

Infection prevention and control in maternal and neonatal care



Module 2. Routine care of the pregnant woman in the antenatal clinic

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



By the end of this module, you will be able to:

- **provide appropriate assessments** and interventions for identification and prevention of infections during routine antenatal care; and
- the **skills needed to apply** infection prevention and control (IPC) standard precautions and additional precautions during provision of routine antenatal care.

Core competencies



By the end of this module, the participant should be able to:

- apply strict adherence to standard IPC practices during routine antenatal care contacts, for the safety of the pregnant woman, the baby and the health worker
- integrate standard precautions and additional IPC precautions in the day-to-day care of the pregnant woman during routine antenatal care in both outpatient

Topics covered

Covered in module 1 and associated IPC basic modules

- 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

Covered in this module

- Presentation of common infections seen in pregnancy and signs of sepsis
- Prevention, screening and management in routine antenatal care to reduce both the risk of infections developing and their consequences
- Communication skills in antenatal care, to counsel women on how to protect themselves from infection
- Clinical application of IPC skills learnt in module 1 in routine antenatal care outpatient setting

Relevant clinical settings for this module

The following represent relevant clinical settings for routine antenatal care are:

- Antenatal clinic
- Any other outpatient contact with the pregnant woman in a health-care setting

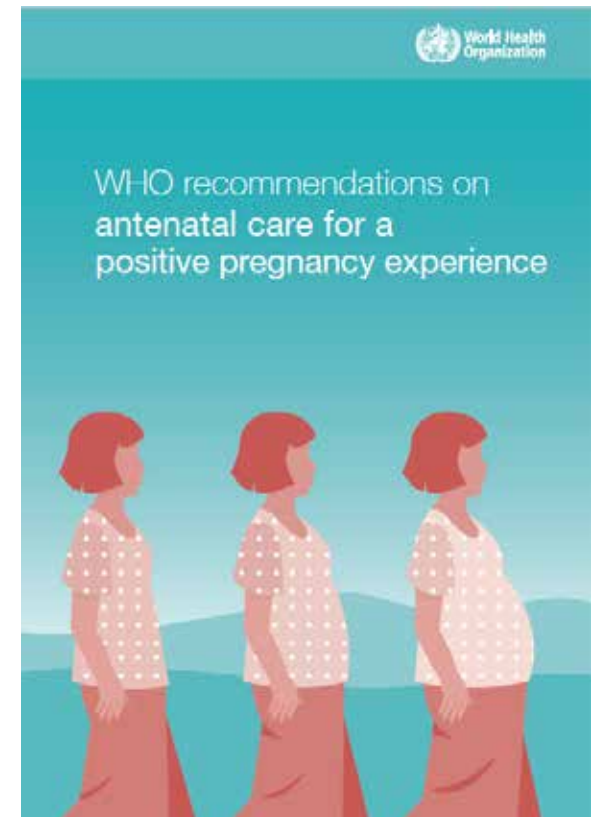


Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).

Identification and prevention of maternal infections or risk factors for infection during pregnancy

Antenatal identification and prevention of infections (1)

- Routine antenatal care, provides a platform for important health-care functions, including **health promotion, screening and diagnosis, and disease prevention**
- Antenatal care improves health outcomes for both the woman and the newborn
- Antenatal care is a unique opportunity to promote a positive pregnancy experience



