

Chapter 17

Infection Prevention and Control in the Hospital and Home

Chapter 17

Lesson 17.1

Learning Objectives

Theory

- 1) List the stages of an infectious process.
- 2) Identify five ways to decrease the occurrence of health care–associated infections (HAIs).
- 3) Explain how Transmission-Based Precautions are used with Standard Precautions.
- 4) Describe how procedures for Airborne Precautions differ from those for Droplet Precautions.
- 5) Discuss the special requirements for Airborne Precautions when the patient has pulmonary tuberculosis.

Learning Objectives

Theory

- 6) Compare infection prevention and control procedures appropriate for the hospital with those used in the home.
- 7) List techniques for handling specimens; disposing dirty linen, trash, and sharps; and cleaning equipment in the isolation setting.
- 8) Give three examples of nursing measures used for psychosocial care of a patient in isolation.
- 9) State the four rules of surgical asepsis.

Learning Objectives

Clinical Practice

- 1) Use Standard Precautions when caring for a patient.
- 2) Utilize Transmission-Based Precautions when caring for patients.
- 3) Properly bag and remove soiled linens and trash from an isolation room.
- 4) Teach a patient or family member how to properly dispose of soiled items at home.
- 5) Demonstrate performance of a surgical scrub.

Infection

- Four stages in the infectious process
- Stage 1: incubation period
 - Begins when organism first enters the body and lasts until the onset of symptoms; infection can be transmitted during this stage
- Stage 2: prodromal period
 - Short time from onset of vague symptoms to the onset of specific disease symptoms; this stage is highly infectious

Infection (cont'd)

- Stage 3: the illness period
 - Localized and systemic symptoms appear
 - Fever, headache, malaise, and disease-specific symptoms (e.g., leukocytosis, rash, swelling, wound drainage, diarrhea and vomiting)
 - Severity and duration depend on virulence of pathogen and person's susceptibility
- Stage 4: the convalescent period
 - Begins when symptoms begin to subside and continues until the person returns to normal

Health Care–Associated Infections (HAIs)

- Transmitted while receiving health care services
- Health care workers can also contract an HAI
- Patients at greatest risk include those with:
 - Surgical incisions with or without drains
 - Artificial airways
 - Urinary catheters
 - Intravenous (IV) lines
 - Implanted prosthetic devices
 - Repeated injections or venipunctures
 - Immune compromise

Infection Prevention and Control

- Uses medical and surgical asepsis, Standard Precautions, and Transmission-Based Precautions
- Strict aseptic technique
 - Used in invasive diagnostic and therapeutic procedures (IV catheters, urinary catheters, surgical procedures)
- Isolation used to prevent contact between patient and others

Infection Prevention and Control (cont'd)

- Infection prevention and control involves:
 - Monitoring diagnostic reports related to infection
 - Observing patients for signs of infection
 - Implementing procedures to contain microorganisms
 - Properly handling, sterilizing, or disposing of contaminated items
 - Using approved sanitation methods
 - Recognizing individuals at high risk for infection and implementing appropriate protection

Current Standards

- Tier 1: Standard Precautions
 - Delineate methods for avoiding direct contact with body secretions except sweat
- Tier 2: Transmission-Based Precautions
 - Interrupting mode of transmission by identifying specific secretions that might be infective
- Transmission-Based Precautions used alone or in combination but always in addition to Standard Precautions

Transmission-Based Precautions

- Standard Precautions—for all patients
- Airborne Precautions—measles, varicella, TB (special mask)
- Droplet Precautions—meningitis, pneumonia, diphtheria
- Contact Precautions—GI, skin, wound infections, RSV, herpes simplex

Guidelines for Patient Care Contact

- Never touch anything with bare hands that comes from a body surface or cavity
- Gloves are to be worn for contact with body fluids of any sort, including:
 - Saliva, urine
 - Feces, blood
- The only times gloves are not worn is for contact with intact skin or unsoiled articles

Application of the Nursing Process

- Assessment (data collection)
 - Assess for signs of infection that may require Transmission-Based Precautions
 - Wounds should be assessed each shift for infection
 - Monitor the patient's temperature
 - Admission lab studies may indicate infection
- Nursing diagnosis
 - Risk for infection, r/t surgical wound, open wound, or weakened condition

Planning

- Expected outcomes would include “No health care–associated infection is evident”
- When using Transmission-Based Precautions that require putting on personal protective equipment, the nurse must prepare before each entry into the patient’s room

Implementation

- Patient teaching is needed on disease process, modes of transmission, and precautions to prevent spread of infection
- Standard Precautions used for each contact with patient

Implementation (cont'd)

