Health Extension service

Level-III

Learning Guide-22

Unit of Competence: Apply Infection Prevention Technique and workplace OHS

Module Title: Applying Infection Prevention Technique and workplace OHS

LG Code: HLTHES3 M06 LO3LG-22

TTLM Code: HLTHES3 MO6 TTLM 0919v1

LO 3: Maintain personal hygiene

Instruction Sheet	Learning Guide 22

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Introducing Hand hygiene
- *Practicing Hand washing procedures*
- *Implementing Hand care* procedures
- Identifying risk of Cuts and abrasions

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Introduce Hand hygiene
- *Practice Hand washing procedures*
- *Implement Hand care* procedures
- Identify risk of Cuts and abrasions

Learning Instructions:

1.Read the specific objectives of this Learning Guide.

2.Follow the instructions described below 3 to 6.

3.Read the information written in the information “Sheet 1, Sheet 2, Sheet 3’’

4.Accomplish the “Self-check 1, Self-check 2 & Self-check 3

5.If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1, Operation Sheet 2 ” **in page -50 &52.**

6.Do the “LAP test” **in page – 51 & 52** (if you are ready).

Reference

- Linda,Tietjen,Débora, BossemeyerNoel McIntosh JHPIEGO, USIAD 2003 Guidelines for Healthcare Facilities with Limited Resources, , Johns Hopkins University.

Information Sheet-1	Introducing Hand hygiene

1.1. Hand hygiene

Why Hand Hygiene Is Important

Hand hygiene is a general term referring to any action of hand cleansing. It includes care of the hands, nails, and skin.

Proper hand hygiene is a key component in minimizing the spread of disease and in maintaining an infection-free environment. Hand hygiene significantly reduces the number of disease-causing microorganisms on hands and arms and can minimize cross-contamination (e.g., from health worker to patient).

It is the most important way to reduce the spread of infections in the health care setting. Hand hygiene practices such as hand washing and surgical hand scrubbing are intended to prevent hand-borne infections by removing dirt and debris and inhibiting or killing microorganisms on skin. This includes not only most of the organisms acquired through contact with patients and the environment, but also some of the permanent ones that live in the deeper layers of the skin.

Studies indicated that failure to perform appropriate hand hygiene is considered to be the leading cause of health care–associated infections and the spread of multidrug-resistant microorganisms and has been recognized as a significant contributor to outbreaks (Boyce and Pittel 2002).

Hand washing procedures

Hand hygiene can be accomplished by:

- ***Hand washing***
- ***Hand antisepsis***
- ***Antiseptic hand rub***
- ***Surgical hand scrub***

From the various hand hygiene practices available, the use of soap and water remains the most common and the most important when hands are visibly soiled. For hand hygiene in the absence of dirt or debris, however, alternatives such as antiseptic hand rubs, which are rapid acting, inexpensive, and easy to make, are gaining acceptance, especially where access to sinks and clean water is limited

The decision of which type of hand hygiene practice to use depends on:

- ✓ *Intensity of contact with patient and/or blood and body fluids*
- ✓ *The likelihood of microbial transmission*
- ✓ *Patient's susceptibility to infection*
- ✓ *Procedure being performed*

Self-Check -1	Written Test

Directions: Say “True” or “False”

1. Proper hand hygiene is a key component in minimizing the spread of disease and in maintaining infection-free environment.

2. *The decision of hand hygiene practice depends on Patient’s susceptibility to infection.*

Note: Satisfactory rating - 4 points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1._____

2._____

Information Sheet-2	*Implement Hand care* procedures

2.1 Implementing Hand care procedures

Hand Washing

Healthcare-associated infections (HCAI) are infections that are acquired in healthcare facilities or as a result of healthcare interventions and are a major problem for patient safety. Hand hygiene is one of the most effective means of preventing HCAIs.

The purpose of hand washing with plain soap and water is to mechanically remove soil and debris from skin and reduce the number of transient microorganisms. Hand washing with plain soap and clean water is as effective as washing with antimicrobial soaps (Pereira, Lee, and Wade 1997). But if the tap water is contaminated, hand washing with plain soap is only effective in removing dirt and debris. If tap water is contaminated, use water that has been boiled for 10 minutes and filtered to remove particulate matter (if necessary), or use chlorinated water.