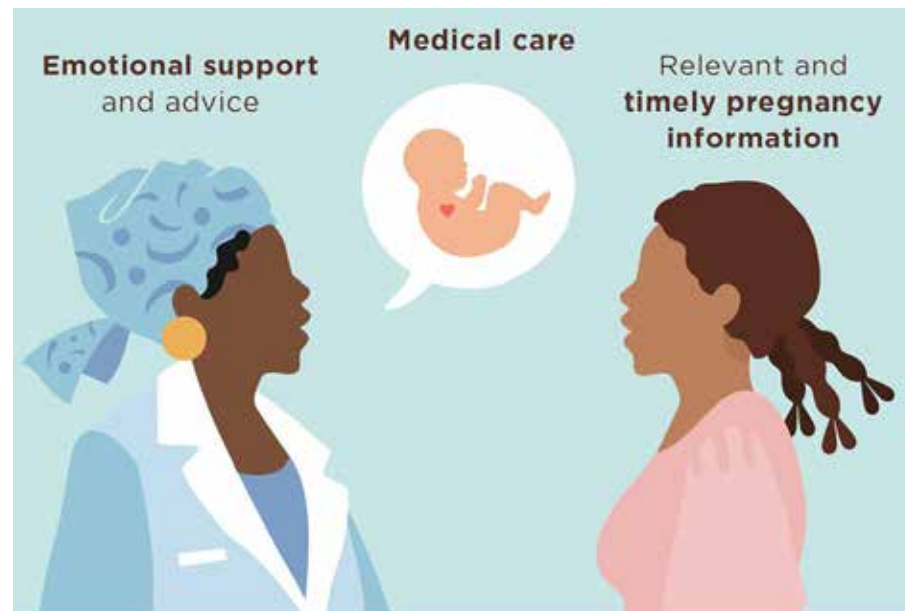
All guidance in this section is taken from the WHO recommendations on antenatal care for a positive pregnancy experience

Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).

Antenatal identification and prevention of infections (2)

Antenatal care is an ideal time to:

- **screen** pregnant women for infections and risk factors for infection (such as anaemia)
- **prevent** and **treat** infections
- **counsel, inform** and **empower** women to protect themselves and their babies against infection
- **advise** women when to seek care for **danger signs**



Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/item/9789241549912>).

Some infections can be transmitted from mother to child in utero or during childbirth



- Routine antenatal screening is important for the detection of infections during pregnancy
- Antenatal screening allows identifying the following infections and initiating treatment in order to improve health outcomes:
 - TORCH infections: toxoplasmosis, other agents, rubella (also known as German measles), cytomegalovirus and herpes simplex virus
 - human immunodeficiency virus (HIV)
 - syphilis
 - hepatitis
 - tuberculosis
 - varicella zoster virus (chicken pox)
 - group B *Streptococcus*

Sources: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).

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

WHO estimates of the global burden of foodborne diseases: foodborne disease burden epidemiology reference group 2007-2015 (https://apps.who.int/iris/bitstream/handle/10665/199350/9789241565165_eng.pdf?sequence=1-)

Fact Sheet: Rubella. Geneva: World Health Organization; 2019. ([Rubella \(who.int\)](https://www.who.int))

Fact Sheet: Herpes simplex virus. Geneva: World Health Organization; 2020 ([Herpes simplex virus \(who.int\)](https://www.who.int))



Screening for infections (1)

- Screening for infections will depend on:
 - clinical presentation
 - local epidemiology (including burden and seasonality)
 - local policies/protocols

Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).



Screening for infections (2)



Screening for asymptomatic bacteriuria* in pregnancy

- Midstream urine culture is the recommended method for diagnosing asymptomatic bacteriuria in pregnancy
- In settings where urine culture is not available, on-site midstream urine Gram staining is recommended over the use of dipstick tests

*A bacterial infection of urine, occurring in pregnancy, without symptoms in the pregnant woman

Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).

Screening for infections (3)

Screening for HIV, syphilis and hepatitis B



Testing for HIV, syphilis and hepatitis B should be offered to pregnant women at least once, and as early as possible during pregnancy

WHO recommendations on HIV, syphilis and hepatitis B screening

- Testing for HIV should be offered routinely to all pregnant women during outpatient antenatal care in settings with HIV seroprevalence of >5%
- Testing for HIV can be considered for pregnant women in low-prevalence settings (<5%), in an effort to eliminate mother-to-child transmission of HIV
- To prevent mother-to-child transmission of syphilis, all pregnant women should be screened for syphilis at the first antenatal care visit in the first trimester and again in the third trimester of pregnancy
- Testing for hepatitis B should be offered routinely to all pregnant women in settings with seroprevalence of $\geq 2\%$ or $\geq 5\%$

Test & Treat

All pregnant women should be routinely tested for hepatitis B, HIV and syphilis and receive treatment if needed.

