

LESSON ASSIGNMENT

LESSON 5

Isolation.

LESSON OBJECTIVES

After completing this lesson, you should be able to:

- 5-1. Identify the purpose of isolation.
- 5-2. Identify the categories of isolation by name.
- 5-3. Identify the precautions used for each category of isolation.
- 5-4. Identify basic principles of isolation techniques including room facilities; use storage, and disposal of equipment and supplies; and the use of masks, gowns, and gloves by hospital personnel.
- 5-5. Identify the procedures for terminal cleaning of an isolation room.

SUGGESTION

After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you achieve the lesson objectives.

LESSON 5

ISOLATION

Section I. Types of Isolation

5-1. CATEGORIES OF ISOLATION

Isolation is the separation of a patient from contact with others in order to control the spread of an infectious or communicable disease. Patients are isolated according to the mode of transmission of the disease.

a. **Strict Isolation.** Strict isolation is used to prevent the transmission of all highly communicable diseases that are spread by both, contact or airborne routes of transmission. Examples of such diseases are chickenpox and rabies.

b. **Respiratory Isolation.** Respiratory isolation is used to prevent transmission of organisms by means of droplets that are sneezed or breathed into the environment. Examples of such diseases are influenza and tuberculosis.

c. **Protective Isolation.** Protective isolation is used to prevent contact between potentially pathogenic microorganisms and uninfected persons who have seriously impaired resistance. Patients with certain diseases, such as leukemia, who are on certain therapeutic regimens are significantly more susceptible to infections.

d. **Enteric Precautions.** Enteric precautions are used to control diseases that can be transmitted through direct or indirect oral contact with infected feces or contaminated articles. Transmission of infection depends on ingestion of the pathogen. Examples of diseases requiring enteric precautions are dysentery and hepatitis.

e. **Wound and Skin Precautions.** Wound and skin precautions are used to prevent the spread of microorganisms found in infected wounds (including burns and open sores) and contact with wounds and heavily contaminated articles. Conditions requiring these precautions include infected burns, infected wounds, and infections with large amounts of purulent discharge. Diseases that may require wound and skin precautions include herpes, impetigo, and ringworm.

f. **Blood Precautions.** Blood precautions are used to prevent acquisition of infection by patients and personnel from contact with blood or items contaminated with blood. Examples of diseases that require blood precautions (refer to Lesson 1) are HBV and HIV/AIDS.

g. **Discharge Precautions.**

(1) Secretion precautions-lesions. These precautions are used to prevent acquisition of infection by personnel and patients from direct contact with wounds and secretion-contaminated articles. Some examples of diseases requiring these precautions are conjunctivitis, gonorrhea, and syphilis.

(2) Secretion precautions-oral. These precautions are used to prevent acquisition of infection by personnel from direct contact with oral secretions. Some examples of diseases requiring these precautions are herpes areolas and scarlet fever.

(3) Excretion precautions. These precautions are used to prevent acquisition of infection by personnel and patients from direct contact with fecal excretions. Some examples of diseases requiring these precautions are poliomyelitis and staphylococcal food poisoning.

5-2. SIGNS USED TO IDENTIFY TYPES OF ISOLATION

Concise information on isolation in effect is put on signs placed on the door of the isolation room at eye level. Some hospital signs are disease specific, and other hospital signs are category specific. The sign is removed when isolation is no longer required. A checklist is also placed on the door. This list indicates whether masks, gowns, gloves, etc. are required for persons entering the room. Any other pertinent information is also on this sign.

a. Strict Isolation.

- (1) Visitors must report to the nurses' station before entering the room.
- (2) Door must be kept closed.
- (3) Gowns must be worn by all persons entering the room.
- (4) Masks must be worn by all persons entering the room.
- (5) Hands must be washed on entering and leaving the room.
- (6) Gloves must be worn by all persons entering the room.

(7) Articles must be discarded or wrapped before being sent to Central Supply for disinfection or sterilization.

b. Respiratory Isolation.

- (1) Visitors must report to the nurses' station before entering the room.
- (2) Door must be kept closed.
- (3) Gowns are not necessary.
- (4) Masks must be worn by any person entering the room unless that person is not susceptible to the disease.

