-and-newborn-care>)

Managing complications in pregnancy and childbirth: a guide for midwives and doctors – second edition. Geneva: World Health Organization; 2017. (<https://www.who.int/publications/i/item/9789241565493>)

Core tasks and best IPC practices in the third stage of labour



Core tasks and IPC practices in the third stage of labour



Tasks may include:

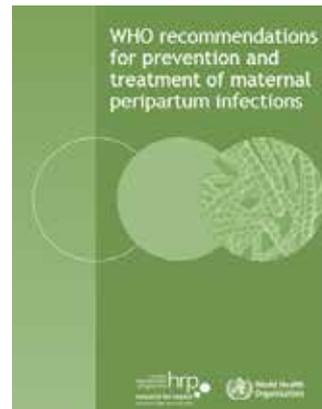
- skills discussed in the first and second stage of labour
- administering intramuscular or intravenous uterotonics
- performing controlled cord traction
- delivering the placenta
- suturing perineal tears (if required)
- inserting an intrauterine device (if applicable)
- cleaning the point of care and patient zone

Best IPC practices to do this safely include:

- WHO's five moments for hand hygiene
- PPE selection and glove use, according to risk assessment
- environmental cleaning and disinfection – in particular of the patient zone
- Cleaning of equipment, including the sphygmomanometer and thermometer
- aseptic technique
- linen management
- injection safety, including safe sharps disposal
- safe handling and disposal of body fluids and infective waste

Antibiotic prophylaxis in the second stage of labour

Antibiotic prophylaxis is **not** required for labour, including if an episiotomy is performed



Note: antibiotic prophylaxis and other special circumstances will be discussed in more detail in module 4

Source: WHO recommendations for prevention and treatment of maternal peripartum infections. Geneva: World Health Organization; 2015 (<https://www.who.int/publications/i/item/9789241549363>).

When gloves should be worn

ANSWERS

Wear sterile gloves when performing vaginal examination, childbirth, cord cutting, repair of episiotomy or tear.

Wear long sterile gloves for manual removal of placenta.

Wear clean gloves when:

- Handling and cleaning equipment
- Handling contaminated waste
- Cleaning blood and body fluid spills

Note: Gloves use does not replace the need for hand hygiene

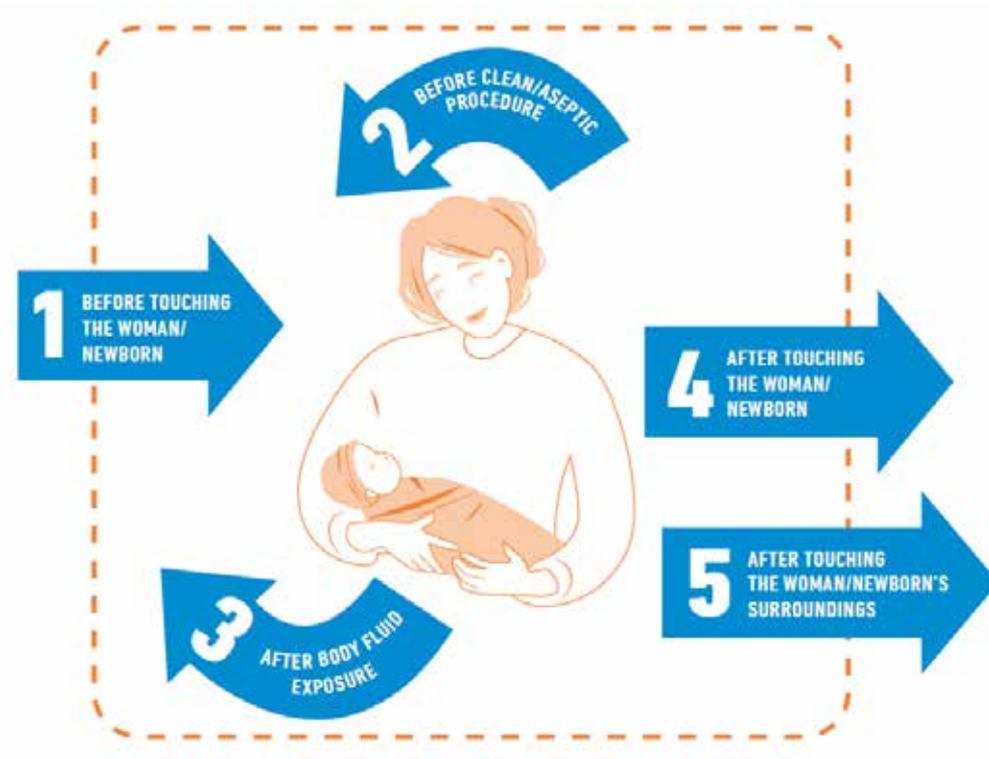


The patient zone following childbirth

The mother and newborn should not be separated and should stay in the same room 24 hours a day

After childbirth, the patient zone includes both the woman and the newborn and their immediate surroundings