#HepatitisFreeFuture

Sources: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>)
Consolidated guidelines on HIV testing services. Geneva: World Health Organization; 2019 (<https://www.who.int/publications/i/item/978-92-4-155058-1>)
WHO guidelines on hepatitis B and C testing. Geneva: World Health Organization; 2017 (<https://www.who.int/publications/i/item/9789241549981>).
WHO OpenWHO course: Reducing antimicrobial resistance of treatable sexually transmitted infections in antenatal care. Geneva: World Health Organization 2021 (<https://openwho.org/courses/amr-sti-anc>)

Screening for infections (4)



Tuberculosis (TB)

- Systematic screening for TB disease depends on the local epidemiology
 - Systematic screening for TB disease may be conducted among pregnant women in settings where the TB prevalence in the general population is 100/100 000 population or higher
 - Options for initial screening include screening for symptoms (either for cough lasting longer than two weeks or any symptoms compatible with TB, including a cough of any duration, coughing of blood, weight loss, fever or night sweats)

Sources: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>)

Consolidated guidelines on tuberculosis. Module 2: screening – systematic screening for tuberculosis disease. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240022676>).

Screening for infections (5)

Other infections that may require routine screening based on clinical presentation, local epidemiology (including burden and seasonality) and policies

- Group B *Streptococcus* colonization
- Vector-borne disease (such as malaria, Zika virus, dengue fever, Chagas disease)
- Respiratory viruses (such as COVID-19 and seasonal flu)
- Do you screen for these or any other infections during antenatal care?
- When and how do you screen for these infections?



Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).

Preventing infections during pregnancy (1)



- **Counsel women on how to prevent infections by performing hand hygiene**



- **Counsel women on how to prevent infections from foodborne and parasitic diseases**



- **Address risk factors for anaemia**
 - Offer iron and folic acid supplementation
 - Offer preventive anthelmintic treatment after the first trimester in endemic areas

REFERENCE/
READING

Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 ([WHO recommendations on antenatal care for a positive pregnancy experience](https://www.who.int/publications/i/item/9789241594639)).

Five keys to safer food manual. Geneva: World Health Organization; 2006 (<https://www.who.int/publications/i/item/9789241594639>)

Preventing infections during pregnancy (2)



- **Counsel women on preventive measures against vector-borne diseases**

- Wearing long sleeves, sleeping under an insecticide-treated net
- In malaria-endemic areas in Africa, provide intermittent preventive treatment with sulfadoxine-pyrimethamine



- **Counsel women on immunizations to prevent infections**

- Tetanus toxoid vaccination
- Respiratory viral disease: seasonal flu, COVID-19
- Measles, mumps, rubella



- **Provide oral pre-exposure prophylaxis, if indicated**

- Containing tenofovir disoproxil fumarate, this should be offered as an additional prevention choice for pregnant women at substantial risk of HIV infection as part of combination prevention approaches

Source: WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549912>).

Activity

Write down in your student handbooks:

- one important point to counsel/inform women about to prevent infections
- one method women can use to protect themselves from a common infection (this should be an activity/practice that women can do themselves)
- one danger sign for infection

Share your thoughts with your group



Specific counselling requirements for your setting



List the key infections that women risk contracting during pregnancy in your setting

In your groups, discuss counselling advice that you can give the women to help them protect themselves

With the wider group, explore any areas that may be difficult to discuss, and how this could be done sensitively



More on sexually transmitted infections (STIs) and other reproductive tract infections (RTIs)



A 4-module course reviewing prevention, detection and treatment of antenatal STIs and RTIs including:

1. STI awareness and prevention
2. Planning for STI service provision
3. Detecting and managing STI in pregnancy
4. Follow-up and monitoring



Source: WHO OpenWHO course: Reducing antimicrobial resistance of treatable sexually transmitted infections in antenatal care. Geneva: World Health Organization 2021 (<https://openwho.org/courses/amr-sti-anc>)

IPC practices during routine antenatal care

IPC skills needed during routine antenatal care

These are all covered in module 1

- Hand hygiene using the WHO five moments
- Blood tests and vaccinations, with safe sharps practices
- Safe handling and disposal of body fluids and infective waste, such as urine samples
- Non-invasive examinations – for example, fetal assessments or vital signs monitoring, which require standard precautions including equipment cleaning
- Environmental cleaning

Any other ideas?





