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Infection Prevention & Control in Medical Rehabilitation and Long-Term Care Services

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Introduction

Introducing infection prevention and control (IPC) measures in long-term care or medical rehabilitation services is vital for protecting the health of patients, and healthcare workers. These facilities frequently care for individuals with chronic illnesses, blunted immune responses, and an increased use of invasive devices imposing their vulnerability to infections. Implementing effective IPC measures is crucial to preventing the transmission of healthcare-associated infections (HAIs), enhance patient outcomes, and ensure a safe care environment. Therefore, comprehensive IPC guidelines are essential to effectively implement protocols and improve the overall quality of care in these services.

Infection Prevention and Control Department

The infection prevention and control department is a specialized unit within healthcare facilities responsible for developing, implementing, and monitoring infection prevention and control programs. This department typically consists of trained professionals, such as infection prevention & control practitioners, nurses, epidemiologists, and microbiologists, and other healthcare categories who work together to prevent spread of infections within the healthcare setting. The facility's IPC department must include the following parts:

- IPC is a separate discipline with a specialized body of knowledge, requiring specialized education and training.
- The healthcare facility has infection prevention & control staffing ratio of not less than 1 full-time practitioner for every 100 beds and additional for every 30 beds in special care units (e.g., Intermediate ICU) assigned merely for the IPC program to accomplish the tasks in an effective manner.
- The infection prevention & control team is given full authority to implement the IPC policies and procedures.
- Any outsourced functions (e.g., laundry or dietary services) should be supervised by the infection control team with support from facility leaders.

Responsibility

Infection Prevention & Control Team

- Create infection prevention & control risk assessment & annual plan.
- Construct infection prevention & control program based on scope of service.
- Apply scientific principles and methods to the collection and presentation of IPC data.
- Conduct surveillance following current and approved definitions of infection and standard methodologies for case identification, data collection, and reporting.
- Prepare reports and presentations for committees.
- Monitor and supervise the implementation of infection prevention & control practices among healthcare workers, patients, visitors, volunteers, students, and other individuals providing services under a contractual arrangement in the medical rehabilitation and long-term care facilities.
- Provide ongoing education and training about infection prevention & control measures.
- Investigate outbreaks and implement infection prevention and control interventions.
- Report outbreaks of communicable diseases.
- Plan and conduct educational programs.
- Develop and review policies and procedures and monitor their use to support optimal healthcare workers' compliance and patients' safety.
- Ensure compliance with the national standards for infection prevention & control.

Rehabilitation & Long-Term Care Services Healthcare Workers (HCWs)

- Strict adherence to Infection prevention & control practices.
- Care bundles implementation for best patient outcomes.
- Medical rehabilitation and long-term care services HCWs must be well-trained and competent enough to implement IPC measures and to ensure the prevention of cross-infection transmission of HAIs in these services.

Infection Prevention and Control Program

- By implementing a comprehensive infection prevention and control program, rehabilitation and long-term care services can effectively reduce the incidence of HAIs, protect patients and HCWs, and promote overall quality of care.
- The optimum success of the IPC program depends on having both highly trained IPC practitioners and access to essential IPC resources.
- The IPC program is described in a written plan based on both facility and infection prevention risk assessments.
- Developing an infection prevention & control program should be based on the scope of service.
- **key components typically found in such programs:**
  - **Infection control activities:** Establish and implement infection control policies and procedures which are considered as important aspect in IPC program that should be updated & reviewed on a scheduled basis**.**
  - **Risk Assessment and management:** Conduct regular risk assessments to identify potential sources of infection transmission and implement strategies to mitigate these risks.
  - **Standard & transmission-based precautions:** Precautions system to reduce the risk of transmission of infectious agents.
  - **Surveillance of healthcare-associated infections (HAIs):** Monitoring and tracking of infections to identify trends, outbreaks, and areas for improvement. This includes collecting data on infection rates, types, and locations.
  - **Education and training:** Providing ongoing education and training to HCWs on infection prevention practices, including but not limited (*hand hygiene, personal protective equipment (PPE), outbreak, surveillance, environmental cleaning protocols*).
  - **Collaboration:** Working closely with other healthcare departments and external stakeholders to promote a culture of infection prevention and control.
  - **Compliance monitoring:** Monitoring adherence to infection control practices through audits, observations, and feedback mechanisms. This

ensures that staff consistently follow established protocols to prevent the spread of infections.

- **Outbreak and exposure investigation:** Developing plans and protocols for responding to infectious disease outbreaks within the rehabilitation and long-term care services, including rapid identification, containment measures, and communication strategies.
- **Environmental health:** Developing an effective environmental health program which involves; waste management, product evaluation and disinfection, sterilization and asepsis to ensure a safe environment for patients, HCWs, visitors, volunteers, students, and other individuals providing services under a contractual arrangement in the medical rehabilitation and long-term care facilities.
- **Occupational health and safety (Employee Health):** Developing an occupational health clinic program to ensure the well-being and safety of all HCWs in the institution and protecting patients from being exposed to any health hazard in a health care facility; and aiding them from occupational diseases or injuries to post-exposure management, disability evaluation, and compensation.
- **Antibiotic stewardship:** A system for antibiotic review and control.
- **Preparedness planning:** Develop emerging or reemerging pandemic preparedness plan.

Considerations for Infection Prevention and Control Program

- The interdisciplinary IPC team determines goals and objectives for the IPC program by performing an annual risk assessment. These should be based on the institution's strategic goals and institutional data and findings from the previous year's activities. Identification of high-volume, high-risk, and problem-prone activities is an important component of the risk assessment.
- The IPC program is based on current scientific knowledge, referenced practices guidelines, and applicable national laws and regulations.
- IPC resources and data systems needs should be evaluated in the context of these goals and objectives.
- Risk assessment can assist in setting priorities and obtaining support from key stakeholders. Set priorities to help focus on the appropriate allocation of IPC program resources.
- Realistic strategies for surveillance and intervention should be developed. Steps to use in this process include the following:

✓ Establishing a reliable, focused surveillance program based on the annual risk assessment.
✓ Streamlining data management activities.
✓ Analyzing HAI rates.
✓ Educating staff regarding prevention strategies.
✓ Identifying opportunities for performance improvement.
✓ Taking a leadership role in performance improvement teams.
✓ Develop and implement action plans that outline the steps needed to accomplish each objective.
✓ Evaluating the success of action plans in accomplishing the goals and objectives of the IPC plan.

Note

- Annual evaluation of the IPC program is a required element for accreditation. It should outline the achievements and activities of the program and describe support requirements.