- (5) Hands must be washed on entering and leaving the room.
- (6) Gloves are not necessary.
- (7) Articles contaminated with secretions must be disinfected.

c. Protective Isolation.

- (1) Visitors must report to the nurses' station before entering the room.
- (2) Door must be kept closed.
- (3) Gowns must be worn by all persons entering the room.
- (4) Masks must be worn by all persons entering the room.
- (5) Hands must be washed on entering and leaving the room.
- (6) Gloves must be worn by all persons having direct contact with the patient.
- (7) Articles must be handled according to local SOP.

d. Enteric Precautions.

- (1) Visitors must report to the nurses' station before entering the room.
- (2) Gowns must be worn by all persons having direct contact with the patient.
- (3) Masks are not necessary.
- (4) Gloves must be worn by all persons having direct contact with the patient or with articles contaminated with fecal material.
- (5) Special precautions are necessary for articles contaminated with urine and feces. Articles must be disinfected or discarded.

e. Wound and Skin Precautions.

- (1) Visitors must report to the nurses' station before entering the room.
- (2) Gowns must be worn by all persons having direct contact with the infected wound.
- (3) Masks are not necessary except during dressing changes.

(4) Gloves must be worn by all persons having direct contact with the infected area.

(5) Special precautions are necessary for instruments, dressings, and linens.

CAUTION: Only hospital personnel who have been vaccinated with poliomyelitis vaccine should have direct contact with patients who have active poliomyelitis.

Section II. ISOLATION TECHNIQUES

5-3. GENERAL

The basic purpose of isolation is to minimize the spread of communicable diseases. The physician determines whether or not isolation is needed. Once the need for isolation has been determined, the responsibility for maintaining good isolation techniques belongs to everyone involved--from the physician to housekeeping personnel to the patient himself. Care for the patient in isolation is basically the same as for other patients, but there is an increased emphasis on the principles of medical asepsis.

a. The needs of a patient in isolation should not be ignored just because of the isolation. The needs of the isolated patient are just as important as the needs of other patients.

b. The basic principles that apply to patients in isolation are discussed in the following paragraphs.

5-4. ROOM

A private room should contain hand washing, bathing, and connecting toilet facilities. Connecting toilet facilities make unnecessary the need for portable commodes or special transportation techniques for commodes, bedpans, and urinals. The implementation of isolation can be simplified if special rooms on one or more wards are available for isolation.

a. The room or area should have a minimum ventilation (supply and exhaust) of six air changes per hour. These areas should be constructed so that there is no cross-circulation or recirculation of air, unless passed through high-efficiency filters, between the isolation room and other sections of the hospital.

b. An anteroom between the room and the hall, especially for rooms housing patients in strict isolation or respiratory isolation, will help in maintaining these two categories of isolation by providing storage space for gowns, gloves, and masks. These anterooms also reduce the possibility of airborne spread of infectious agents from the

room into the corridor whenever the door of the isolation room is opened. The anteroom should be under slightly negative pressure with regard to the hall. It is preferable for the anteroom, as well as the isolation room, to have its own supply and exhaust for ventilated air.

c. The room design of many, especially older, hospitals may not allow for adequate control of air movement. Therefore, complete control of droplet nuclei and dust particles is not possible. If proper air-handling capabilities are lacking, a commercially available window fan to exhaust air from the room may be used to control airflow. It is far preferable, however, for the hospital to install permanent ventilation systems in an adequate number of rooms specified for isolation. Window fans might be installed in rooms of patients admitted with disease spread by the airborne route, such as staphylococcal pneumonia, or chickenpox. Window fans may be of special use in improving isolation of patients with pulmonary tuberculosis.

