3
Infection Control Practices

Infection control practices can be grouped in two categories

(1) standard precautions;

(2) additional (transmission-based) precautions.

Transmission of infections in health care facilities can be prevented and controlled through the application of basic infection control precautions which can be grouped into standard precautions, which must be applied to all patients at all times, regardless of diagnosis or infectious status, and additional (transmission-based) precautions which are specific to modes of transmission (airborne, droplet and contact).[1,2,3,4,5]

Standard precautions

Treating all patients in the health care facility with the same basic level of "standard" precautions involves work practices that are essential to provide a high level of protection to patients, health care workers and visitors.

These include the following:

- hand washing and antisepsis (hand hygiene);
- use of personal protective equipment when handling blood, body substances, excretions and secretions;
- appropriate handling of patient care equipment and soiled linen;
- prevention of needlestick/sharp injuries;
- environmental cleaning and spills-management; and
- appropriate handling of waste.

Hand washing and Antisepsis (hand hygiene)

Appropriate hand hygiene can minimize micro-organisms acquired on the hands during daily duties and when there is contact with blood, body fluids, secretions, excretions and known and unknown contaminated equipment or surfaces (for further details see Annex 1).

Wash or decontaminate hands:

- after handling any blood, body fluids, secretions, excretions and contaminated items;
- between contact with different patients;
- between tasks and procedures on the same patient to prevent cross-contamination between different body sites;
- immediately after removing gloves; and
- using a plain soap, antimicrobial agent, such as an alcoholic hand-rub or waterless antiseptic agent.

The hospital setting is a good setting for communication about personal hygiene, such as informing visitors and the general public about hygiene rules such as washing hands.

Use of personal protective equipment

Using personal protective equipment provides a physical barrier between micro-organisms and the wearer. It offers protection by helping to prevent micro-organisms from:

- contaminating hands, eyes, clothing, hair and shoes;
- being transmitted to other patients and staff (for further information about personal protective equipment see Annex 2).

Personal protective equipment includes:

- gloves;
- protective eye wear (goggles);
- mask;
- apron;
- gown;
- boots/shoe covers; and
- cap/hair cover.

Examples of personal protective equipment



Personal protective equipment should be used by:

- Health care workers who provide direct care to patients and who work in situations where they may have contact with blood, body fluids, excretions or secretions;
- support staff including medical aides, cleaners, and laundry staff in situations where they may have contact with blood, body fluids, secretions and excretions;
- laboratory staff, who handle patient specimens; and
- family members who provide care to patients and are in a situation where they may have contact with blood, body fluids, secretions and excretions.

Principles for use of personal protective equipment

Personal protective equipment reduces but does not completely eliminate the risk of acquiring an infection. It is important that it is used effectively, correctly, and at all times where contact with blood and body fluids of patients may occur. Continuous availability of personal protective equipment and adequate training for its proper use are essential. Staff must also be aware that use of personal protective equipment does not replace the need to follow basic infection control measures such as hand hygiene.

The following principles guide the use of personal protective equipment:

- Personal protective equipment should be chosen according to the risk of exposure. The health care worker should assess whether they are at risk of exposure to blood, body fluids, excretions or secretions and choose their items of personal protective equipment according to this risk.
- Avoid any contact between contaminated (used) personal protective equipment and surfaces, clothing or people outside the patient care area.

- Discard the used personal protective equipment in appropriate disposal bags, and dispose of as per the policy of the hospital.
- Do not share personal protective equipment.
- Change personal protective equipment completely and thoroughly wash hands each time you leave a patient to attend to another patient or another duty.

Gloves

Wear gloves (clean, non-sterile) when touching blood, body fluids, secretions, excretions or mucous membranes.

Change gloves between contacts with different patients.

Change gloves between tasks/ procedures on the same patient to prevent cross-contamination between different body sites.

It is important to use personal protective equipment effectively, correctly, and at all times where contact with patient's blood, body fluids, excretions and secretions may occur.

Remove gloves immediately after use and before attending to another patient.

Wash hands immediately after removing gloves.

Use a plain soap, antimicrobial agent or waterless antiseptic agent.

Disposable gloves should not be reused but should be disposed of according to the health care facility protocol.

Masks

Wear a mask to protect mucous membranes of the mouth and nose when undertaking procedures that are likely to generate splashes of blood, body fluids, secretions or excretions. (For further information about types of masks to be used see Annex 2.)

Wear surgical masks rather than cotton material or gauze masks. Surgical masks have been designed to resist fluids to varying degrees depending on the design of the material in the mask.

Do not reuse disposable masks. They should be disposed of according to the health care facility protocol.

Protective eyewear/goggles/visors/face shield

Wear protective eyewear/goggles/visors/face shields to protect the mucous membranes of the eyes when conducting procedures that are likely to generate splashes of blood, body fluids, secretions or excretions. If disposable, discard appropriately. If they are reusable, decontaminate them according to the manufacturers' instructions.

Gowns and plastic aprons

Wear a gown (clean, non-sterile) to protect the skin and prevent soiling of clothing during procedures that are likely to generate splashes of blood, body fluids secretions or excretions. Impermeable gowns are preferable.

