

MUSC Medical Center Infection Prevention and Control Manual

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I. <u>DESCRIPTION:</u>

Describes the Infection Control precautions to be used for all patients, regardless of their diagnosis or presumed infection status to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection. Standard precautions are the primary strategy for successful infection control in the healthcare setting.

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III. DEFINITIONS:

<u>Cannula</u> - A flexible tube that may be inserted into a duct or cavity to deliver medication or drain fluid. It may be guided by a sharp, pointed instrument. A body fluid may be passed through the cannula to the outside

<u>Disinfection</u> - Process that destroys most recognized pathogenic microorganisms by physical or chemical means but not necessarily all microbial forms, such as bacterial spores. Does not ensure the margin of safety associated with sterilization processes.

<u>Invasive Procedures</u> - Surgical entry into tissues, cavities, or organs or repair of major traumatic injuries

<u>Mucous-membrane</u> - Any one of four major kinds of thin sheets of tissue that cover or line various parts of the body. Mucous membrane lines cavities or canals of the body that open to the outside such as the linings of the mouth, digestive tube, respiratory passages and the genitourinary tract

<u>Standard Precautions</u> -The basic level of infection control precautions which are to be used, as a minimum, in the care of all patients

Sterilization - Validated process used to render a product free from viable microorganisms

IV. POLICY:

A. PRINCIPLES OF INFECTION TRANSMISSION

Transmission of infectious agents depends on six elements which link together like a chain. For an infection to develop, each link of the chain must be connected. Breaking or interrupting any link of the chain can stop the transmission of infection. Methods to break the chain include following standard precautions, among many other infection prevention and control techniques.

The six elements in the chain of infection include: Infectious agent, Reservoir, Port of exit, Mode of Transmission, Portal of Entry, and a susceptible host.

1. Infectious Agent

The infectious agent is the pathogen, or germ, which causes the disease. Infectious agents transmitted through healthcare are usually from human sources but can also originate from the environment.

2. Reservoir

This element includes places in the environment where the pathogen lives.

A reservoir can include patients, healthcare personnel and other individuals such as visitors. These individuals may have active infections, may be in the asymptomatic but incubation period of disease, or may be colonized with pathogenic

microorganisms. Endogenous flora of patients can also be a source of hospital acquired infections.

3. Portal of Exit

This is the method in which the infectious agent leaves the reservoir (through open wounds or through body fluids such as saliva, or fluids that are transmitted by coughing or sneezing).

4. Mode of Transmission

This is the way in which an infectious agent can be pass on (includes direct/indirect contact, ingestion, or inhalation).

In the healthcare setting, the most common routes that microorganisms are transmitted include contact, droplet and airborne transmission.

5. Portal of Entry

The route in which the infectious agent can enter a new host (through broken skin, the respiratory tract, mucous membranes, or invasive medical devices such as catheters and tubes).

6. Susceptible Host

Resistance among persons to pathogenic microorganisms varies greatly. Those that are more vulnerable include persons receiving healthcare, are immunocompromised, or have invasive medical devices including lines, devices and airways.

B. GENERAL PRECAUTIONS TO PREVENT TRANSMISSION OF INFECTIOUS MICROORGANISMS

Standard Precautions should be used in the care of <u>all</u> patients since medical history and examination cannot reliably identify all patients with infectious microorganisms.

Implementation of standard precautions does not eliminate the need for other transmission based isolation precautions: airborne, droplet, and/or contact. (Refer to Infection Control Policy 2-002– Isolation Techniques and Requirements, https://www.musc.edu/medcenter/policy/infec/2-002IsolatReq.pdf).

1. Body Fluids to Which Standard Precautions Apply

Standard precautions apply to 1) blood; 2) body fluids, secretions, and excretions except sweat; 3) non-intact skin; and 4) mucous membranes. Standard Precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection.

2. Use of Personal Protective Equipment (PPE)

All healthcare workers will use appropriate PPE to prevent skin and mucousmembrane exposure when in contact with all body fluids (except sweat); non-intact skin; and/or mucous membranes of any patient is anticipated.

- a. Gloves will be worn for touching non-intact skin, mucous membranes, and all body fluids, except sweat of all patients and for handling items or surfaces soiled with body fluids. Gloves will be worn when performing venipuncture and other vascular access procedures. Gloves will be changed after contact with each patient.
- b. Masks and protective eyewear or face shields will be worn during procedures that are likely to generate droplets or aerosolization of body fluids to prevent mucous membrane exposure of the mouth, nose and eyes.
- c. Fluid resistant gowns/aprons will be worn during procedures that are likely to generate splashes of body fluids. Do not reuse gowns, even for repeated contacts with the same patient. Refer to Unit or Department Specific Hazard Determination Plan for specific procedures in each area.
- d. Mouthpieces, resuscitation bags, or other ventilation devices will be available for use in areas in which the need for resuscitation is predictable to minimize the need for emergency mouth-to-mouth resuscitation.
- e. Health-care workers who have exudative lesions or weeping dermatitis will refrain from all direct patient care and from handling patient-care equipment until the condition resolves.