5-5. HOSPITAL PERSONNEL

a. **Masks.** Individual mask technique is recommended. Masks should cover the nose and mouth. The high-efficiency disposal masks are more effective than the standard cotton gauze or paper tissue masks in preventing airborne and droplet spread. Masks should be used only once. They may become ineffective when moist and should be discarded in an appropriate receptacle before the user leaves the contaminated area. Masks must never be lowered around the neck and reused. Supplies of masks should be readily available outside the patient area when isolation procedures require their use.

b. **Gowns.** Individual gown technique is recommended; that is, gowns should be used only once and then discarded in an appropriate receptacle before the user leaves the contaminated area. Supplies of gowns must be readily available outside the patient area when isolation procedures require their use. Sterile gowns may be used in caring for some patients in protective isolation. In other instances, such as patients with extensive burns or extensive wound infections, it may be desirable to use sterile gowns when changing dressings. Clean, freshly laundered, or disposable gowns may be used for all other categories.

c. **Caps and Booties.** Caps and booties are not necessary in any of the categories of isolation. When used, the cap should cover all scalp hair, and the booties should cover the open ends of trousers. They should be used only once and then packaged for reprocessing or disposal.

d. **Hands.** Hand washing before and after contact with each patient is the single most important means of preventing the spread of infection. Hand washing is mandatory even when gloves are used. In addition, personnel must wash their hands after any contact with excretions (feces, urine, or soiled material) or secretions (drainage from wounds, skin infections, and so forth) of the patient before touching that patient again.

(1) Liquid, powder, or bar soaps can be used for normal hand washing; however, an antiseptic cleansing agent should be used by personnel caring for patients in isolation. Vigorous scrubbing for at least 15 seconds and thorough rinsing are essential for hand washing to be effective since much of the benefit results from physical removal of contaminants.

(2) Sinks for hand washing and hand washing supplies should be conveniently available near every patient.

e. **Gloves.** Gloves should be used only once and then discarded into an appropriate receptacle before the user leaves the contaminated area. Supplies of gloves should be readily available outside the patient area when the isolation procedure requires their use. Disposable single-use gloves (sterile or nonsterile, depending on the specific use) are available and may be used.

(1) In administering to a patient, personnel should change to new gloves after direct contact with that patient's excretions or secretions, even if you have not completed your nursing care procedures for that patient.

(2) The use of gloves is stressed because even with good hand washing techniques, potentially infectious material may be left on the hands (under fingernails, for example). Such residue cannot be removed without special attention.

5-6. EQUIPMENT

a. **Sphygmomanometer and Stethoscope.** When indicated, this equipment should be kept in the isolation area for use with the patient throughout his hospitalization. After the patient is discharged, these instruments should be disinfected in the manner as appropriate based upon the type of agent that required the isolation.

b. **Needles and Syringes.** Because of the impossibility of knowing which patients' blood may be contaminated with hepatitis virus or other microorganisms, extreme caution must be applied in handling used needles and syringes whether in isolation or not.

(1) Disposable needles and syringes are available and should be used for patients in isolation. They must not be reused. Used needles need not be recapped; they should be placed in a prominently labeled, impervious, puncture-resistant container designated specifically for this purpose. Needles should not be purposely bent because accidental needle puncture may occur. Place used syringes in an impervious bag. Both of these containers should be incinerated or autoclaved and then discarded.

(2) Reusable needles and syringes should be rinsed thoroughly in cold water after use. The needle should be placed in a puncture-resistant rigid container. Syringes and needles should be wrapped using double-bag technique and returned for decontamination and sterilization.

c. **Urinals and Bedpans.** Urine and feces should be flushed down the toilet when the hospital uses a municipal or other safe sewage treatment system. A urinal and/or bedpan, if needed, should be issued to and used by only one patient until decontaminated and resterilized. Autoclaving is the most reliable decontamination system. Steam hoppers do not sterilize these utensils and may even create bacterial or viral aerosols. Disposable urinals and bedpans are available and may be used for patients in isolation. They should be disposed of in the same manner as dressings and paper tissues.

d. **Thermometers.** Special precautions with nondisposable thermometers are needed for certain categories of isolation. In these instances, the thermometer remains in the patient's room in a container with disinfectant prepared according to local SOP. Every three days, the disinfectant is flushed down the toilet and the container washed, dried, and refilled. Thermometers should be rinsed in cold water before and after use.

(1) Oral thermometers may be kept dry instead of soaking in a disinfectant solution. Before each use, however, they should be washed with soap and water and wiped with 70 to 90 percent alcohol.

(2) Upon discharge of the patient, nondisposable thermometers should be wrapped and sent to Central Supply for sterilization.

