

IC.03.05 PERSONAL PROTECTIVE EQUIPMENT (PPE) - REV. NOVEMBER 2016

Introduction

Personal protective equipment (PPE) is used alone or in combination to prevent exposure, by placing a barrier between the infectious source and one's own mucous membranes, airways, skin and clothing. The selection of PPE is based on the point-of-care risk assessment (e.g., nature of the interaction and status of the patient) and the likely mode(s) of transmission of infectious agents.

PPE is used to prevent transmission of infectious agents from patient-to-patient and from patient-to-health care workers (HCW).

PPE includes gloves, gowns, masks, facial protection, eye protection and respirators. They may be used alone or in combination.

Appropriate use of PPE:

- Perform a point-of-care risk assessment to determine if PPE is needed.
- PPE must be put on just prior to the interaction with the patient, after performing hand hygiene.
- Perform hand hygiene before donning and after removal of PPE
- When the interaction for which the PPE was used has ended, PPE must be removed immediately and disposed of in the appropriate receptacle.
- PPE must be removed in a manner that prevents recontamination.
- Change PPE between patients and when visibly soiled.
- Refer to the “**Personal Protective Equipment Donning and Doffing**” poster for specific instructions on full procedure.
- PPE must be readily available in a place that gives the HCW quick and easy access.

Gloves

- HCW must wear gloves when it is anticipated that the hands may come in contact with mucous membranes, non-intact skin, tissue, blood, body fluids, secretions, excretions, or equipment and environmental surfaces contaminated with the above. HCW must also wear gloves when providing care to patients on certain types of additional precautions (see the standards for Additional Precautions for more specific details).
- Gloves are worn to provide an additional barrier between HCW's hands and blood, body fluids, secretions, excretions and mucous membranes.
- Gloves reduce the potential transfer of microorganisms from infected patients to HCW and from patient to patient via the HCW's hands.
- Improper glove use has been associated with microorganism transmission.

Proper use of Gloves

- **Gloves are NOT a substitute for hand hygiene.**
- Unless the patient is on Contact Precautions, gloves are not required for routine health care activities in which contact is limited to intact skin of the patient (e.g., taking blood pressure, dressing the patient).
- Gloves are **task-specific** and **single-use** for the task.
- Gloves are to be removed immediately after the task for which they are required for.
- Gloves must not be washed or re-used.
- Gloves must be changed between patients.

- Hand hygiene must be performed before donning gloves and after glove removal.
- Gloves that fit snugly around the wrist are preferred for use with a gown because they will cover the gown cuff and provide a better barrier for the arms, wrists and hands.
- Gloves may be adversely affected by petroleum-based hand lotions or creams. Verify with the glove manufacturer that the gloves are compatible with the hand lotion products in use.
- To reduce hand irritation related to gloves:
 - Wear gloves for as short a time as possible
 - Ensure hands are clean and dry before putting on gloves
 - Ensure gloves are intact, clean and dry inside

Types of Gloves

- Based on the point-of-care risk assessment, it is important to select the best glove for each given task. The point-of-care risk assessment should include an assessment of the setting, the task to be performed, the likelihood of exposure, the anticipated length of use, and the amount of stress on the glove.
- Non-sterile single use examination gloves are generally sufficient for most tasks (e.g., a good quality vinyl glove).
- Sterile gloves are used in operating rooms and when performing sterile procedures such as central line insertions.
- Latex or synthetic gloves, such as nitrile or neoprene gloves, are preferable for clinical procedures that require manual dexterity and/or will involve more than brief patient contact.
- Household gloves (rubber gloves) are used for environmental cleaning and maintenance tasks to protect hands from chemical and detergent solutions.

Procedure

- Assess and select the correct size and type of glove.
- Perform hand hygiene before putting on gloves.
- No hand jewelry should be worn.
- Nails should be kept short, as long nails can pierce gloves.
- Put gloves on immediately before the activity for which they are indicated.
- Insert hands into gloves. If wearing a gown, extend gloves over gown cuffs.
- Change gloves as required between tasks and procedures on the same patient. For example, if moving from a contaminated body site to a clean body site within the same patient.
- Remove gloves promptly after the procedure is completed at the point-of-care and before touching any clean surfaces.
 - Remove gloves by grasping outside edge near wrist. Then peeling away from hand, turning the glove inside-out. Remember to hold the glove in your opposite gloved hand.
 - Slide ungloved finger under the wrist of the remaining glove. Peel off from inside, creating a bag for both gloves and then discard.
- Perform hand hygiene immediately after glove removal.

Gowns

- HCW will wear long- sleeved, water resistant gowns to protect forearms and clothing, when it is anticipated that a procedure or care activity is likely to generate splashes or sprays of blood, body fluids, secretions, or excretions and other potentially infectious material. HCW must also wear gowns when providing care to patients on certain types of additional precautions (see the standards for Additional Precautions for more specific details).
- Gowns used as PPE must be cuffed and long-sleeved, and offer full coverage of the body front, from neck to mid-thigh or below.

Procedure

- Conduct a point-of-care risk assessment to determine the need for a gown.
- Perform hand hygiene before putting on gown.
- Put gown on immediately prior to the procedure or patient care activity.
- Remove gown immediately after the task has been completed. Remove in a manner that prevents contamination of clothing or skin and prevents agitation of the gown (i.e., fold gown from inside to outside to prevent contamination of clothing).
- Discard used gown immediately after removal into appropriate receptacle. Perform hand hygiene.
- Do not re-use gown. Do not go from patient-to-patient wearing the same gown.