Infection Prevention and Control Committee

- The Infection prevention & control (IPC) committee functions as a central decision & policy-making body for infection prevention and control and strengthening the performance management of healthcare-associated infections (HAIs) and to provide assurance to the healthcare institute that results in improving patient outcomes through making recommendations on IPC matters and assess and identify risks within the infection prevention and control portfolio and escalate it as appropriate.
- There should be written approved terms of reference document for the IPC committee containing structure, rules, duties, and members' responsibilities.
- Meeting minutes are written in a manner of task force tables with a time frame for actions needed and the documented actions must be followed in the next meeting.
- IPC committee is chaired by the facility director or medical director.
- The IPC committee meets regularly (at least quarterly) or when required on urgent demand.
- Functions of the IPC committee include but are not limited to (revision and evaluation of the IPC yearly plan, review and approval of IPC policies & procedures, review of surveillance data, & discussion of respiratory protection program-related activities & measures, etc.).
- **The committee consists of multidisciplinary team members:**

✓ Chairman: Rehabilitation or long-term care services chief executive officer or medical director.
✓ Deputy Chairman: (Nominated by Chairman).
✓ Committee coordinator.
✓ Committee secretary.

- The IPC committee provides oversight of the infection prevention and control program.
- The IPC committee coordinates, evaluates, and supports the activities of the Infection prevention and control program and communicates with all departments of the healthcare facility.

- The IPC committee ensures the engagement and full support of the program by all stakeholders.
- The IPC committee advocates for the program and shall ensure all resources needed are available.

For further information, kindly refer to:
Infection Prevention and Control Committee Terms of Reference, General Directorate of Infection Prevention & Control (GDIPC), MOH, 2023

Training and Education

- Education and training in infection prevention and control are vital for HCWs to prevent the spread of infections, ensure safety, promote efficiency, comply with regulations, adapt to emerging threats, and contribute to public health goals.
- Proper education equips HCWs with the knowledge and skills necessary to prevent the spread of infections, reducing the risk of outbreaks in healthcare settings and the community.
- There should be an annual infection control training program based on need assessment and include basic and specialized infection prevention & control training sessions for all HCWs in the facility.
- The IPC department offers orientation and training on the fundamentals of infection prevention and control for newly hired HCWs, to be completed before or within one month of starting their job.
- The IPC department provides education on infection prevention and control for patients, HCWs, trainees, volunteers, families, and visitors.
- Develop processes to ensure that all HCWs understand and are competent to adhere to infection prevention requirements as they perform their roles and responsibilities.
- The Basic Infection Control Skills License (BICSL) training program is implemented for all HCWs in healthcare facility following national regulations and guidelines.

Infection Prevention and Control Policy and Procedure

- Evidence-based infection prevention and control policies & procedures should be developed and implemented to prevent and reduce HAIs.
- The policies and procedures for infection prevention and control should be developed by the IPC department and must be approved by the IPC committee.
- Policies and procedures are based on approved MOH guidelines and scientific references, such as GCC, CDC, WHO, or APIC.
- The education and training of HCWs on the guidelines and the monitoring of adherence to guideline recommendations should be undertaken to achieve successful implementation.

Standard Precaution

Hand Hygiene (HH)

Hand hygiene involves antibacterial soap and water or alcohol-based hand rub and used to remove or kill microorganisms that colonize the hands.

Types of Hand Hygiene:

- **Hand rubbing (with 70–80 % alcohol):** Applying an antiseptic hand rub to reduce or inhibit the growth of microorganisms.
- **Handwashing:** Wash hands with antimicrobial soap and water before aseptic techniques.
- **Surgical hand scrub**: an antiseptic surgical scrub or antiseptic hand rub that is performed before donning surgical attire.

Note:

Alcohol-based hand rub is preferred over soap and water in most clinical situations because it (*see* **Figure 1**)**:**

Is more effective than soap at killing potentially deadly germs on hands.
Requires less time.
Accessible than handwashing sinks.
Reduce bacterial counts on hands than soap and water.

Hand washing with soap and water is mandatory in the following situations:

When the hands are visibly soiled.
When caring for patients known or suspected to have Spore-Forming Pathogens such as Clostridium difficile.

- **5 Moments for HH: (See Figure 1).**
  - ✓ Before patient contact.
  - ✓ Before clean/aseptic tasks.
  - ✓ After body fluid exposure risk.
  - ✓ After patient contact.
  - ✓ After contact with the patient's surroundings/environment.

- **Examples of the Indications of Hand Hygiene:**

1. **<u>Before touching the patient.</u>**
   - ✓ Before assisting a patient in daily activities: moving, taking a bath, getting dressed, etc.

- ✓ Before performing a physical non-invasive examination: take pulse, blood pressure, chest auscultation, etc.

2. **Before clean/aseptic procedures.**
   - ✓ Before dressing a wound.
   - ✓ Before inserting an invasive medical device (nasal cannula, nasogastric tube, endotracheal tube, urinary probe, percutaneous catheter, drainage).
3. **After body fluid exposure/risk.**
   - ✓ After contact with a mucous membrane and non-intact skin.
   - ✓ After a percutaneous injection or puncture, after inserting an invasive medical device (vascular access, catheter, tube, drain, etc.); after disrupting and opening an invasive circuit.
   - ✓ After removing an invasive medical device.
   - ✓ After removing any form of material offering protection (napkin, dressing, gauze, etc.).
4. **After touching a patient.**
   - ✓ After shaking hands.
   - ✓ After you have assisted the patient in personal activities: to move, to bath, to eat, to dress, etc.
   - ✓ After performing a physical non-invasive examination: taking pulse, blood pressure, chest auscultation, recording ECG.
5. **After touching the patient's surroundings.**
   - ✓ After an activity involving physical contact with the patient's 'immediate environment: changing bed linen with the patient out of the bed, holding a bed trail, clearing a bedside table.
   - ✓ After a care activity: adjusting perfusion speed and clearing a monitoring alarm.
   - ✓ After other contacts with surfaces or inanimate objects.

- **Other Opportunities for Hand Hygiene:**
  - ✓ Whenever hands are visibly soiled.
  - ✓ Moving from one contaminated body site to another body site during the care of the same patient.

- ✓ Before starting and finishing the duty shift.
- ✓ Before entering and leaving the patient's room.
- ✓ Before applying or removing personal protective equipment (PPE).
- ✓ After handling contaminated waste.
- ✓ When preparing or handling food, drinks, or medication for patients.
- ✓ After leaving the bathroom.

Figure:1: 5 Moments for HH

- **HH Technique and Duration:**
  1. **Alcohol-based hand rubs:** (*see* **Figure 2**)

✓ **Duration: (20-30 Sec).**

✓ **Technique:**

A. Fill the palm of your hand with sanitizer covering the entire surface.
B. Rub palms together to distribute the gel in both hands.
C. Rub the back of your left hand with your right hand, interlacing fingers, then vice versa.
D. Rub the palms of your hands together, interlacing fingers.
E. The backs of fingers with opposing palms, fingers interlocked.
F. Rotational rubbing of left thumb, then right.
G. Rotational rubbing, backward and forwards with clasped fingers of right hand in left palm and vice versa.
H. Your hands are clean once they are dry.