IPC practices in antenatal care

Tasks may involve:

- Taking a history and examination
- Taking vital signs
- Measuring the fundal height and fetal heart
- Delivering screening, preventive and treatment activities in the prenatal assessment
- Making shared-decisions on the antenatal care plan with the woman
- Documenting assessments and plan of care

Best practices to do this safely include:

- WHO's five moments of hand hygiene
- Environmental cleaning and disinfection
- Placement of the woman
- Cleaning equipment, including the sphygmomanometer, thermometer, ultrasound accessories and fetoscope
- Linen management
- Safe sharps practices (e.g., for blood sampling or vaccination)
- Safe handling and disposal of body fluids and infective waste, such as urine samples

IPC resources for primary health care

that can be used in antenatal care clinics

Manual and toolkit of online resources to support the implementation of IPC in primary care

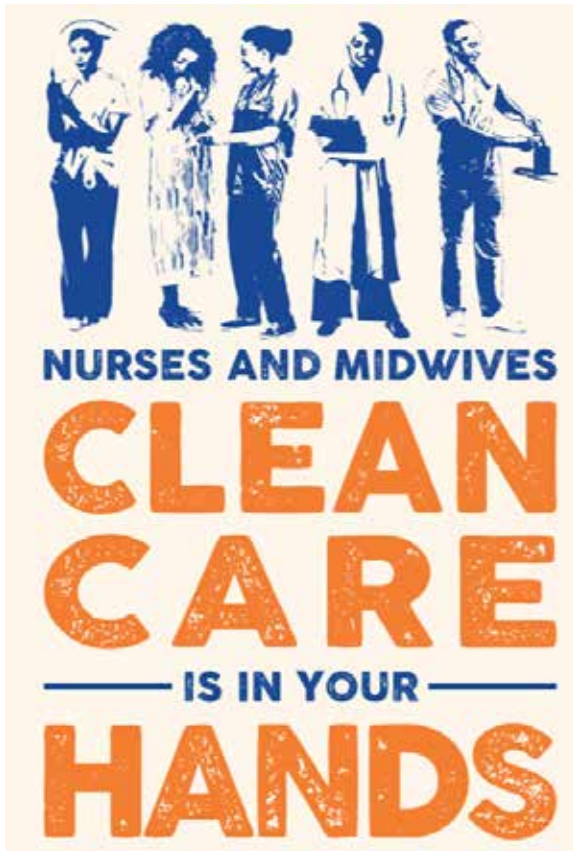
KEY RESOURCE



Sources: Strengthening infection prevention and control in primary care. A collection of existing standards, measurement and implementation resources. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240035249>)

Infection prevention and control in primary care: a toolkit of resources. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240037304>)

Hand hygiene



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

Hand hygiene is a general term that applies to either handwashing, hand rubbing (e.g., using an alcohol-based hand rub), or surgical hand antisepsis.

In this module we will practise application of hand hygiene in an antenatal care setting

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>)