When Do We Wash Our Hands?

- ✓Immediately after arriving and leaving work (the health facility)
- ✓Before and after examining (coming in direct contact with) a client/patient
- ✓After touching contaminated instruments or items
- ✓After exposure to mucous membranes, blood, body fluids, secretions, or excretions
- ✓Before putting on gloves and after removing them
- ✓Whenever our hands become visibly soiled
- ✓After blowing nose or covering a sneeze
- ✓Before eating or serving food
- ✓After visiting the toilet

The 'WHO five moments for hand hygiene

- ✓ before touching a patient;
- ✓ before clean/aseptic procedures;
- ✓ after bodily fluid exposure/risk
- ✓ after touching a patient; and
- ✓ after touching patient surroundings

Note: Hands should be washed with soap and clean water (or an antiseptic hand rub) after removing gloves because the gloves may have tiny holes or tears, and bacteria can rapidly multiply on gloved hands due to the moist and warm environment within the glove (CDC 1989; Korniewicz et al. 1990).

When drying hands, using common towels should be avoided. Shared towels may harbor microorganisms and contaminate hands even after proper hand washing.

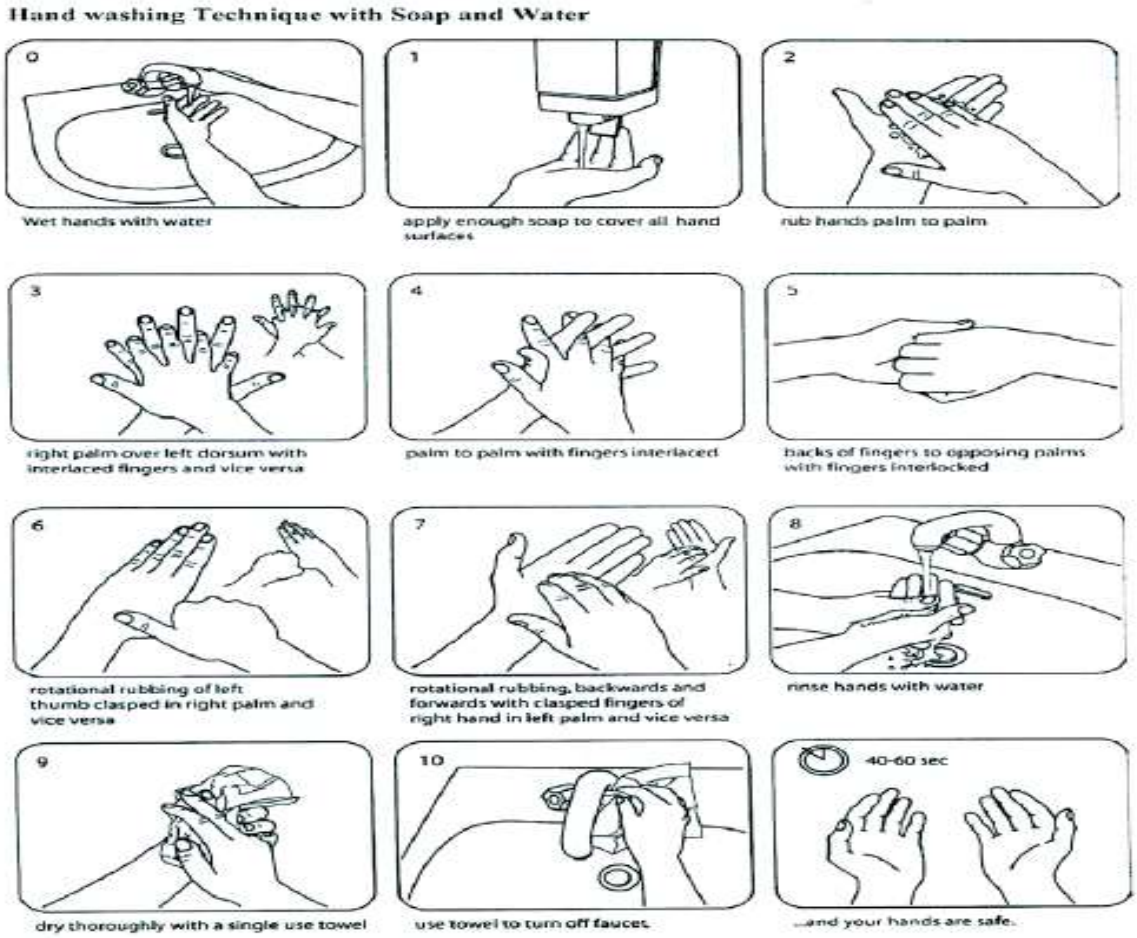
Note:

- ✓If bar soap is used, provide small bars and soap racks that drain.
- ✓Use running water and avoid dipping hands into a basin containing standing water.
- ✓If liquid soap is being used, do not add soap to a partially empty liquid soap dispenser. This practice of "topping off" dispensers may lead to bacterial

contamination of the soap. Liquid soap dispensers should be thoroughly washed and dried before refilling.

- ✓A bucket with a tap or a bucket with a pitcher or jug can be used if running water is not available.
- ✓Used water should be collected in a basin and discarded in a latrine if a drain is not available.

Figure 3.1. Hand-washing techniques with soap and water



2.2 Hand Antisepsis and Antiseptic Hand Rub

Hand Antisepsis

The purpose of hand antisepsis is to remove soil and debris and reduce both transient and resident flora on the hands. The technique for hand antisepsis is similar to hand washing except that it involves use of soap containing an antimicrobial agent (often chlorhexidine, iodophors, or triclosan) instead of plain soap or detergent. Medicum, Life Boy, and Dettol are some of the commonly found soaps with antimicrobial agents.

Hand antisepsis should be done before:

- ✓ Examining or caring for highly susceptible patients (e.g., premature infants, elderly patients, patients with advanced AIDS)
- ✓ Performing an invasive procedure such as placement of an intravascular device
- ✓ Leaving the room of patients on contact precautions (e.g., with hepatitis A or E) or who have drug-resistant infections

Antiseptic Hand Rub

Hand rub product is more effective in killing transient and resident flora than plain or medicated soap and water. Antiseptic hand rub is quicker and easier to use and gives a greater initial reduction in hand flora (Girou et al. 2002). Hand rubs also contain a small amount of an emollient such as glycerin, propylene glycol, or sorbitol that protects and softens skin. It is also less irritating to skin than medicated soaps. But, if hands are visibly soiled, hand washing with water and a hand-washing agent should be done first.

Alcohol-based hand rubs provide several advantages compared with hand washing with soap and water because they:

- ✓ Require less time
- ✓ Act faster
- ✓ Are more accessible than sinks
- ✓ Are more effective for standard hand washing than soap
- ✓ Can provide improved skin condition

A nonirritating, antiseptic hand rub can be made by adding glycerin, propylene glycol, or sorbitol to alcohol (2 mL in 100 mL of 60 to 90 percent ethyl or isopropyl alcohol solution) (Larson 1999).

The technique for performing antiseptic hand rub is as follows:

- ✓ Apply enough (5 mL) alcohol-based hand rub to cover the entire surface of hands and fingers.
- ✓ Rub the solution vigorously into hands, especially between the fingers and under the nails until dry (15 to 30 seconds).
- ✓ Do not rinse hands after applying hand rub.

There are 2 situations where alcohol hand rub alone is not sufficient:

- ✓ After contact with a patient with known or suspected diarrhea (e.g. Clostridium Difficile or Norovirus.)
- ✓ Where hands are visibly soiled.

In these instances hand wash with antiseptic soap or plain soap followed by use of an alcohol rub is recommended

Surgical Hand Scrub

The purpose of surgical hand scrub is to mechanically remove soil, debris, and transient organisms and to reduce resident flora prior to performing any surgical procedure and for the duration of the procedure. The goal is to prevent wound contamination by microorganisms from the hands and arms of the surgeon and assistants if there is a break in the integrity of the gloves or gown.

Applying an antiseptic minimizes the number of microorganisms on hands under the gloves and minimizes growth of flora during surgery. Skin damage caused by allergic reactions

provides an ideal place for microorganisms to multiply and should be avoided. Personnel with allergies to antiseptics may use plain soap followed by applying the waterless, alcohol-based hand rub.