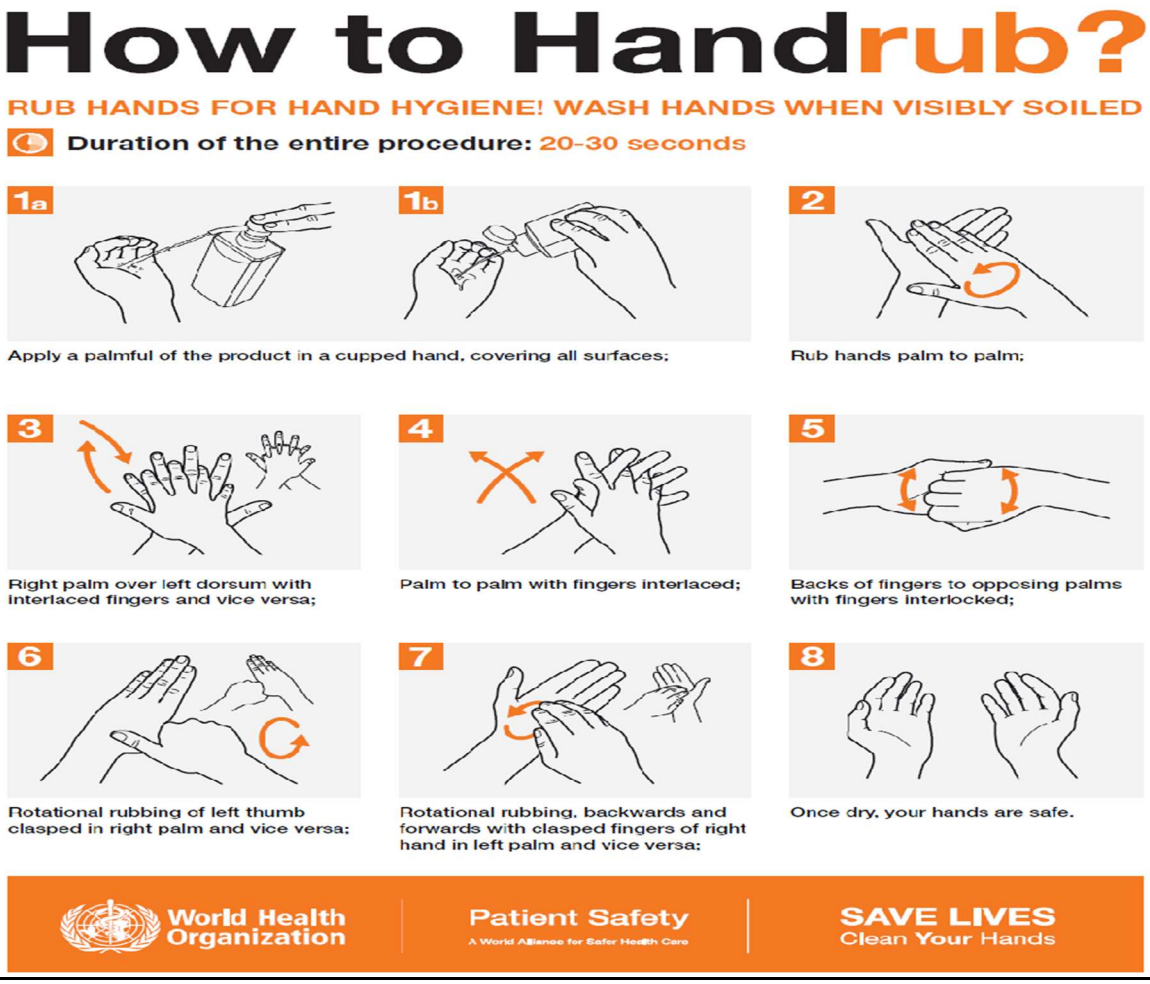

Figure:2 Technique of Hand Rubbing With 60–80 % Alcohol

Hand Washing With Soap and Water: (see Figure 3)

- ✓ **Duration: 40-60 Sec.**
- ✓ **Technique:**
  - A. Wet hands with water.
  - B. Apply enough soap to cover all hand surfaces and rub hands palm to palm.
  - C. Right palm over left dorsum with interlaced fingers and vice versa.
  - D. Palm to palm with fingers interlaced.
  - E. The backs of fingers to opposing palms with fingers interlocked.
  - F. Rotational rubbing of left thumb clasped in right palm and vice versa.
  - G. Rotational rubbing backward and forwards with clasped fingers of the right hand in the left palm and vice versa.
  - H. Rinse hands with water.
  - I. Dry hands thoroughly with a single-use towel.
  - J. Use a towel to turn off the faucet.
  - K. Your hands are now safe.
  - L. Your hands are clean once they are dry.

Note:

To ensure effective hand hygiene practices:

You should use the appropriate HH products with appropriate technique and duration.

Fingernails should be kept short.

Artificial nails or nail enhancements should be avoided.

Wrist and hand jewelry should be avoided.

Cuts and abrasions should be covered with a waterproof dressing.

Figure 3: Technique of Hand Washing with Soap and Water

Personal Protective Equipment (PPE)

Specialized clothing or equipment worn by an employee for protection against infectious materials.

- ✓ PPE must always be available in the rehabilitation and long-term care services in adequate amounts and with proper qualities.
- ✓ PPE must be available in all sizes to be suitable for all health practitioners in rehabilitation and long-term care service.

Type of PPE Used

Gloves

- Types:

✓ **Sterile:** Mostly used for surgical procedures, they are disposable, sterile, and individually wrapped items.

✓ **Non-sterile:** Disposable single-use gloves (e.g., latex-free gloves). They are used to protect against direct exposure to blood or other body fluids and before contact with contaminated equipment or surfaces.

- **General Indications for Gloves Use:**

✓ The type of gloves used depends on the procedure performed.

✓ Should be used for all patients under contact precautions.

✓ should be used for all patients when anticipating splashes of blood and body fluids.

✓ Change the gloves between patients and procedures.

✓ When in contact with a single patient and his/her surroundings.

✓ Moving from one contaminated body site to another body site during the care of the same patient.

Important Points:
Medical gloves should be selected appropriate according to job tasks, patient care activities, and hand size.
Medical gloves should be discarded immediately after removal.
Gloves should **NOT BE** washed, decontaminated, or reprocessed for any reuse purpose.
The use of gloves does not replace the need for hand hygiene.
In situations where gloves are removed because of a tear or a puncture and the HCW had contact with blood or another body, hand washing with soap and water is necessary.

Gown

General Indications for Gown Use:

- ✓ Protect from the contamination of clothing with potentially infectious material.
- ✓ Gowns should be worn as part of standards precautions or contact precautions.
- ✓ The type of gown to be used depends on the procedure performed.
- ✓ It should be used for all patients under contact precautions.
- ✓ It should be used for all patients when anticipating splashes of blood and body fluids.
- ✓ Change the gown between patients and procedures.
- ✓ Disposable gowns should be discarded after use.

Types:

a. Clean Isolation gown: used for isolation.

b. Sterile gown: used for performing invasive procedures, such as inserting a central line or surgical procedures.

Face/Surgical Mask

Indications:

a. Surgical masks: protect nose and mouth from exposure to respiratory secretions and sprays of blood or body fluids.

b. Surgical masks should be worn as part of standard precautions or droplet precautions.

c. Use the surgical mask if you expect blood or body fluids splashing.

d. Change the mask between patients.

e. Change the mask if it becomes soiled or moist or torn.