- Hand hygiene
 - Most important in preventing infection transmission
 - Before and after contact with patient, wound care, or invasive procedure
 - Before donning gloves and after removing them
- Personal protective equipment
 - Disposable gloves
 - Masks
 - Gown
 - Goggles or face shield

General Guidelines for Isolation Precautions

- Specimen removal—label specimen container before entering room, collect specimen and place it in a leakproof container without contaminating the outside
- Linens—handle as little as possible; roll up and place inside linen hamper inside patient's room

General Guidelines for Isolation Precautions (cont'd)

- Trash—disposable soiled equipment should be placed in plastic bags lining the waste receptacle; a biohazard (red) bag may be needed
- Sharps—never recap a needle before disposal; all sharps are dropped into sharps containers, which are replaced when two-thirds full

General Guidelines for Isolation Precautions (cont'd)

- Other equipment—reusable equipment cleaned if visibly soiled, then sent to central supply to be disinfected
- Natural defenses—institute measures to enhance the patient's natural body defenses, such as protect intact skin; promote a balanced diet; provide opportunity for sleep; decrease stress

General Guidelines for Isolation Precautions (cont'd)

- Patient placement—patients who need Transmission Precautions should be placed in a private room or with another patient infected with the same organism
- Transporting the patient—avoid unless absolutely necessary; patient is given standard mask to wear outside the room

Infection Prevention and Control in the Home

- Keep clothing and linens away from others until washed
- Teach patient and family proper hand hygiene techniques
- Disinfect bathroom with 1:10 bleach/water solution
- Wash dishes in scalding water and let air dry

Infection Prevention and Control in the Home (cont'd)

- Use heavy plastic jug with secure top to hold needles
- Use clean gloves for wound care or dressing changes, and teach family how to remove soiled gloves
- Clean patient's room frequently

Protective Isolation

- Protective isolation
 - Patient in special room with its own ventilation system
 - No one with active infection allowed in patient's room
 - Remain aware of your facility's policies and procedures regarding protective isolation, and follow them at all times

Psychological Aspects of Isolation

- The patient in Transmission-Based Isolation Precautions is at risk for decreased self-esteem and sensory deprivation
- Signs: boredom, slow thought, disorganized thoughts, excessive sleeping during the day, anxiety, hallucinations, panic attacks

Infection Prevention and Control for the Nurse

- OSHA regulations protect health care workers from exposure to blood-borne pathogens in the workplace
- Three main modes of occupational exposure to blood-borne pathogens are:
 - Puncture wounds from contaminated needles or other sharps
 - Skin contact, allowing blood, body fluids, and other potentially infectious materials to enter through damaged or broken skin
 - Mucous membrane contact, allowing infectious materials to enter through the mucous membranes of the eyes, mouth, and nose

Surgical Asepsis

- Four rules of surgical asepsis
 - Know what is sterile
 - Know what is not sterile
 - Separate sterile from unsterile
 - Remedy contamination immediately
- Goal: keep an area free from microorganisms

Surgical Scrub

- More lengthy and vigorous than regular hand hygiene
- Remove as many microorganisms as possible without damaging the skin
- Timing based on actual time spent scrubbing, not including rinse time
- Usually 2 to 4 minutes
- Brushless technique with antimicrobial agent may be used

Opening Sterile Packages

- Perform hand hygiene
- Open sterile package away from the body
- Touch only the outside wrapper
- Do not reach across a sterile field
- Always face the sterile field
- Allow at least 6 inches between the body and the sterile field

Evaluation

- Patient recovering without additional instances of infection from other organisms or infection of other body areas
- Assessing whether the patient's infection has been transmitted to any health care worker or any other patient on the unit or in the hospital

Question 1

During which stage of infection would a patient be irritable, be fatigued, experience malaise, have an elevated temperature, and be considered highly infectious?

- 1) Incubation period
- 2) Prodromal period
- 3) Illness period
- 4) Convalescent period

Question 2

Mary is taking care of a patient with tuberculosis. What specific type of precautions should Mary take?

- 1) Standard Precautions
- 2) Airborne Precautions
- 3) Droplet Precautions
- 4) Contact Precautions

Question 3

When taking care of a known tuberculosis patient, the nurse must wear:

- 1)sterile gloves.
- 2)sterile gown.
- 3)particulate filter mask.
- 4)shoe covers.

Question 4

When opening a sterile package, a nurse should do all of the following *except*:

- 1) select a moist tabletop at eye level.
- 2) wash hands and obtain equipment.
- 3) open packages away from the body, opening the distal flap first.
- 4) lift the front flap up and toward the body, handling only the outside wrapper.