Other Issues and Considerations Related to Hand Hygiene

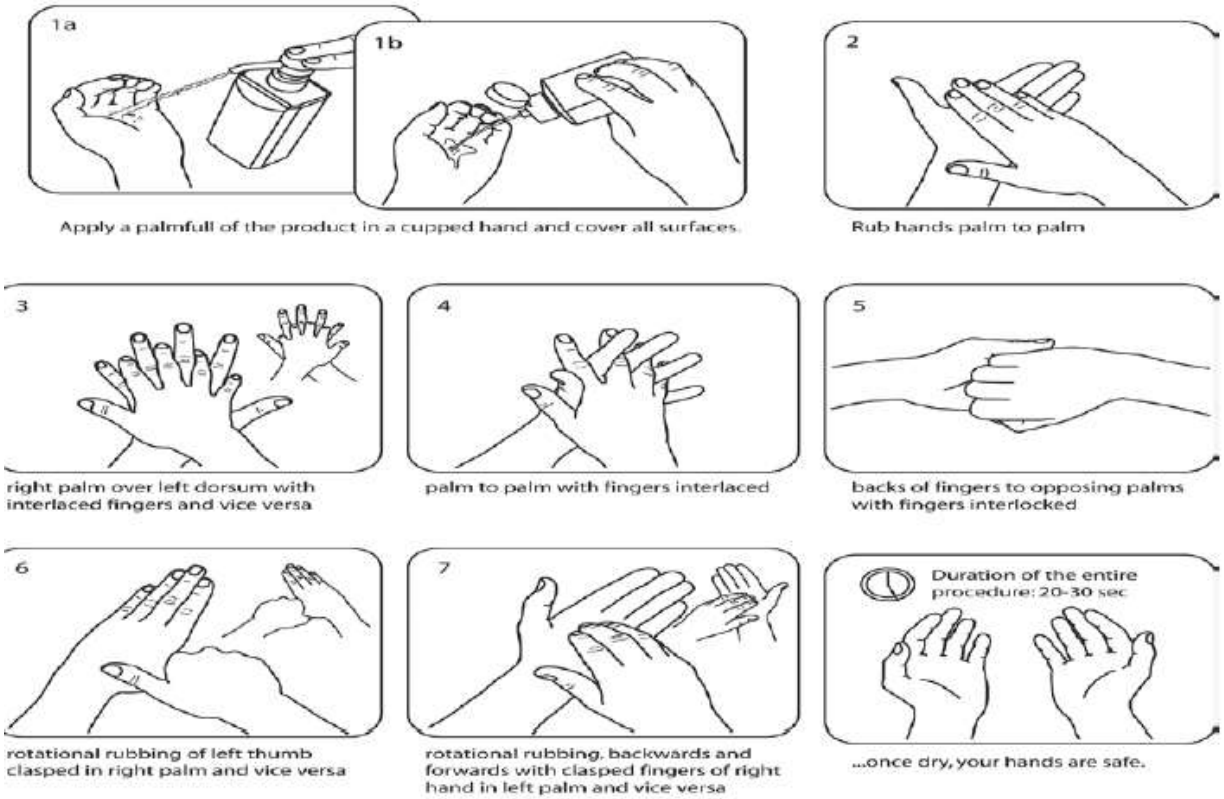
Gloves:

- ✓ Wearing gloves does not replace the need for hand hygiene.

Hand lotions and hand creams:

- ✓ To minimize contact dermatitis related to frequent hand washing (more than 30 times per shift) due to the use of harsh detergents and frequent exposures to antiseptic agents, health care workers may use hand lotions, creams, and moisturizing skin care products. Such products should be water based and without fragrance. Oil-based barrier products, such as those containing petroleum jelly (Vaseline or lanolin), should not be used because they damage latex rubber gloves.