Filtering Facepiece Respirators

Indications:

a. N95 respirators reduce the wearer's exposure to airborne particles, from small particle aerosols to large droplets. These respirators filter out **at least 95%** of very small (less than 0.3 microns) particles.

b. Respirators should be worn as part of Airborne Precautions.

> **Note:**
> Not everyone can wear a respirator due to medical conditions that may be made worse when breathing through a respirator. Before using a respirator or getting fit-tested, HCW must have a medical evaluation to make sure that they can wear a respirator safely.

Instructions for N95 Respirator Use:

a. Fit testing must be done for all HCWs before using a respirator in the workplace.

b. Achieving an adequate seal to the face is essential. Conduct a user seal check each time the respirator is used.

c. A high-efficacy respirator should be used during aerosol-generating procedures.

d. Aerosol generating procedures (AGPs) for MERS COV, COVID-19 cases, and all airborne diseases regardless of the patient's condition, whether it is stable or critical.

e. Clean hands with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the respirator.

f. Discard N95 respirators outside the patient room appropriately & immediately following use.

> **Remember:**
> **User Seal Checking (formerly known as Fit Check):**
> A simple procedure intended to help the wearer verify that he/she has properly put on the respirator. To seal check a respirator, the wearer should forcefully inhale and exhale several times. The respirator should collapse slightly upon inhaling and expand upon exhaling. It should be completed each time the respirator is donned and is only applicable when a respirator has already been successfully fit tested on the individual (*see* **Figure 4**).

Figure 4: Technique of Seal Checking

Goggles/Face shields

Indications:

- **Goggles:**

  Protect only eyes from splashes of blood or body fluids.

- **Face shields:**

  Protect the face, nose, mouth, and eyes when there is a risk of exposure to splashes and body fluids.

Instructions for the Use of Goggles/Face Shields:

a) Goggles should be removed and reprocessed after each use based on the manufacturer's instructions.

b) Eye protection should be discarded if damaged (e.g., the face shield can no longer fasten securely to the provider, if visibility is obscured and reprocessing does not restore visibility).

c) HCW should take care not to touch their eye protection. If they touch or adjust it, they must immediately perform hand hygiene.

How to Put on PPE (Donning)

(see Figure 5)

a. The Sequence of PPE Donning:

1. Gown
2. Mask
3. Goggles or Face Shield
4. Gloves

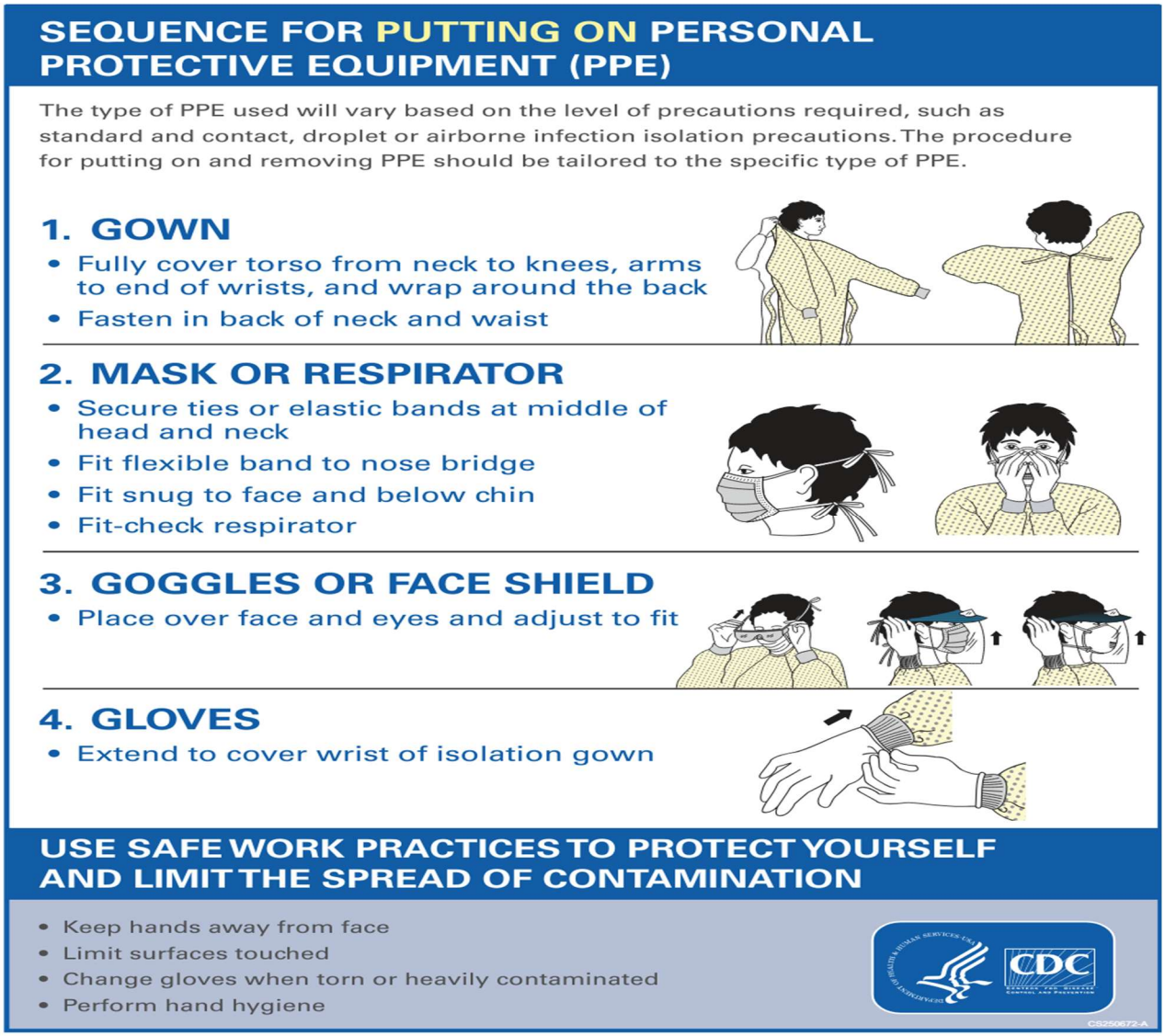

Figure 5: How to Put on PPE

Sequence for Removing PPE (Doffing)

(see Figure 6)

1. Gloves
2. Face shield or goggles
3. Gown
4. Mask

The order for removing PPE is to limit opportunities for self-contamination. The gloves are considered the most contaminated pieces of PPE and are removed first. The face shield or goggles are next because they are clumsier and would interfere with the removal of other PPE. The gown is third in the sequence, followed by the mask or respirator. Hand hygiene must be performed between sequences of each PPE.