Examples of each hand hygiene moment during antenatal care



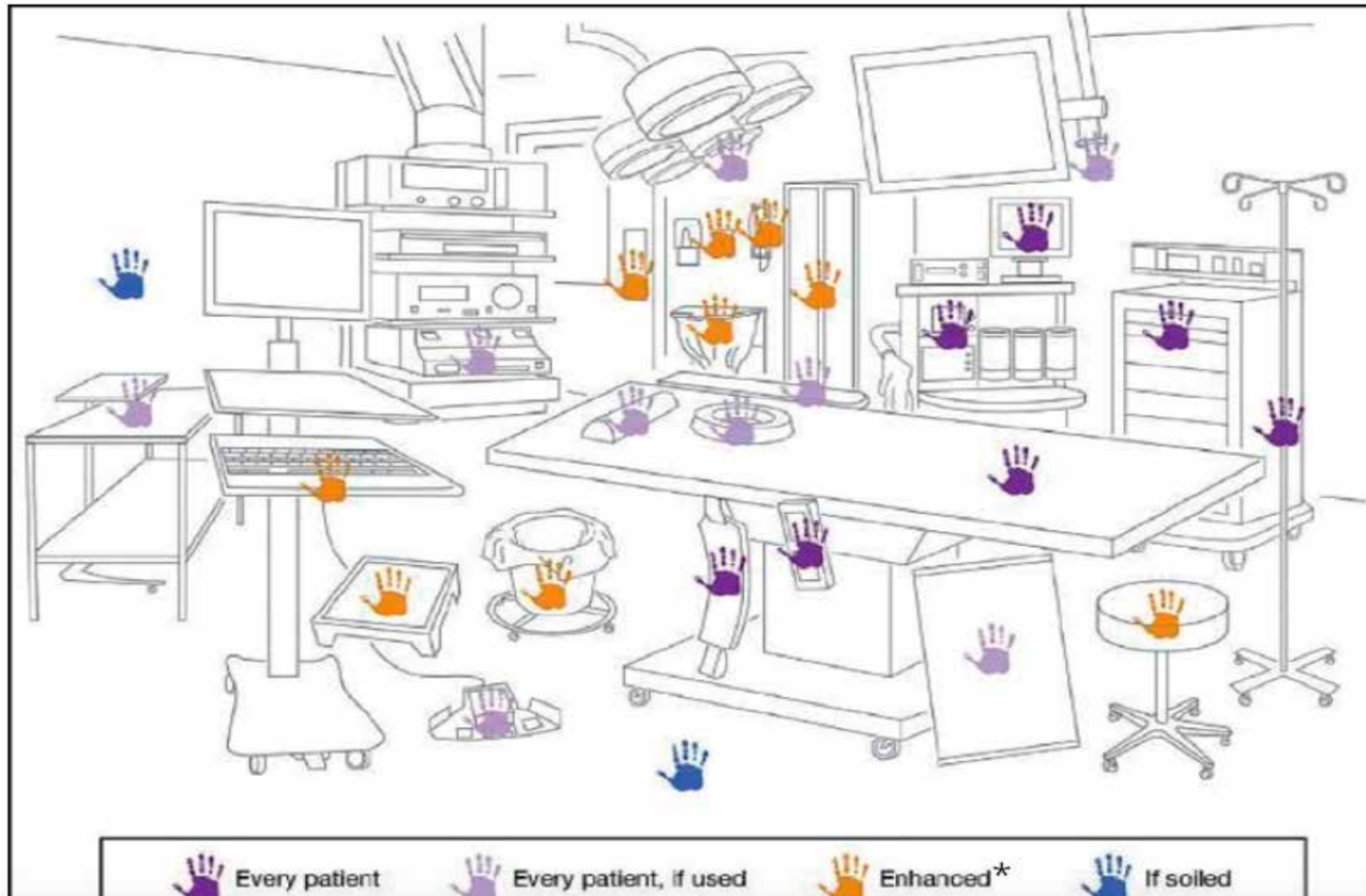
The **My 5 Moments for Hand Hygiene** approach defines the key moments when health-care workers should perform hand hygiene.

This approach recommends health-care workers to clean their hands:

- 1** BEFORE TOUCHING A PATIENT
- 2** BEFORE CLEAN/ ASEPTIC PROCEDURE
- 3** AFTER BODY FLUID EXPOSURE RISK
- 4** AFTER TOUCHING A PATIENT
- 5** AFTER TOUCHING PATIENT SURROUNDINGS

Sources: WHO guidelines on hand hygiene in health care. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241597906>). Hand hygiene video. Geneva: World Health Organization; 2009 (<https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/training-tools>)

Scenario 1. Count the opportunities for hand hygiene



CASE STUDY

The patient zone during an antenatal care contact (1)

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



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

The patient zone during an antenatal care contact (2)

In antenatal care, the patient zone includes:

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



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



How to hand rub and hand wash?

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

⌚ Duration of the entire procedure: 20-30 seconds

1a Apply a painful of the product in a cupped hand, covering all surfaces;

1b Rub hands palm to palm;

2 Rub hands palm to palm;

3 Right palm over left dorsum with interlaced fingers and vice versa;

4 Palm to palm with fingers interlaced;

5 Backs of fingers to opposing palms with fingers interlocked;

6 Rotational rubbing of left thumb clasped in right palm and vice versa;

7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8 Once dry, your hands are safe.