3. Hand Hygiene

Hand hygiene is the single most important strategy to reduce the risks of transmitting organisms from one person to another or from one site to another on the same patient. Effective hand hygiene removes transient microorganisms, dirt, and organic material from the hands and decreases the risk of cross contamination from patients, patient care equipment, and the environment. Cleaning hands promptly and thoroughly between patient contact and after contact with blood, body fluids, secretions, excretions, equipment and potentially contaminated surfaces is an important strategy for preventing healthcare-associated infections.

- I. If hands are visibly dirty or contaminated with blood or body fluids then hand washing using soap and water must be performed. Due to the spore forming nature of Clostridium difficile, after taking care of a patient with R/O or diagnosed Clostridium difficile, hand washing must be performed using soap and water. In addition, when caring for patients with Adenovirus or other alcohol resistant organisms, soap and water for hand washing is required after patient care.
- II. Hand washing or hand hygiene with alcohol hand antiseptic should be performed in the following instances. This list is not all inclusive.
 - A. Upon entry into a patient, procedure or exam room. Hand hygiene may be performed using the alcohol product right outside the room, if available, or the alcohol product inside the room. Care should be taken to prevent contamination of the hands before contact with the patient and/or their immediate environment.

- B. Upon exiting a patient room, exam room, or procedure room. Soap and water hand washing must be performed for patients suspected/known to have Clostridium difficile infection.
- C. Before putting on gloves
- D. After removing gloves
- E. Before and after handling a patient's food or food tray
- F. Before and after eating or smoking
- G. Before and after participation in invasive procedures
- H. During patient care if hands become contaminated or soiled
- I. After contact with inanimate objects (including medical equipment), in the immediate vicinity of the patient
- J. After using handkerchief or tissue
- K. Before and after going to the toilet
- L. Before and after working in isolation
- M. After contact with any source of microorganisms (body fluids and substances, mucous membranes, non-intact skin, inanimate objects) that are likely to be contaminated.
- N. Before and after contact with any medical equipment
- III. Approved antiseptic soap or alcohol hand sanitizer will be used for hand washing in the Medical Center and Ambulatory Care Clinics.
- IV. Accessible sinks and/or alcohol antiseptic will be available for hand hygiene in all patient care areas.
- V. Procedures:
 - I. Hand washing
 - A. Stand well away from the sink, regulate water to comfortable degree of warmth. Leave water running throughout the procedure.
 - B. Moisten hands and wrists under running water. Apply soap and lather well.
 - C. Using a circular motion and friction, work lather over hands and wrists, between fingers and under fingernails for at least 15 seconds.

- D. Rinse hands thoroughly under running water letting water run from wrist to fingertips. Dry hands with a paper towel, then turn off water faucet using a dry paper towel.
- II. Hand Hygiene (using alcohol hand sanitizer)
 - A. With hand under dispenser, press pump once to dispense solution.
 - B. Using a circular motion and friction, work solution over hands, wrists, between fingers and under fingernails until solution dries.

III. Other Aspects of Hand Hygiene

- A. Artificial fingernails, tips, wraps, or fillers may not be worn by direct patient care givers. Natural nails should be less than ¼ inch in length.
- B. Use only the hand lotion provided by the facility.
- C. Wear gloves when contact with blood or other potentially infectious materials, mucous membranes and non-intact skin could occur.
- D. Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients.
- E. Change gloves during patient care if moving from a contaminated body site to a clean body site.

IV. Motivation and Education

- A. Staff will be educated regarding hand hygiene at orientation and at least annually.
- B. Patients and visitors should be educated and encouraged to practice hand hygiene. They should be asked to remind staff.
- C. Hand hygiene compliance will be monitored and feedback provided.

4. Handling of Sharps

When available, safety devices appropriate for the task must be used (i.e. needle protected systems, needleless systems and self-sheathing needles). Used needles, syringes and other sharps are disposed of in such a manner as to prevent punctures and prevent cross contamination or unauthorized re-use.