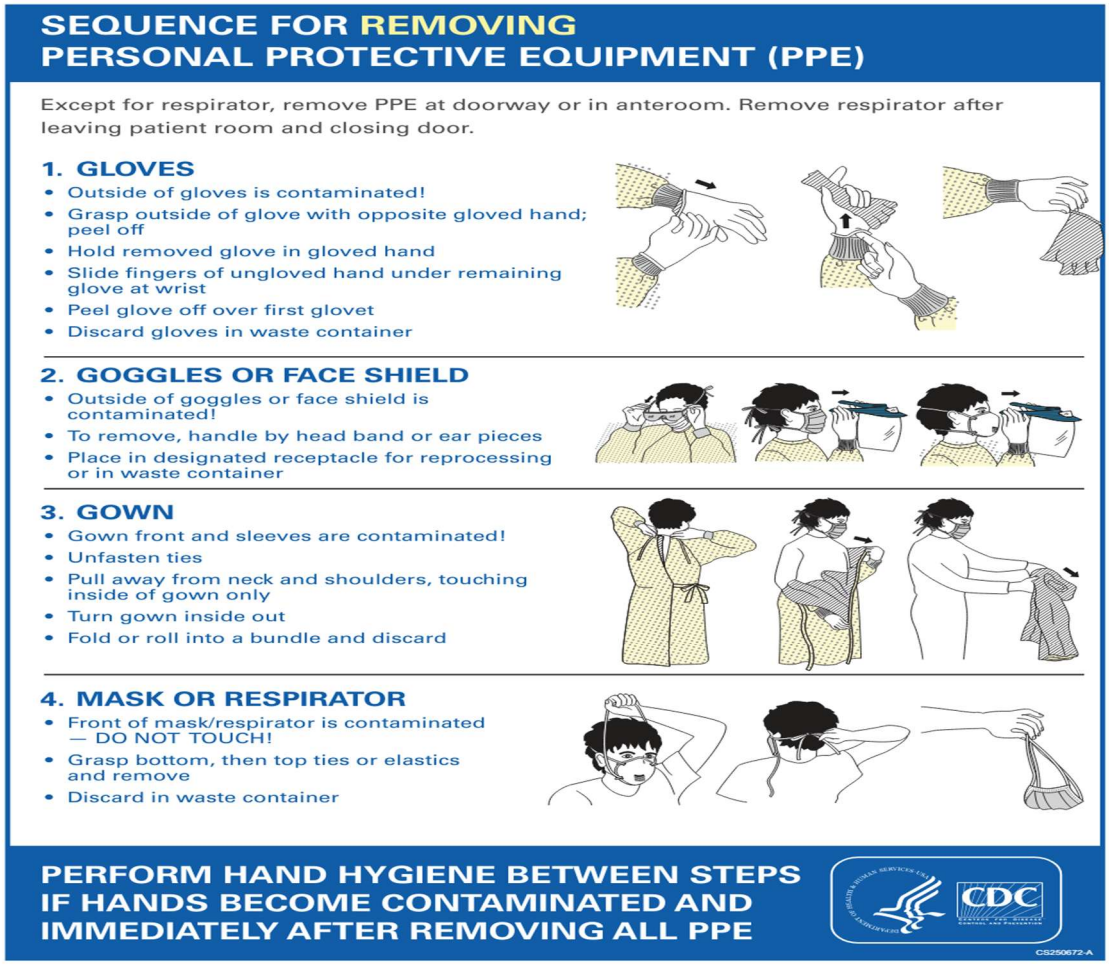

Figure 6: How to Remove PPE

Respiratory Hygiene/ Cough Etiquette

- All HCWs must practice cough etiquette when coughing or sneezing.
- Cover nose and mouth with a tissue when coughing or sneezing.
- Dispose of tissue after use in the waste receptacle and perform hand hygiene.

Safe Injection Practices

- ✓ Use an aseptic technique when preparing and administering injectable medications.
- ✓ Minimize distraction, always maintain focus on the task, keep fingers/hands away from the point of injection.
- ✓ Use a sterile single-use disposable syringe and needle for each injection given.
- ✓ All injection equipment and medication vials should be free of contamination, turbidity, or discoloration.
- ✓ The sterile package should only be opened immediately before use on the patient and not before that.
- ✓ Disinfect the self-sealed rubber cap of a medication vial or an intravenous (IV) solution bottle with approved antiseptic wipes (e.g., 70% alcohol wipes) before access.
- ✓ Don't administer medications from the same syringe to multiple patients, even if the needle is changed.
- ✓ Don't reuse a syringe to enter a medication vial or solution.
- ✓ Use a fluid infusion or administration set (i.e., intravenous tubing) for one patient only.
- ✓ Used needles should never be recapped, bent, or broken.
- ✓ All used sharps should be placed immediately in a puncture-resistant container that is designated for sharp disposal.
- ✓ Dedicate multi-dose vials to a single patient whenever possible.
- ✓ If multi-dose vials must be used for more than one patient, the vials should be restricted to a centralized medication area and should not be brought into the immediate patient treatment area.

- ✓ Never administer medications from the same syringe to multiple patients, even if the needle is changed.
- ✓ Never reuse a syringe or needle when withdrawing medication or solutions from multiuse vials or other containers, even when obtaining additional doses for the same patient.
- ✓ Dispose of used sharps in a sharps container that is close, puncture-resistant, and leak-proof. Securely seal and replace sharps containers when they become three-quarters (3/4 or %75) full.

Aseptic Technique

- Aseptic technique refers to practices designed to render and maintain objects and areas maximally free from microorganisms and aid in the prevention of surgical site, and bloodstream infections that may be procedure related.
- Clean technique refers to medical aseptic practices that use clean and disinfected or sterile equipment and supplies to reduce the number of microorganisms and minimize the risk of transmission from personnel or the environment to the patient.

Components of Aseptic Technique

Appropriate Attire

- Appropriate attire is based on the risk of the procedure and the area of rehabilitation and long-term care services where the procedure is performed.
- Medical scrubs or uniform are not considered personal protective equipment (PPE).
- HCWs performing procedures resulting in splashes or potential exposure to body fluids should wear impervious or fluid-resistant barriers as well as face and eye protection.
- Depending on the aseptic procedure being performed, barriers may include gloves, gown, and hair covering or as per rehabilitation and long-term care services policy on PPE.

Hand Hygiene

- Hand decontamination before any procedure is an integral step in the process that should be done by the team working in direct contact with the patient, equipment, instruments, and/or sterile field.

Skin Antisepsis

- Use the appropriate recommended antiseptic for each procedure type as well as screening for contraindications such as allergies.
- Antiseptic agents should be used following the manufacturer's direction for use, including ensuring skin is clean before placement as well as antiseptic contact and drying time.

Single-use Devices, Equipment, and Supplies

- HCW should maintain the sterile packaging and/or container integrity to ensure an intact seal and confirm that sterilization indicators with an expiration date are verified.
- Before use, sterile packages should always be inspected for signs of contamination such as moisture, tears, discoloration, and expiration.
- DO NOT reuse single-use items.