World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

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May 2010

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

⌚ Duration of the entire procedure: 40-60 seconds

0 Wet hands with water;

1 Apply enough soap to cover all hand surfaces;

2 Rub hands palm to palm;

3 Right palm over left dorsum with interlaced fingers and vice versa;

4 Palm to palm with fingers interlaced;

5 Backs of fingers to opposing palms with fingers interlocked;

6 Rotational rubbing of left thumb clasped in right palm and vice versa;

7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8 Rinse hands with water;

9 Dry hands thoroughly with a single use towel;

10 Use towel to turn off faucet;

11 Your hands are now safe.

World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

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May 2010

More on hand hygiene: [WHO OpenWHO course: 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>).

Group activity

In your groups, discuss whether hand hygiene is needed during these antenatal care activities

If hand hygiene is required, what “moment” does the activity represent?

- Documentation of the clinical encounter
- Taking a blood sample
- Non-invasive examinations, such as measuring fundal height or blood pressure
- Cleaning the equipment used in the examination



Use of gloves in routine antenatal care (1)

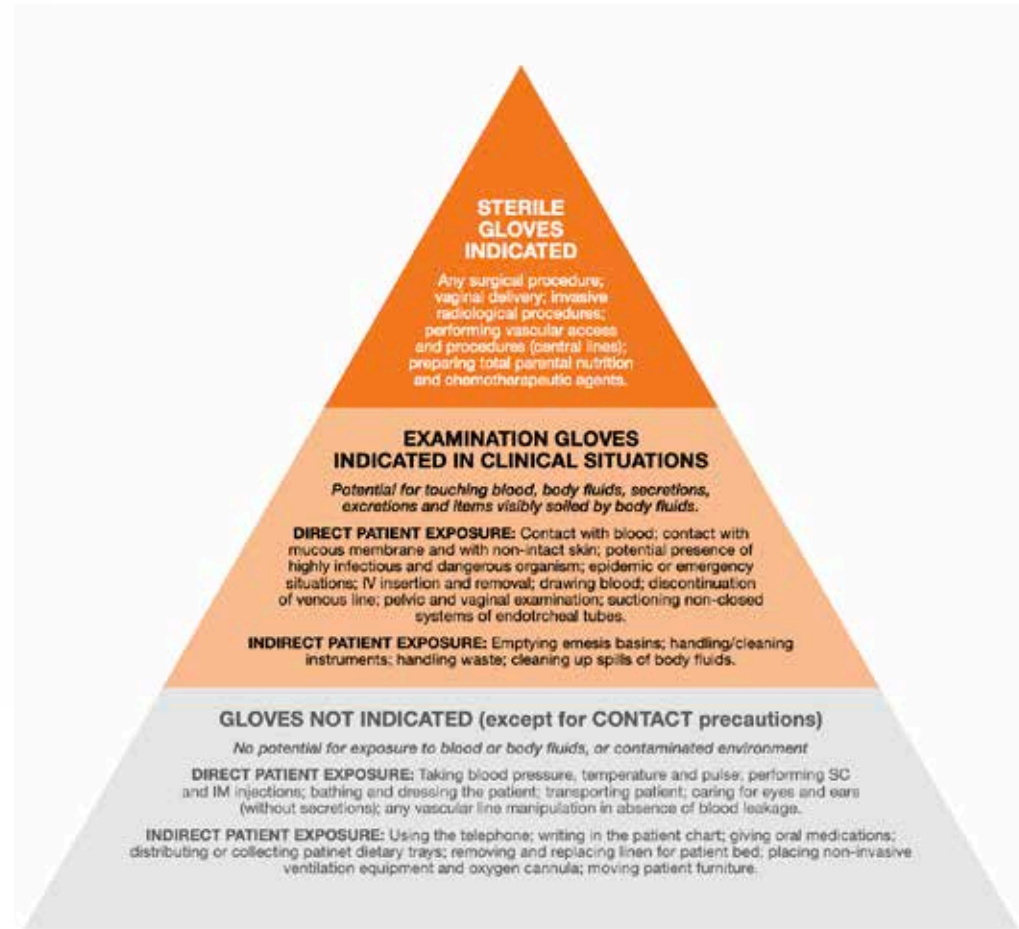
Clean gloves are appropriate for most antenatal care contacts

- Wear clean disposable surgical gloves when:
 - handling contaminated waste
 - cleaning blood and body fluid spills
 - drawing blood
- Wear clean heavy-duty gloves when:
 - cleaning the patient zone or clinical equipment