5-7. SUPPLIES AND OTHER ITEMS

a. **Dressings and Tissues.** All dressings, paper tissues, and other disposable items soiled by respiratory, oral, or wound secretions must be considered potentially infective and disposed of accordingly even if the patient is not isolated. Disposal may call for single or double disposable bag techniques. Bags should be impervious. When removed from patient areas, the bags should be closed, sealed, and placed in a larger disposable bag or container. Ultimate disposal is by incineration or placement in a properly supervised and maintained sanitary landfill. Appropriate disposable bags must always be available at the patient's bedside.

b. **Linen.** All mattresses and pillows for patients in isolation should be covered with impervious plastic. The double-bag technique discussed below should be used when removing linen and other contaminated articles from rooms of patients in isolation.

NOTE: If the inner bag is made of plastic that is hot water soluble, handling of these potentially contaminated linens is reduced. Disposable linens can be used for patients in isolation.

(1) The articles are placed in a clean bag in the contaminated area and closed tight.

(2) The bag is then placed in a second bag, preferably of a different color, which is held by a person or supported by a hamper outside the patient's room.

(3) This second bag is closed or stapled tight and labeled "**CONTAMINATED**" or "**ISOLATION**" so that whoever receives this material can take the necessary precautions to protect himself.

c. **Dishes.** Disposable dishes and utensils are available and can be used for patients in isolation.

d. **Drinking Water.** No special precautions are necessary.

e. **Clothing and Personal Effects.** Follow established special precautions in strict isolation, enteric precautions, and wound and skin precautions.

f. **Laboratory Specimens.** When double-bag technique is necessary for transporting specimens, use transparent bags so contents can be seen and handled appropriately.

g. **Books, Magazines, Money, Letters, and Toys.** In general, any of these articles visibly soiled with potentially infective excretions or secretions should be disinfected or destroyed.

h. **Patient's Chart.** The patient's chart should not be taken into the isolation room if the patient is under strict isolation.

5-8. CLEANING

a. **Concurrent Cleaning.** Cleaning equipment must be disinfected at the end of each cleaning shift. For example, wiping cloths and mop heads should be laundered and thoroughly dried, dirty water discarded, and buckets disinfected before being refilled.

b. **Terminal Cleaning.** Terminal cleaning of isolation rooms for isolation areas consists of the following general actions in addition to any specific measures listed in the individual section.

(1) All receptacles (drainage bottles, urinals, bedpans, flow meter jars, and thermometer holders) should be emptied, wrapped, or marked (if indicated), and returned to Central Supply.

(2) All disposable items should be discarded in a wastebasket lined with an impervious plastic bag.

(3) All equipment that cannot be best handled by Central Supply or discarded should be washed with a freshly prepared germicidal detergent solution.

(4) All furniture and mattress covers should be washed with the germicidal detergent solution. Furniture after terminal disinfection is illustrated in figure 5-1.

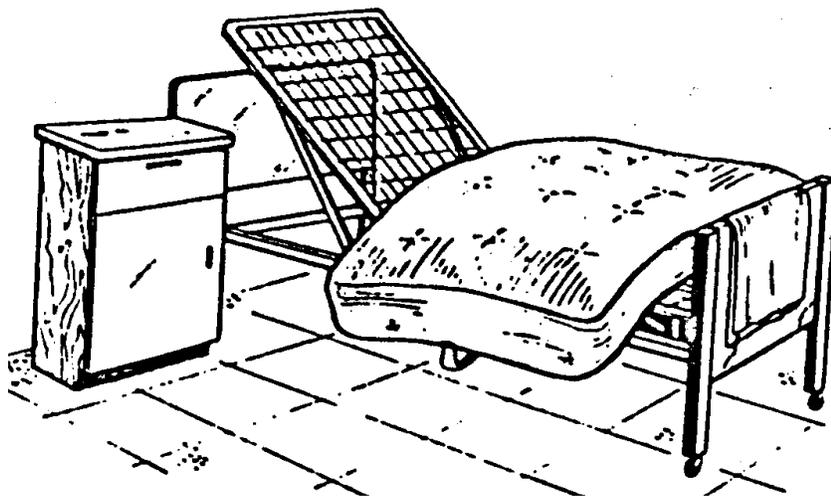


Figure 5-1. Furniture after disinfection.