Medication Preparation

- A separate clean area should be available for the preparation of medications and away from patients' treatment areas.
- Use only ready-made single-dose sterile solutions for preparation & dilution of medications.
- Single-dose or single-use vial is used for a single procedure/injection in a single patient.
- Single- dose or single-use vial is not stored for future use even on the same patient.
- Whenever possible, a multi-dose vial is used for a single patient, with the recorded patient's name and date of the first use (when it has been accessed for the first time) and discarded after 28 days unless the manufacturer specifies a different shorter, or a longer date (i.e., reuse life).
- If a multi-dose vial is used for more than one patient, it is exclusively kept and accessed in the area specified for the preparation of medications.
- Cartridge devices such as insulin pens are used for only one patient.
- The self-sealed rubber cap of a medication vial or an IV solution bottle is disinfected with approved antiseptic wipes (e.g., alcohol wipes) before any access.
- IV solution bottles are only accessed through the self-sealed rubber cap after being disinfected.
- IV sets that are used to administer blood products will be replaced every 4 hours.
- IV sets that are used to administer lipid emulsions, or dextrose/amino acid total parenteral nutrition (TPN) solutions are replaced within 24 hours of initiating the infusion.
- Sterile solutions are used in nebulizers, humidifiers, or any aerosol-generating system and changed between patients, and every 24 hours for the same patient unless the manufacturer of ready-made sterile solutions specifies different dates.
- A peripheral venous catheter must be properly fixed, with a clearly written date of insertion, and to reduce the risk of infection and phlebitis, it is replaced - if still needed, but it is not replaced more frequently than every 72 to 96 hours.

Handling/Disposal of Contaminated Items

Needles/Sharps

- All used sharp items should be disposed of into an approved puncture-resistant container immediately after use, at or as close as possible to the point of use.
- Do not place used sharp items on any environmental surface.
- Do not recap or manipulate needles using both hands because this increases the risk of injury.
- If recapping or manipulating the needle is deemed essential, then use either a one-handed “scoop” technique or a mechanical device designed to hold the needle sheath.
- Before attempting to remove needles from reusable aspirating syringes, recap them with either a one-handed “scoop” technique or a mechanical device designed to hold the needle sheath.
- Close sharps containers when ¾ full and remove them for incineration.

Transmission Based Precautions

- Precautions contain two tiers: Standard Precautions and Transmission-based Precautions.
- Transmission-based precaution is designed for patients documented to be suspected or infected or colonized with highly transmissible or epidemiologically important pathogens for which additional precautions beyond standard precautions are required.

Types of Transmission-Based Precautions

Contact Isolation Precautions

- Contact isolation precautions must be used together with standard precautions.
- All HCWs in the rehabilitation and long-term care services must use contact isolation precautions when there is a suspected or confirmed diagnosis of an infectious disease that is transmitted via contact route.
- The patient should be in a single room.
- All HCWs in the rehabilitation and long-term care services must wear the appropriate PPE (**Gown-Gloves**) and other PPE as needed when anticipating contact with the patient or the patient's environment.
- All HCWs in the rehabilitation and long-term care services must follow the correct sequences of donning and doffing of PPE.

Droplet Isolation Precautions

- Droplet Isolation precautions must be used together with standard precautions
- All HCWs in the rehabilitation and long-term care services must use the droplet isolation precaution when there is a suspected or confirmed diagnosis of an infectious disease that is transmitted by the droplet route.
- The patient should be in a single room.
- All HCWs in the rehabilitation and long-term care services must wear the appropriate PPE (**Surgical Mask**) and other PPE as needed. A surgical mask is required within three (3) feet of the patient.
- All HCWs in the rehabilitation and long-term care services must follow the correct sequences of donning and doffing of PPE.

Airborne Isolation Precautions

- Airborne isolation precautions must be used together with standard precautions.
- All HCWs in the rehabilitation and long-term care services must use airborne isolation when a patient is suspected or confirmed to have any of the diseases that are spread by the airborne route.
- The patient should be in a single room with a negative air pressure system.
- All HCWs in the rehabilitation and long-term care services must wear the appropriate PPE when anticipating contact with a patient or the patient's environment.
- A fit-tested respirator particulate mask (**N95**) is required for all HCWs who will potentially care for patients in airborne isolation.
- All HCWs in the rehabilitation and long-term care services must follow the correct sequences of donning and defining PPE.

The Following Table Shows the PPE Selection Based on the Isolation Precautions

Type of PPE	Standards Precautions	Transmission-Based precautions		
		Contact Precautions	Droplet Precautions	Airborne Precautions
Hand Hygiene				
Gloves	AS needed	**At all times**	AS needed	AS needed
Gown	AS needed	**At all times**	AS needed	AS needed
Surgical Mask	AS needed	AS needed	**At all times**	Never
Respirator	Never	Never	AGPs Only	**At all times**
Eye protection	AS needed	AS needed	AS needed	AS needed

Transfer Patient Under Transmission-Based Precautions

- Restricted the transfer of patients under isolation precautions for medically necessary purposes.
- Isolation transportation cards must be used and should be consistent with the patient diagnosis, color-coded, posted in Arabic and English, and indicating the type of precautions required for HCWs (it is

preferable to use the MOH-approved isolation transportation cards) and through less crowded traffic routes.

Transfer Patient Under Contact Isolation Precautions

- Contain and cover all skin lesions and infected or colonized wounds if available with a clean bandage/dressing.
- Instruct patients to wear a clean gown and clean linen should be used.
- HCW should wear clean gloves and perform hand hygiene after taking off.

Transfer Patient Under Droplet Isolation Precautions

- Instruct the patient to wear a surgical mask.
- Educate the patient about respiratory hygiene (Cough Etiquette).
- HCW should perform hand hygiene after patient transport.

Transfer Patient Under Airborne Isolation Precautions

- Notify the receiving unit/ward/department (Diagnosis, Type of Isolation Precautions).
- Patients should wear a surgical mask.
- Educate the patient about respiratory hygiene (Cough Etiquette).
- HCW should perform hand hygiene after patient transport.
- If the patient cannot tolerate wearing a surgical mask during transportation, healthcare workers should wear the fitted N95 respirator.

Environmental Health

Definitions

- **Cleaning:** The physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms).
- **Disinfection:** A thermal or chemical process for inactivating microorganisms on inanimate objects.
- **Routine cleaning**: Regular cleaning (and disinfection, when indicated) when the room is occupied.
- **Terminal (discharge) cleaning:** Cleaning and disinfection after the patient is discharged or transferred.
- **Disinfectants:** Chemical compounds that inactivate (i.e., kill) pathogens and other microbes.
- **Contact time:** The time that a disinfectant must be in contact with a surface or device to ensure that appropriate disinfection has occurred.
- **Material safety data sheet (MSDS):** A document by the supplier or manufacturer of a chemical product that contains information on the product's potential hazards (health, fire, reactivity, and environmental) and how to work safely with it. It also contains information on the use, storage, handling, and emergency procedures.
- **Environmental cleaning:** Cleaning and disinfection (when needed, according to risk level) of environmental surfaces (e.g., bed rails, mattresses, call buttons, chairs) and surfaces of non-critical patient care equipment (e.g., IV poles, stethoscopes).
- **Low-touch surfaces:** Surfaces that are minimally touched by HCWs and patients (e.g., walls, ceilings, floors).
- **High-touch surfaces:** Surfaces, often in-patient care areas, that are frequently touched by HCWs and patients (e.g., bed rails, overbed tables, IV poles, doorknobs, medication carts).

Cleaning Products Used

- Must be approved by Ministry of Health (MOH).
- Must be compatible with the surfaces/equipment.
- Must be used according to the manufacturers' recommendations (e.g., for dilution, temperature, water hardness, contact time, etc.).