Hand Hygiene Technique with Alcohol-Based Formulation



Self-Check -3	Written Test

Directions: Choose the best answer from the given alternative

1. The time of hand washing according to “WHO” A. before touching a patient.
   B. Before clean/aseptic procedures. C. after bodily fluid exposure D. All
2. One is **not** the advantage of Alcohol-based hand rubs.
   A. Act faster
   B. Are more accessible than sinks
   C. Are more effective for standard hand washing than soap
   D. Can provide improved skin condition E. All

Direction-2:- Say “True” or “False”

1. Hand rub product is more effective in killing transient and resident flora than medicated soap and water.
2. Applying an antiseptic minimizes the number of microorganisms on hands under the gloves.

Note: Satisfactory rating - 4 points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1._____
2._____

Information Sheet-3	Cuts and abrasions

3.1Cuts and abrasions

Lesions and skin breaks:

- ✓ Cuticles, hands, and forearms should be free from lesions (dermatitis or eczema) and skin breaks. Cuts and abrasions should be covered with waterproof dressings.

Fingernails and artificial nails:

- ✓ Long nails may serve as a reservoir for microorganisms, and long nails, either natural or artificial, tend to puncture gloves more easily. As a result, it is recommended that nails be kept moderately short and be less than 0.5 cm long beyond the fingertip. The use of artificial nails by health workers should be restricted (WHO 2009a).

Nail polish:

- ✓ Dark-colored nail polish may prevent dirt and debris under fingernails from being seen and removed. Although there is no restriction to wearing nail polish, it is suggested that surgical team members and staff working in specialty areas wear freshly applied, clear nail polish. Chipped nail polish supports the growth of larger numbers of organisms on fingernails compared to freshly polished or natural nails.

Jewelry:

- ✓ Although several studies have shown that skin under rings is more heavily colonized than comparable areas of skin on fingers without rings, at the present time, it is not known whether wearing rings results in greater transmission of pathogens. It is suggested that surgical team members not wear rings because it may be more difficult for them to put on surgical gloves without tearing them

Self-Check -3	Written Test

Directions: Say “True” or “False”

1. Dark-colored nail polish may prevent dirt and debris under fingernails from being seen and removed.

2. Cuts and abrasions should be covered with waterproof dressings.

Note: Satisfactory rating - 4 points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1._____

2._____

Operation Sheet 1	***Practicing Hand washing procedures***

Steps for Routine Hand Washing

The entire process should take 40 to 60 seconds. The steps are as follows:

1. Wet your hands with water.

2. Take enough soap to cover all the surfaces of the hand.

3. Rub your palms together.

4. Place your right palm over the dorsum of your left palm with the fingers interlaced and rub them. Do the same with the left palm over the dorsum of the right palm.

5.Rub your palms together with your fingers interlaced.

6.Rub the back of your fingers to the opposite palm while keeping your fingers interlaced.

7.Clasp the opposite thumb with the other hand and rub in a rotational direction.

8.Rinse off your hands under water.

9.Dry your hands with a towel.

10.Use the towel to turn off the tap.

LAP Test -1	Practical Demonstration

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 5min.

Task 1: perform Routine Hand Washing

Operation Sheet 2	Practicing surgical hand rub

2.1**The steps in surgical hand scrub include the following:**

1. Remove all rings, watches, and bracelets.
2. Thoroughly wash hands, especially between fingers, and forearms up to the elbows with soap and water. (If a brush is used, it should be cleaned and either sterilized or high-level disinfected before reuse or shared with others. Sponges, if used, should be discarded.)
3. Clean nails with a nail cleaner.
4. Rinse hands and forearms thoroughly with clean, running water.
5. Apply an antiseptic agent (e.g., 2 to 4 percent chlorhexidine gluconate [CHG]) to all surfaces of hands and forearms to the elbows and rub hands and forearms vigorously for at least two minutes.
6. Rinse hands and arms thoroughly, holding hands higher than the elbows (if tap water is contaminated, uses boiled and cooled water or chlorinated water and filter if necessary).
7. Keep hands up and away from the body, do not touch any surface or articles, and dry the hands and forearms with a sterile towel.
8. Put sterile surgical gloves on both hands.

LAP Test	Practical Demonstration

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 5min.

Task 1: perform surgical hand rub

Reference

Linda,Tietjen,Débora, BossemeyerNoel McIntosh JHPIEGO, USIAD 2003 Guidelines for Healthcare Facilities with Limited Resources, , Johns Hopkins University

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