Spacing of 1 metre needs to be maintained between zones of different patients



Sources: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>).
Your five moments for hand hygiene in antenatal care. Geneva: World Health Organization; 2021
<https://www.who.int/campaigns/world-hand-hygiene-day/2020>

Correct handling of the placenta and other body fluids



Following the birth, gloves will be contaminated with body fluids

It is essential to dispose of the placenta correctly, and to ensure safe waste management

- Waste contaminated with blood, body fluids, secretions and excretions should be treated as clinical waste, in accordance with local regulations
- Human tissues and laboratory waste that is directly associated with specimen processing should also be treated as clinical waste
- Single-use items should be discarded properly
- Sufficient and appropriately labelled bins to allow for health-care waste segregation should be available and used (less than 5 metres from the point of generation)
- Waste should be treated and disposed of safely via autoclaving or incineration (850 °C to 1100 °C) and/or buried in a lined, protected pit

For more details on waste management, see module 1

Source: Safe management of wastes from health-care activities. World Health Organisation. Geneva: World Health Organization; 2014

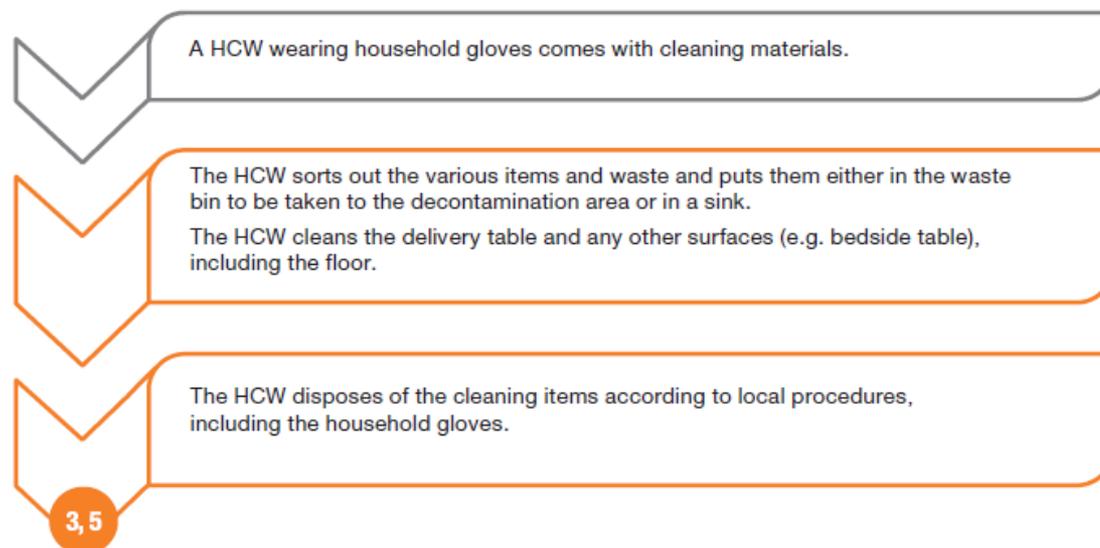
Hand hygiene opportunities in the workflow: cleaning after childbirth

In your groups, identify the hand hygiene moments that occur through the flowchart

When is it appropriate to use alcohol-based handrub, or soap and water?

Childbirth and delivery assistance – after the departure of mother and child from the delivery area

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



Reminder: during and after childbirth, the patient zone includes both the woman and the newborn and their immediate surroundings

Source: Hand hygiene in outpatient and home-based care and long-term care facilities: a guide to the application of the WHO multimodal hand hygiene improvement strategy and the “my five moments for hand hygiene” approach. Geneva: World Health Organization; 2012 (<https://apps.who.int/iris/handle/10665/78060>).

Core tasks and best IPC practices in the early postnatal period



Core tasks and IPC practices in the early postnatal period



Tasks may include:

- keeping woman and newborn together: rooming-in and skin-to-skin
- caring for the newborn after birth (e.g. cord care and bathing)
- supporting breastfeeding
- performing routine examinations (e.g. weighing the newborn)
- monitoring vital signs
- monitoring lochia
- removing of any patient protection (e.g. sanitary towel)
- handling blood samples or products of conception
- providing immunization

Best IPC practices to do this safely include:

- WHO's five moments for hand hygiene
- PPE selection and glove use, according to risk assessment
- environmental cleaning and disinfection – in particular of the patient zone
- cleaning of equipment, including the sphygmomanometer and thermometer
- aseptic technique
- linen management
- injection safety, including safe sharps disposal
- safe handling and disposal of body fluids and infective waste

IPC considerations for care of the woman after childbirth

Postpartum care involves contact with body fluids and regular monitoring of vital signs

Hand hygiene and appropriate glove use are essential

- All postpartum women should have regular assessments of vaginal bleeding, uterine contraction, fundal height, temperature and heart rate (pulse), blood pressure and urine void
- If contraception is offered and accepted, remember that some procedures require use of aseptic technique for insertion, such as insertion of an intrauterine device



IPC considerations for care of the newborn (1)