- Must be used according to the product's safety data sheet.
- Must be dedicated for facility use.

General Recommendations

- ✓ A comprehensive policy and standardized procedures for environmental cleaning and disinfection must be established and implemented.
- ✓ Environmental cleaning activities fall under the responsibility of the housekeeping team.
- ✓ A written schedule should be developed for routine cleaning and decontamination of all healthcare facilities.
- ✓ Cleaning must follow a systematic approach to ensure all surfaces are thoroughly cleaned.
- ✓ The process should always begin with the least soiled areas and progress to the most soiled.
- ✓ Cleaning practices should avoid dispersing dust into the air; only wet mopping is permitted.
- ✓ Approved Ministry of Health (MOH) disinfectant/detergent solutions should be used for scrubbing with mops.
- ✓ Cabinet counters, work surfaces, and other horizontal areas must be cleaned at least once daily using an MOH-approved intermediate-level disinfectant/detergent.
- ✓ Walls, windows, storage shelves, and similar non-critical surfaces should be cleaned periodically with an MOH-approved low-level disinfectant/detergent as part of routine housekeeping.
- ✓ Friction cleaning must be applied to ensure effective physical removal of dirt and microorganisms.
- ✓ Patient rooms and bathrooms should be cleaned daily and additionally when required.
- ✓ The use of environmental decontamination equipment (e.g., hydrogen peroxide vapor or ultraviolet devices) is preferred for terminal cleaning.
- ✓ During outbreak situations, terminal cleaning and disinfection must be directly supervised by infection control practitioners.

- ✓ Patient curtains should be cleaned or replaced according to a routine schedule and whenever visibly soiled.
- ✓ Curtains for patients under isolation precautions must be changed immediately after discharge, transfer, or discontinuation of isolation.
- ✓ All environmental cleaning should be carried out in accordance with the approved cleaning schedule, using a checklist to monitor quality and compliance.

For further information, kindly refer to:

Best Practices of Environmental Health for Prevention & Control of Infections in Healthcare Facilities Guidelines, GDIPC, MOH, 2022
Best Guidance for Selecting, Evaluating & Monitoring of the Infection Prevention & Control Supplies & Equipment's, GDIPC, MOH, 2022

Therapeutic Pool

- Infection prevention and control in hydrotherapy pools is particularly challenging, as microorganisms are invariably present in the water during treatment. A comprehensive policy must be implemented to maintain safety and hygiene in therapeutic pools and to minimize the risk of infection transmission.
- As part of the aquatic physiotherapy assessment, all patients must undergo a health screening to identify potential precautions and/or contraindications for immersion.

Preventive measures to reduce microbial contamination of hydrotherapy pools include:

- ✓ Educating patients and attendants on basic infection control practices before therapy sessions to ensure compliance.
- ✓ Requiring pre-swim hygiene measures, such as showering, to remove sweat, urine, fecal matter, cosmetics, oils, and other contaminants.
- ✓ Restricting pool use for individuals with open infected wounds, severe skin fungal infections, herpetic lesions, vomiting, diarrhea, conjunctivitis, or fecal incontinence.

- ✓ Cleaning and disinfecting hydrotherapy equipment between patients and at the end of each day with MOH-approved disinfectants, following manufacturer instructions.
- ✓ Cleaning immersion tanks and whirlpools with MOH-approved disinfectants according to manufacturer guidelines.
- ✓ Ensuring regular and thorough cleaning of the pool environment, including pool surfaces, surrounding areas, railings, drains, and pipework.
- ✓ Drying pool equipment after each use and storing it in a dry, clean environment.

Toys/Playrooms/Activity Room Cleaning & Disinfection

- ✓ Only toys that can be effectively cleaned and disinfected between uses should be permitted.
- ✓ Water-retaining bath toys and soil-based items must be avoided.
- ✓ Disposable play items should be provided whenever possible.
- ✓ Toys must be cleaned and disinfected on a regular schedule, after each use, and immediately if visibly soiled.

Biological Spill Management (For Management of Blood and Body Fluid Spills)

- Clean spills of blood or body fluids immediately, using the techniques in spill kit of blood or body fluids.
- Control access to the area: Prevent people from walking through the affected area. Use the wet floor sign.
- Put on appropriate personal protective equipment (PPEs) (see Figure 3):

a. Disposable gown.
b. Disposable face mask with a shield.
c. Disposable gloves.

- Use a plastic scoop or other mechanical means to remove any broken glass or other sharp objects from the spill area and dispose them into the sharp container.
- Contain spill: Use absorbent granules or absorbent pads to contain the spill. Sprinkle absorbent granules over the spill and leave for two minutes or as per the manufacturer's recommended contact time. Allow the spill to solidify before removing it.
- Remove the solidified waste material using the scoop and scraper and carefully dispose of all contaminated materials into the infectious waste bag.
- Add one tablet of chlorine disinfectant 2.5 gm/ 250 ml = 5000 ppm which is effective against any risky blood spill.
- Use a disposable wiping cloth to wipe up all the disinfectant, and then discard it into the yellow plastic bag.
- Place all items including PPE into a yellow biohazard plastic bag.
- Close the yellow biohazard bag securely with a fastener to prevent leakage.
- Finally, hand hygiene.

Note: The urine & vomit spill kit is not chlorine-based, and it is ideally used in the management of these spill types because adding chlorine products to urine can produce particularly unpleasant odors. When used on vomit, chlorine-based chemicals may give off extra chlorine gas.

Medical Waste Management

- Healthcare waste (Medical Waste) refers to any waste generated by facilities that provide various healthcare services.
- Infectious waste refers to waste that contains biological agents (e.g. Bacteria, viruses, parasites, fungi) in quantities or at concentrations sufficient to cause infectious disease to individuals susceptible to infection.
- Any items contaminated (i.e. Dripping) with blood or body fluid are infectious.
- Sharps waste refers to waste that contains sharp items such as vaccine glass vials, needles, syringes with needles, scalpels, lancets, razors, broken glass, or any other sharp object that has the potential to cut or puncture the body or skin.
- Infectious waste should always be (segregated, collected, transported, and stored) in a safe manner with consideration in accordance with the local regulations.
- Staff should be knowledgeable about the risks and safety operating procedures of the waste they are handling.
- Infectious waste will be collected in yellow plastic bags bearing the phrase hazardous medical waste (in Arabic and English) along with the bio-hazard logo.
- Sharps waste will be disposed of in yellow thick, leak-proof, puncture-proof containers, bearing the phrase hazard-sharp Items (in Arabic and English) and the bio-hazard logo.
- The collection and transportation of bags and containers of infectious medical waste should be conducted using special trolleys and well-trained staff.
- HCWs who transport waste should be trained in proper procedures and spill management.
- Before collection and transportation of infectious waste, bags, and containers should be fully sealed and locked, and display the appropriate data sticker identifying content, as well as proper hazard identification and its related labelling, including the bio-hazard logo.
- Waste bags will not be filled to more than 3/4 of their capacity and will not be pressurized or compacted.
- Infectious waste will be transported within the facilities covered, specially designed leakproof, and easy to clean or disinfect trolleys.