- a. Needles should not be two-handed recapped, bent, cut, or sheared.
 Recapping by a one-handed scoop or mechanical device is acceptable.
 Needles are to be disposed of in a puncture resistant container.
- b. Puncture resistant leak proof containers will be available at the point of use. The containers will be fastened to the wall at a height below eye level of the

- user (generally 52-56 inches from the floor for wall mounted containers, according to NIOSH guidelines.)
- c. Containers which are not attached to the wall will be stabilized to prevent spillage from overturned containers.
- d. In areas where point-of use containers are not provided in patient rooms, (e.g. Psychiatry) commercial recapping devices or a one-handed recapping technique will be used until needle/syringe units can be deposited in puncture resistant containers.

5. Disposal of Sharps

Plastic inner liners for needle containers will be replaced when indicated by the "Full" line on the container or when 2/3rd of the way full.

- a. Liners will be stored on each unit and replaced by staff. Liners will be ordered as needed by Unit, Clinic or Department.
- b. The lid of each filled canister will be closed securely and the canister placed in the dirty utility room or large regulated medical waste container for appropriate disposal. If the container is leaking for any reason, it should be secured in a red biohazard bag prior to placement into the larger container. Environmental Services will transport the waste containers out of the clinical areas to the appropriate collection point.
 - Wires and other large items should be disposed of in large floor-based, leak/proof/puncture-resistant containers and secured as stated in 5.b. Further Reference: Bloodborne Pathogen Exposure Control Plan in the Occupational Safety and Health Manual (http://academicdepartments.musc.edu/vpfa/operations/Risk%20Management/occpsafety/bbp.htm)

6. Disposal of Patient Care Items

- a. Refer to MUSC Medical Center Policy A-022, "Red Bag Usage" for proper disposal of patient care items:
 (https://www.musc.edu/medcenter/policy/Med/A022.pdf)
- 7. Contaminated Patient Care Documents (Paper)

If essential paper (e.g., laboratory requests) is contaminated with blood and/or body fluids, it is to be placed in a plastic sheet protector for handling and storage.

C. RESPIRATORY HYGIENE AND COUGH ETIQUETTE

Healthcare personnel will be educated on the importance of source control measures to contain respiratory secretions to prevent droplet and fomite transmission of respiratory pathogens, especially during seasonal outbreaks of viral respiratory tract infections (e.g., influenza, RSV, adenovirus, parainfluenza virus, etc.) in communities.

1. Containing respiratory secretions in patients and visitors

Healthcare workers/providers will implement the following measures to contain respiratory secretions in patients and accompanying individuals who have signs and symptoms of a respiratory infection, beginning at the point of initial encounter in a healthcare setting (e.g., triage, reception and waiting areas in emergency departments, outpatient clinics and physician offices):

- a. Post signs at entrances and in strategic places (e.g., elevators, cafeterias) within ambulatory and inpatient settings with instructions to patients and other persons with symptoms of a respiratory infection to cover their mouths/noses when coughing or sneezing, use and dispose of tissues, and perform hand hygiene after hands have been in contact with respiratory secretions.
- b. Provide tissues and no-touch receptacles (e.g., foot-pedal-operated lid or open, plastic-lined waste basket) for disposal of tissues.
- c. Provide resources and instructions for performing hand hygiene in or near waiting areas in ambulatory and inpatient settings; provide conveniently-located dispensers of alcohol-based hand rubs and, where sinks are available, supplies for handwashing.
- d. During periods of increased prevalence of respiratory infections in the community (e.g., as indicated by increased school absenteeism, increased number of patients seeking care for a respiratory infection), offer masks to coughing patients and other symptomatic persons (e.g., persons who accompany ill patients) upon entry into the facility or medical office and encourage them to maintain spatial separation, ideally a distance of at least 3 feet, from others in common waiting areas.

D. PRECAUTIONS FOR INVASIVE PROCEDURES

In this document, an invasive procedure is defined as: surgical entry into tissues, cavities, or organs or repair of major traumatic injuries including, but not limited to: 1) cardiac catheterization and angiographic procedures; 2) vaginal or cesarean delivery or other invasive obstetric procedure during which bleeding may occur; 3) the manipulation, cutting, or removal of any oral or perioral tissues, including tooth structure, during which bleeding occurs or the potential for bleeding exists, or 4) any other procedure where entry into tissues or body cavities takes place.

Invasive procedures may occur in an operating room, delivery room, emergency room, special procedure room, inpatient area, or outpatient settings, including both physicians and dentist's offices. The Standard Precautions listed above, should be the **minimum precautions** for all such invasive procedures.

- 1. All health-care workers who participate in invasive procedures must routinely use appropriate barrier precautions to prevent skin and mucous-membrane contact with body fluids of all patients regardless of where the procedure takes place.
- 2. Gloves should be worn for all invasive procedures
 - a. If a glove is torn or a needle-stick or other injury occurs, the glove will be removed and a new glove used as promptly as patient safety permits; the needle or instrument involved in the incident will also be removed from the sterile field.