Lab Coats

- If lab coats are worn, they should be removed prior to contact with patients or the patient's environment.
- Lab coats are not considered PPE and do not replace a gown.
- Should not be worn into a patient room that requires Additional Precautions.
- Lab coats need to be laundered at least weekly and when visibly soiled.

Face Protection, Masks, Respirators, Goggles, and Face Shields

- HCW must wear a **procedure or surgical mask and eye protection** to protect the nose, mouth and eyes when it is anticipated that a procedure or care activity is likely to generate splashes or sprays of blood, body fluids, secretions or excretions, and when providing care to patients on certain types of additional precautions (see the standards for Additional Precautions for more specific details).
- HCW must also wear masks as required in operating theatres and when indicated for certain aseptic procedures (e.g., central line insertions, spinal epidural procedures).
- HCW must wear an **N95 respirator** when entering the room of patients known or suspected of having an infection with a microorganism that is spread by the airborne route (e.g., infectious pulmonary tuberculosis, measles and chickenpox). (Refer to Section 4 "Airborne Precautions" for more specific details).

Introduction

Face protection (masks, goggles or face shields) protects the mucous membranes of the mouth, nose and eyes from entry of infectious agents. Face protection is recommended for:

- Invasive surgical procedures
- Endoscopic procedures
- Dental extractions
- Irrigation using fluid under pressure
- Delivery of newborns
- Other aerosol-generating medical procedures (AGMP)
- Patients with emesis or respiratory symptoms

Selection and Types of Face Protection

There are many types of face protection available at Provincial Health Services Authority (PHSA). The type of face protection required shall be based on the point-of-care risk assessment.

The Criteria for Selecting a Mask Include:

- Mask securely covering the nose and mouth.
- Mask being substantial enough to prevent droplet penetration.
- Mask being able to endure for duration of the activity for which it is indicated.
- Mask/respirator being appropriate for the indicated additional precautions category.

Types of Masks

Procedure or Surgical Masks (Protective Mask)

- Provides a physical barrier against respiratory droplet secretions that are spread during close contact, sneezing, coughing, talking and certain procedures.
- They are single use only and shall be changed if they become soiled, damaged or moist.
- They are used by HCW for patients who are on Droplet or Droplet and Contact precautions. (Refer to Section 4 for more specific information)
- They can also be worn by patients to limit potential dissemination of infectious agents from the patient to others.

N95 Respirators (Particulate Filter Masks)

- Will filter 1-3 micron particulates. When a person with active pulmonary or laryngeal tuberculosis coughs or sneezes, they expel the tubercle bacilli in droplet nuclei. Once the nuclei enter the atmosphere, it evaporates to a 1-3 micron size.
- The mask is single-use only and should be changed if it becomes soiled or damaged.
- HCW must be fit-tested for N95 Respirators by PHSA Workplace Health.
- N95 failure is related to poor fit and leakage around the face seal.
- They are used by HCW for patients who are on Airborne or Airborne and Contact precautions. (Refer to Section 4 for more specific information)

The Criteria for Selecting Eye Protection Include:

- Eye protection providing a barrier to splashes from the side.
- Goggles or face shields that will fit over eyewear for those who wear prescription eye glasses. Prescription eye glasses do not provide adequate protection.
- Eye protection should be comfortable, not interfere with visual acuity, and should be adjustable for a secure fit.

Types of Eye Protection Include:

- Safety glasses
- Safety goggles
- Face shields
- Visors attached to masks

Procedure for Donning Face Protection

- Assess and select the correct type of face protection needed for the task or procedure.
- Perform hand hygiene before putting on face protection.
- Apply the mask so that it covers the nose and mouth.
- Apply N95 respirators following manufacturer's directions. Ensure a seal check is performed each time.

- Apply eye protection.
- Change mask if it becomes wet.
- Do not touch mask while wearing it.

Procedure for Doffing Face Protection

- Remove eye protection, if worn, once task is complete.
- Remove mask (handle the ties or elastics only when removing) after task is complete and discard into an appropriate waste receptacle.
- Do not allow mask to hang or dangle around the neck. Do not fold the mask or put it in a pocket for later use.
- Perform hand hygiene after removing.
- Clean and disinfect reusable goggles and face shields between uses according to manufacturer's instructions.

Resources

- Personal Protective Equipment Donning and Doffing Poster

REFERENCES

1. Provincial Infectious Diseases Advisory Committee (PIDAC), "Routine Practices and Additional Precautions in All Health Care Settings", November 2012.
http://www.publichealthontario.ca/en/eRepository/RPAP_All_HealthCare_Settings_Eng2012.pdf
2. Public Health Agency of Canada (PHAC), "Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings", 2012.
http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf
3. Wiksten T. Standard Precautions. APIC Text of Infection Control and Epidemiology. 4th ed. October 2014.
4. Berends C, Walesa B. Isolation Precautions (Transmission-based Precautions). APIC Text of Infection Control and Epidemiology. 4th ed. October 2014.
5. Bearman, G., Bryant, K., Leekha, S., Mayer, J., Munoz-Price, L. S., Murthy, R. & White, J. (2014). Healthcare personnel attire in non-operating-room settings. *Infection Control & Hospital Epidemiology*, 35(02), 107-121.
6. BC Ministry of Health. *Best Practices for Hand Hygiene In all Healthcare Settings* July 2012.
<http://www.health.gov.bc.ca/library/publications/year/2012/best-practice-guidelines-handhygiene.pdf>

Revised November 2016