- Trolleys for collecting and carrying hazardous medical waste will be cleaned, washed, and disinfected daily in special locations by trained staff under the supervision of the person responsible for hazardous medical waste.

For further information, kindly refer to:
Medical and Sharp Waste Management, General Directorate of Environmental Health, MOH, 2023

Wound Care Recommendations

Hand Hygiene

- Perform hand hygiene before starting wound care for each patient: This includes before retrieving wound care supplies, before donning gloves, and after doffing gloves.
- Unless hands are visibly soiled, alcohol-based hand rub is preferred over soap and water.
- HCWs should not touch items in the patient care environment while performing wound care as this will contaminate gloves, supplies, and/or the environment.

Personal Protective Equipment (PPE)

- Wear gloves during all stages of wound care including when applying new dressings. Don gloves after performing hand hygiene.
- Wear a mask and eye protection if there is any chance of splashes or sprays (e.g., wounds with drainage, especially during debridement and irrigation).
- Wear a clean gown to cover arms and clothing that may encounter the patient or his care environment for each dressing change.
- Doffing PPE in correct order to decrease the spread of infection and cross-contamination.

Wound Care Equipment and Supplies

- Any reusable medical equipment that meets non-intact skin, or mucous membranes is considered a semi-critical instrument and needs to be disinfected by high-level disinfection (HLD) before use on the same patient or another patient.
- Dedicate tape, sprays, creams, and all wound care products to an individual patient, and do not store used sprays with clean wound care supplies.
- If fresh bandages are cut for the patient, it should be done with clean scissors, not with scissors used to cut off soiled bandages.

- Follow the medical waste policy and procedure for wound care dressings disposed of blood or other regulated body fluids.
- Clean and disinfect the surface (e.g., over the bed table) where wound care supplies will be placed.

Infection	Category/ timing	Requirement
Measles, Mumps, Rubella	All HCW/ pre-employment	Proof of receiving at least two doses of MMR vaccine or Proof of immunity by lab test (IgG)
Chickenpox (Varicella)	All HCW/ pre-employment	Proof of receiving at least two doses of Varicella vaccine or Proof of immunity by lab test (IgG) or Clinically documented previous infection
Hepatitis B virus (HBV)	All HCW/ pre-employment	Proof of receiving at least three doses of HBV vaccine or Proof of immunity by lab test (HBsAb =/< 10U)
Meningococcal meningitis	HCW working at Microbiology lab pre-employment and then every 5 years	Proof of receiving at least one doses of a quadrivalent Meningococcal meningitis vaccine
Influenza vaccine	All HCW annually	Proof of vaccination is required during the influenza season (usually December through the end of April)

Occupational Health Program

- All new HCWs undergo screening for latent tuberculosis infection (LTBI) using either:

✓ Interferon Gamma Release Assay (IGRA) or Two-Step Tuberculosis Skin Testing (TST) or

✓ Two-Step (PPD).

- In case of positive TST or PPD results, confirmation with IGRA is necessary.

A. Immunization Documentation:

- HCWs expected to have direct or indirect contact with patients must be immune to specific infections.

- ✓ Other specific immunizations as recommended by the national guidelines.
- ✓ HCWs should maintain accurate records of their immunization history and provide documentation as required by their employer or regulatory authorities.
- ✓ This documentation helps ensure compliance with infection control protocols and protects both HCWs and the patients they serve.

Post Exposure Management

In case of needle stick injury or sharps injury or exposed to blood or other body fluid of a patient during work, HCWs should immediately follow specific steps:

1. Do not apply pressure to the wound, allow it to bleed freely.
2. Wash the wound with soap and water.
3. Identify the patient involved so that they can be evaluated for an infection.
4. If exposure is to the eyes, wash with eyes solution or tap water for 1 minute at least.
5. Immediately report the injury to the supervisor.
6. Immediately seek medical treatment. And get a medical assessment.
7. Follow the directions for any necessary blood tests, vaccinations, or medications to prevent infection.

For further information, kindly refer to:
Occupational Health Clinics Program, MOH, 2019

Emerging and Re-Emerging Preparedness

- Rehabilitation and long-term care services should have policies and procedures for dealing with emerging or re-emerging infectious diseases based on national guidelines and references.
- Protocols for early detection of patients with emerging or re-emerging infectious diseases should be available.
- Management protocols for patients with emerging or re-emerging Infectious diseases should be available.
- Active surveillance for monitoring HCWs with signs and symptoms of exposure to any emerging or re-emerging infectious threats should be implemented.
- Continuous job-specific training on emerging or reemerging infectious threats should be provided to All HCWs in the facility.

For further information, kindly refer to:
Healthcare-Associated Outbreak Management Manual, GDIPC, MOH, 2023
Standard Operating Procedure (SOP) for Rapid Response Teams in Infection Prevention and Control (IPC-RRT), GDIPC, MOH, 2024

Outbreak Management

- Outbreak management should be undertaken when disease occurrence in a population above the normally expected rates at any given time or location.
- A review of infection prevention procedures, including compliance with hand hygiene, aseptic techniques, and practices for sterilization and disinfection, should be performed.
- Infected or colonized patients should be rapidly identified and isolated.
- There should be a screening policy for all multi-drug-resistant organisms (MDROs) implemented for the admission or transfer of patients to the medical rehabilitation and long-term care services according to the up-to-date national MOH guidelines.
- Healthcare facilities should establish a defined outbreak management team (OMT) chaired by either the facility director or the medical director. This team should have clear roles and responsibilities and include all key members involved in outbreak management.
- A well-designed notification system exists between the IPC department, the laboratory, and all medical rehabilitation and long-term services departments for any critical values (e.g., MDROs, positive cultures). All these values must be monitored regularly.

For further information, kindly refer to:
Healthcare-Associated Outbreak Management Manual, GDIPC, MOH, 2023

Surveillance and Epidemiology Reporting

- Surveillance is a systematic method of ongoing collection, consolidation, and data analysis concerning the distribution and determinates of a given disease or event, followed by the dissemination of that information to those who can improve the outcome.
- Surveillance of healthcare-associated infections & MDROs must be conducted in the facility for prevention of device-associated HAIs (Catheter associated urinary tract infection (CAUTI), central line associated blood stream infection (CLABSI), ventilator associated events (VAEs) & non-device-associated HAIs such as blood stream infection (BSI), pneumonia, and urinary tract infections (UTIs).
- Medical rehabilitation and long-term care services HCWs must ensure strict implementation of all elements of care bundles as part of process surveillance.

Care Bundles for Prevention of Device-Associated Infections in Medical Rehabilitation and Long-term Care Services

- A bundle is a structured way of improving the processes of care and patient outcomes.
- It is a small, straightforward set of evidence-based practices, generally three to five that, when performed collectively and reliably, have been proven to improve patient outcomes.

Type of Prevention Care Bundles:

✓ Central line insertion bundle
✓ Central line maintenance bundle
✓ Adult ventilator bundle
✓ Pediatric ventilator bundle
✓ Urinary catheter bundle

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