Use of gloves in routine antenatal care (2)

Technique for donning and removing non-sterile examination gloves



Source: Glove Use Information Leaflet. Geneva: World Health Organization; 2009 ([https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/infection-prevention-and-control/hand-hygiene/tools/glove-use-information-leaflet.pdf?sfvrsn=13670aa_10](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/infection-prevention-and-control/hand-hygiene/tools/glove-use-information-leaflet.pdf?sfvrsn=13670aa_10))

Safe injection practices in routine antenatal care

Antenatal care example: tetanus toxoid vaccination

- Use sterile injection equipment – ideally auto-disabled syringes/needles
 - Discard the needle or syringe if the package has been punctured, torn or damaged, or if moisture is found inside it
 - Punctures, tears and damage constitute breaks in sterile packaging, which can lead to contamination
- Do not use a vaccine beyond the expiration date
- Use single-dose rather than multidose vials
- Do not use gloves
- Disinfect the injection site – disinfect the skin by applying 60–70% alcohol-based solution (isopropyl alcohol or ethanol) on a single-use swab or cotton wool ball



Safe injection practices in routine antenatal care

Antenatal care example: taking a blood sample for serology

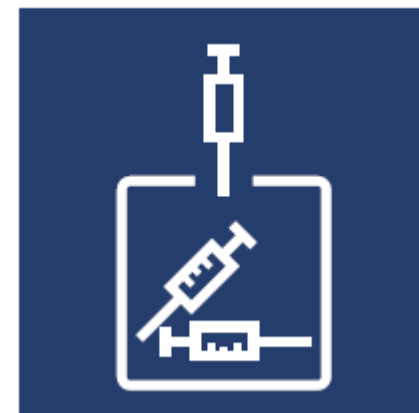
- After performing hand hygiene, put on well-fitting, clean, disposable, non-sterile gloves
- Use single-use devices for blood drawing and sampling
- Use a clean elastic tourniquet, decontaminated by wiping with alcohol between patients
- Disinfect the skin at the venepuncture site
- Use closed vacuum extraction tubes with single-use needle and needle holder



Safe sharps disposal in routine antenatal care

Antenatal care example: Safe sharps disposal after drawing blood

- Keep a puncture-resistant, easily identifiable container next to the point of care
- Drop all used (disposable) needles, plastic syringes and blades directly into this container without recapping and without passing to another person
- Seal the sharps container with a tamper-proof lid
- Send the sharps box for incineration when the container is three quarters full



For more on safe injection practices, visit: [WHO OpenWHO course: Standard precautions: Injection safety and needle-stick injury management](https://www.who.int/courses/standard-precautions/injection-safety-and-needle-stick-injury-management)

Safe handling and disposal of body fluids in routine antenatal care

Antenatal care example: safe disposal of a urine sample

- Follow local standard procedures/guidelines
- Pour liquid waste down a drain or flushable toilet
- Dispose of vial in infectious clinical waste bin (bin must be covered)
- Wash duty gloves and containers after disposal of infectious waste
- Wash hands after glove removal and completing the task of body disposal

Dispose of blood, or body fluid-contaminated items

- In leak-proof containers
- Burn or bury contaminated solid waste



Source: Safe management of wastes from health-care activities. Geneva: World Health Organization; 2014 (<https://www.who.int/publications/i/item/9789241548564>)

Cleaning equipment and devices in routine antenatal care (1)

In your groups, discuss the equipment and devices that need to be decontaminated in an antenatal care setting

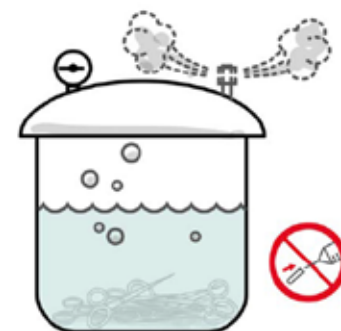
- List the items that need to be decontaminated
- When do these need to be decontaminated?
- Who decontaminates these items?
- How do these need to be decontaminated?
- If some items need to be treated differently, why is this?
What are the different treatments required?