- Administer topical prophylaxis against neonatal eye infection within 1 hour of birth
- Apply a 1 cm ribbon of sterile ophthalmic ointment, using a single-dose container



- Follow safe injection practices when providing birth dose vaccination (hepatitis B, Bacillus Calmette–Guérin (BCG) and polio)

For more on safe injection practices, visit: [WHO OpenWHO course: Standard precautions: Injection safety and needle-stick injury management](#)

Sources: WHO recommendations on postnatal care of the mother and newborn 2013. Geneva: World Health Organization; 2014 (<https://www.who.int/publications/i/item/9789241506649>)
WHO guidelines for the treatment of *Neisseria gonorrhoeae*. Geneva: World Health Organization; 2016 (<https://www.who.int/reproductivehealth/publications/rtis/gonorrhoea-treatment-guidelines/en/>).

IPC considerations for care of the newborn (2)



- Dry cord care is recommended:
 - Wash hands before and after cord care
 - Put nothing on the cord stump
 - Fold the nappy (diaper) below the stump
 - Keep the stump loosely covered with clean clothes
 - If the stump is soiled, wash it with clean water and soap, and dry it thoroughly with a clean cloth
- Bathing should be delayed until 24 hours after birth
- Keep the newborn warm and use clean clothing appropriate for the ambient temperature

Source: WHO recommendations on postnatal care of the mother and newborn. Geneva: World Health Organization; 2013 (<https://www.who.int/publications/i/item/9789241506649>)

Promoting hand hygiene while caring for the newborn

- Rooming-in and initiating breastfeeding is an opportunity to inform the woman and the newborn's caregivers about the importance of hand hygiene prior to handling the newborn
- Hand hygiene should also be recommended before and after:
 - cord care
 - changing the newborn's clothes
 - changing nappies



Source: WHO recommendations on postnatal care of the mother and newborn. Geneva: World Health Organization; 2013 (<https://www.who.int/publications/i/item/9789241506649>)

Promoting hand hygiene while caring for the newborn



If you are interested further on this topic, this study by Harrison et al describes a hand hygiene initiative for the early postnatal period in Uganda.

Harrison, B.L., Ogara, C., Gladstone, M. et al. "We have to clean ourselves to ensure that our children are healthy and beautiful": findings from a qualitative assessment of a hand hygiene poster in rural Uganda. *BMC Public Health* 19, 1 (2019).
<https://doi.org/10.1186/s12889-018-6343-3>

Summary: learning points covered in this session



- Assessments and interventions for identification and prevention of infections, or risks factors of infections during uncomplicated labour, childbirth and early postnatal period
- Water, sanitation and hygiene requirements to enable appropriate IPC measures during labour, uncomplicated childbirth and early postnatal care
- Standard and additional precautions for IPC to be followed in intrapartum and early postnatal care
- Core competencies in IPC needed when caring for women and newborns during uncomplicated labour, childbirth and early postnatal period
- Core competencies in IPC needed when caring for women and newborns in the early postnatal period

Summary: core competencies covered in this session



On completion of this module the participant should be able to:

- list assessments and preventive measures in intrapartum and early postnatal care to reduce both risk of infections developing and their consequences
- list water, sanitation and hygiene requirements to enable appropriate IPC measures during labour, uncomplicated childbirth and early postnatal care
- apply IPC precautions in all care procedures during labour, childbirth and the early postnatal period, including:
 - hand hygiene
 - glove use
 - safe injection practices
 - preparation of birth equipment
 - clean cord care
 - clean essential newborn care
 - safe handling and disposal of body fluids and infective waste
 - cleaning equipment and sterilizing devices
 - ensuring safe and respectful intrapartum care
- communicate effectively, and involve the woman and her birth companion in IPC

References (1)



Infection prevention and control

WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>)

CDC and ICAN. Best practices for environmental cleaning in healthcare facilities in resource-limited settings. Atlanta, GA: Centers for Disease Control and Prevention; 2019 (<https://www.cdc.gov/hai/prevent/resource-limited/environmental-cleaning.html>).

Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549929>).

Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes. Geneva: World Health Organization; 2018 (<https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.10>)

Strengthening infection prevention and control in primary care. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240035249>)

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Standard precautions in health care. Geneva: World Health Organization; 2007 (<https://www.who.int/publications/m/item/standard-precautions-in-health-care>).

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WHO recommendations for prevention and treatment of maternal peripartum infections. Geneva: World Health Organization; 2015 (<https://www.who.int/publications/i/item/9789241549363>).

WHO recommendations on postnatal care of the mother and newborn. Geneva: World Health Organization; 2013 (<https://www.who.int/publications/i/item/9789241506649>)

WHO, UNFPA, UNICEF. Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice – third edition. Geneva: World Health Organization; 2015. (<https://www.who.int/publications/i/item/pregnancy-childbirth-postpartum-and-newborn-care>)

Managing complications in pregnancy and childbirth: a guide for midwives and doctors – second edition. Geneva: World Health Organization; 2017. (<https://www.who.int/publications/i/item/9789241565493>)

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