Remove a soiled or wet gown as soon as possible.

A plastic apron may be worn on top of the gown to protect exposure to blood, body fluids, secretions and excretions.

Launder gowns and aprons appropriately if they are reusable, according to the hospital guidelines

Do not reuse disposable gowns and aprons. They should be disposed of according to the health care facility protocol.

Caps and boots/shoe covers

Wear caps and boots/shoe covers where there is a *likelihood* the patient's blood, body fluids, secretions or excretions may splash, spill or leak onto the hair or shoes.

Launder caps and shoe covers appropriately if they are reusable, according to the hospital guidelines.

Do not reuse disposable caps/shoe covers. They should be discarded according to the health care facility protocol.

Clean and disinfect reusable boots.

Patient care equipment

Handle patient care equipment soiled with blood, body fluids secretions or excretions with care in order to prevent exposure to skin and mucous membranes, clothing and the environment.

Ensure all reusable equipment is cleaned and reprocessed appropriately before being used on another patient.

Linen

Handle, transport and process used linen that is soiled with blood, body fluids, secretions or excretions with care to ensure that there is no leaking of fluid.

Prevention of needle stick/sharps injuries

Take care to prevent injuries when using needles, scalpels and other sharp instruments or equipment.

Place used disposable syringes and needles, scalpel blades and other sharp items in a puncture-resistant container with a lid that closes and is located close to the area in which the item is used.

Take extra care when cleaning sharp reusable instruments or equipment.

Never recap or bend needles.

Sharps must be appropriately disinfect and/or destroyed as per the national standards or guidelines.

Management of health-care waste

Uncollected, long stored waste or waste routing within the premises must be avoided. A sound waste management system needs to be developed and closely monitored. (For further information see Environmental Management Practices – Chapter 4.)

Additional (transmission-based) precautions

Additional (transmission-based) precautions are taken while ensuring standard precautions are maintained. Additional precautions include:

- Airborne precautions;
- Droplet precautions; and
- Contact precautions.

Airborne precautions

Airborne precautions are designed to reduce the transmission of diseases spread by the airborne route. Airborne transmission occurs when droplet

nuclei (evaporated droplets) <5 micron in size are disseminated in the air.[6] These droplet nuclei can remain suspended in the air for some time. Droplet nuclei are the residuals of droplets and when suspended in the air, dry and produce particles ranging in size from 1–5 micron. These particles can remain suspended in the air for long periods of time, especially when bound on dust particles. Diseases which spread by this mode include open/active pulmonary tuberculosis (TB), measles, chicken pox, pulmonary plague and haemorrhagic fever with pneumonia.

The following precautions need to be taken:

- Implement standard precautions.
- Place patient in a single room that has a monitored negative airflow pressure, and is often referred to as a "negative pressure room" (see Glossary). The air should be discharged to the outdoors or specially filtered before it is circulated to other areas of the health care facility.
- Keep doors closed.
- Anyone who enters the room must wear a special, high filtration, particulate respirator (e.g. N 95) mask.
- Limit the movement and transport of the patient from the room for essential purposes only. If transport is necessary, minimize dispersal of droplet nuclei by masking the patient with a surgical mask.

It is important to gain the support of engineering services to ensure that the negative airflow pressure is maintained.

Droplet precautions

Diseases, which are transmitted by this route, include pneumonias, pertussis, diphtheria, influenza type B, mumps, and meningitis. Droplet transmission occurs when there is adequate contact between the mucous membranes of the nose and mouth or conjunctivae of a susceptible person and large particle droplets (> 5 microns).[7] Droplets are usually generated from the infected person during coughing, sneezing, talking or when health care workers undertake procedures such as tracheal suctioning.[7]

The following precautions need to be taken:

- Implement standard precautions.
- Place patient in a single room (or in a room with another patient infected by the same pathogen).

- Wear a surgical mask when working within 1-2 meters of the patient.
- Place a surgical mask on the patient if transport is necessary.
- Special air handling and ventilation are not required to prevent droplet transmission of infection.

Contact precautions

Diseases which are transmitted by this route include colonization or infection with multiple antibiotic resistant organisms, enteric infections and skin infections.

The following precautions need to be taken:

- Implement standard precautions.
- Place patient in a single room (or in a room with another patient infected by the same pathogen). Consider the epidemiology of the disease and the patient population when determining patient placement.
- Wear clean, non-sterile gloves when entering the room.
- Wear a clean, non-sterile gown when entering the room if substantial contact with the patient, environmental surfaces or items in the patient's room is anticipated.
- Limit the movement and transport of the patient from the room; patients should be moved for essential purposes only. If transportation is required, use precautions to minimize the risk of transmission.

Patient placement and transportation of patients

Patient placement

Appropriate or selective placement of patients is important in preventing the transmission of infections in the hospital setting. General principles in relation to the placement of patients include the following:

Spacing between beds

In open plan wards there should be adequate spacing between each bed to reduce the risk of cross contamination/infection occurring from direct or indirect contact or droplet transmission. Optimum spacing between beds is 1-2 meters.