Cleaning equipment and devices in routine antenatal care (2)

Antenatal care examples: speculums, sphygmomanometer, stethoscopes and fetoscopes

- Make sure that reusable instruments are adequately cleaned, disinfected and sterilized before using on another person, depending on the type of instrument
- Clean and high-level disinfect devices used on mucus membranes
- Clean and disinfect any reusable equipment used on intact skin
- Dispose of single-use instruments after one use



For more on cleaning equipment and devices [OpenWHO course Decontamination and sterilization of medical devices](#)



Cleaning linens in routine antenatal care



Antenatal care example: linen used to cover the examination couch

- Collect clothing or sheets stained with blood or body fluids and keep them separate from other laundry, wearing gloves or using a plastic bag
- Do not touch them directly
- Rinse off blood or other body fluids before washing with detergent and disinfectant (bleach)

Source: Essential environmental health standards in health care. Geneva: World Health Organization. 2008 (<https://www.who.int/publications/i/item/9789241547239>)

Summary: learning points covered in this session

- Antenatal care provides an opportunity to screen, prevent and treat infections and improve maternal and perinatal outcomes
- Standard precautions and additional IPC precautions to be followed when caring for pregnant women during antenatal care

Summary: core competencies covered in this session



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

- List assessments and preventive measures in antenatal care to reduce both risk of infections developing and their consequences
- apply IPC in routine antenatal care:
 - hand hygiene
 - glove use
 - safe injection practices
 - safe handling and disposal of body fluids and infective waste
 - cleaning equipment and sterilizing devices
- ensure safe and respectful antenatal care

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>).
- WHO guidelines on drawing blood: best practices in phlebotomy. Geneva: World Health Organization; 2010 (<https://www.who.int/publications/i/item/9789241599221>).
- Hand hygiene in outpatient and home-based care and long-term care facilities. Geneva: World Health Organization; 2012 (<https://www.who.int/publications/i/item/9789241503372>).
- 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>).
- Decontamination and reprocessing of medical devices for health-care facilities. Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241549851>).
- Make smart injection choices. Safe injection practices. Geneva: World Health Organization; 2017 (https://www.who.int/infection-prevention/tools/injections/IS_HealthCareProviders_Leaflet.pdf).
- World Hand Hygiene Day 2020. In: World Health Organization [website]. Geneva: World Health Organization; 2020 (<https://www.who.int/campaigns/world-hand-hygiene-day/2020>).
- Strengthening infection prevention and control in primary care. A collection of existing standards, measurement and implementation resources. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240035249>).

References (1)



Water and sanitation in health care facilities

- 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>)

References (2)



Maternal health

- 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>).

- WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization; 2016

(<https://www.who.int/publications/i/item/9789241549912>).

- WHO recommendations for prevention and treatment of maternal peripartum infections. Geneva: World Health Organization; 2015

(<https://apps.who.int/iris/handle/10665/186171>).

- Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice, 3rd edition. Geneva: World Health Organization; 2015

(<https://apps.who.int/iris/handle/10665/249580>).

References (4)



Prevention of and screening for infections during pregnancy

- WHO guidelines on hepatitis B and C testing. Geneva: World Health Organization; 2017 (<https://www.who.int/publications/i/item/9789241549981>).
- Consolidated guidelines on HIV testing services. Geneva: World Health Organization; 2019 (<https://www.who.int/publications/i/item/978-92-4-155058-1>).
- Prevention of mother-to-child transmission of hepatitis B virus: guidelines on antiviral prophylaxis in pregnancy. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/978-92-4-000270-8>).
- WHO consolidated guidelines on tuberculosis. Module 2: screening – systematic screening for tuberculosis disease. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240022676>).
- WHO estimates of the global burden of foodborne diseases: foodborne disease burden epidemiology reference group 2007-2015 (https://apps.who.int/iris/bitstream/handle/10665/199350/9789241565165_eng.pdf?sequence=1)
- Fact Sheet: Rubella. Geneva: World Health Organization; 2019 (<https://www.who.int/news-room/fact-sheets/detail/rubella>)
- Fact Sheet: Herpes simplex virus. Geneva: World Health Organization; 2020 (<https://www.who.int/news-room/fact-sheets/detail/herpes-simplex-virus>)
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