(5) All floors should be wet-vacuumed. If wet-vacuuming equipment is not available, floors should be mopped with fresh germicidal detergent solution using a double-bucket technique.

(6) Grossly soiled areas on walls should be washed with germicidal detergent solution.

(7) Disinfectant fogging should not be used. It is an unsatisfactory method of decontaminating air or surfaces.

(8) Airing a room from which a patient has been discharged is not an effective terminal disinfection procedure and is not necessary. The only exception is that if the room does not have an adequate artificial ventilation system or functioning exhaust fan, a 1 to 2 hour airing period with windows open and doors closed may be used before terminal cleaning.

c. **Special Instruments.** If possible, instruments should be returned to be disinfected or sterilized. They should be either single or double-bagged and marked before they leave the patient's area. All reusable breathing circuits and humidification devices used with inhalation therapy equipment should be wrapped and returned to Central Supply for reprocessing.

d. **Special Procedure Trays.** Trays should be separated into component parts and handled as indicated.

e. **Isolation Carts.** Some institutions use special isolation carts prestocked with all necessary equipment for all classes of isolation or separate isolation carts for each class of isolation. These can be wheeled to the area where a patient in isolation is located. They must be cleaned frequently and kept adequately stocked with all necessary supplies.

5-9. VISITORS

Visitors should be kept to a minimum since they may become infected. In all instances, visitors should see a floor nurse before entering the isolation area and be instructed in the use of the gown, mask, and gloves. In general, children should not be allowed to visit patients in isolation.

5-10. TRANSPORTING PATIENTS

Patients should be taken out of their isolation area only for essential purposes. Appropriate barriers [masks and impervious (water resistant) dressings] to prevent disease transmission should be provided for the entire period the patient is out of the isolation area. The area to which the patient is to be taken should be notified of his impending arrival and informed of the techniques to be applied to prevent the spread of infection. If appropriate, the patient should be alerted to the potential spread of his disease and informed as to how he can assist in maintaining a barrier against the transmission of his infection to others.

EXERCISES, LESSON 5

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space provided at the end of the exercise. After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. The purpose of isolating a patient from other patients is to:
 - a. Help prevent the spread of communicable disease.
 - b. Control irrational outbursts on the part of the patient.
 - c. Reduce the risk of psychological reactions on the part of fellow patients.
 - d. Punish the patient.

2. Which of the following is a proper isolation technique?
 - a. There should not be an anteroom between the isolation room and the hall.
 - b. Ventilation of air within the room should be kept to under three air changes per 24-hour period.
 - c. The use of portable commodes is preferred over private toilet facilities adjoining the isolation room.
 - d. Window fans can be used to help control airflow in isolation rooms with inadequate ventilation.

3. In which of the following situations would you probably wear a sterile gown rather than a regular freshly laundered gown?
 - a. Caring for a person in protective isolation.
 - b. Caring for a person in respiratory isolation.
 - c. Caring for a person in strict isolation.

4. You are giving care to a person in isolation. Your gloves have come into contact with drainage from a wound. Should you change your gloves before you continue to administer care to the patient?
 - a. Yes.
 - b. No.

5. Sheets (not disposable) from an isolation room are to be double-bagged. Which one of the following is preferred?
 - a. The outer bag should be soluble in hot water.
 - b. The inner bag should be soluble in hot water.
 - c. Both bags should be soluble in hot water.
 - d. Neither bag should be soluble in hot water.

6. Which one of the following is not part of the terminal cleaning procedures for an isolation room?
 - a. Returning drainage bottles to Central Supply.
 - b. Discarding all disposable items into a paper bag.
 - c. Washing grossly soiled areas or walls with a germicidal detergent solution.
 - d. Washing mattress covers with a germicidal detergent solution.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 5

1. a (paras 5-1, 5-3)
2. d (para 5-4c)
3. a (para 5-5b)
4. a (para 5-5e(1))
5. b (para 5-7b NOTE)
6. b (para 5-8b(2))