- 3. Masks, protective eyewear or face shields will be worn for procedures that commonly result in the generation of droplets, splashing of blood or other body fluids, or the generation of bone chips
- 4. Gowns or aprons made of materials that provide an effective barrier will be worn during invasive procedures that are likely to result in the splashing of body fluids
- 5. All health-care workers who perform or assist in vaginal or cesarean deliveries will wear gloves and gowns when handling the placenta or the infant until blood and amniotic fluid have been removed from the infant's skin and will wear gloves during post-delivery care of the umbilical cord.
- 6. Infection Control Practices for Lumbar Puncture Procedures include:
 - Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space (i.e. during myelograms, lumbar puncture, and spinal or epidural anesthesia.)

E. PRECAUTIONS FOR DENTISTRY

Saliva from all dental patients will be considered infectious and may contain bloodborne pathogens (will be evaluated on a case by case basis regarding healthcare worker exposures). Special emphasis will be placed on the following precautions for preventing transmission of pathogens in dental practice in both institutional and non-institutional settings.

- 1. In addition to wearing gloves for contact with oral mucous membranes of all patients, all dental workers will wear surgical masks and protective eyewear, or chin-length plastic face shields during dental procedures in which splashing or splattering of body fluids is likely. Double gloving should be worn for procedures involving sharp instrumentation. Special hospital-approved respirators will be used for exposure, both potential and real to tuberculosis. Rubber dams, high-speed evacuation, and proper patient positioning, when appropriate, will be utilized to minimize generation of droplets and spatter.
- 2. Handpieces will be sterilized after use with each patient, since body fluids of patients may be aspirated into the handpiece or waterline. Manufacturers' recommendations should be followed for use and maintenance of waterlines and check valves and for flushing of handpieces. The same precautions will be used for ultrasonic scalers and air/water syringes.
- 3. Body fluids will be thoroughly and carefully cleaned from material that has been used in the mouth (e.g. impression materials, bite registration), especially before polishing and grinding intra-oral devices. Because of the increasing variety of dental materials used intra-orally, dental workers should consult with manufacturer's instructions for guidelines for cleaning, disinfection and sterilization.
- 4. Dental equipment and surfaces that are difficult to disinfect (e.g. light handles or x-ray unit heads) and that may become contaminated will be wrapped with impervious-backed paper, aluminum foil, or clear plastic wrap. The coverings will be removed and discarded, equipment disinfected, and clean coverings will be put in place after use with each patient.
- 5. Protective attire worn by personnel during dental procedures will not be worn away from the site of contamination.

F. PRECAUTIONS FOR AUTOPSIES OR MORTICIANS' SERVICES

(See IC Policy: Division of Laboratory Services – 5-008, Section II.E. https://www.musc.edu/medcenter/policy/infec/5-008LabMed.pdf)

In addition to the standard precautions listed above, the following precautions should be used by persons performing postmortem procedures.

- 1. All persons performing or assisting in postmortem procedures will wear gloves, masks, protective eyewear, gowns, waterproof aprons, and protective shoe coverings. Special hospital-approved respirators (N-95 respirator or PAPR) will be used for exposure, both potential and real, to tuberculosis.
- 2. Instruments and surfaces contaminated during postmortem procedures will be decontaminated with a hospital-approved germicide.

G. PRECAUTIONS FOR DIALYSIS

Standard precautions should be used when dialyzing all patients. Patients known to be infected with Hepatitis B are dialyzed with special precautions. (See Dialysis policy (https://www.musc.edu/medcenter/policy/infec/5-007HemoDialysis.pdf)

H. PRECAUTIONS FOR LABORATORY SERVICES

Body fluids from all patients will be considered infective. To supplement the standard body-fluid precautions listed above, the following precautions are recommended for health-care workers in clinical laboratories. See Department of Laboratory Services Safety Manual (http://pathology.musc.edu/LIS/Manuals/Safety/default.htm).

- 1. All specimens will be put in a well-constructed container with a secure lid to prevent leaking and placed in a biohazard bag for transport at site of collection. Care will be taken when collecting each specimen to avoid contaminating the outside of the container and the laboratory form accompanying the specimen.
- 2. All persons processing specimens (e.g., removing tops from vacuum tubes) should wear gloves. Masks and protective eyewear will be worn if mucous-membrane contact with blood or body fluids is anticipated. Gloves will be changed and hands washed after completion of specimen processing.
- 3. For routine procedures, such as histologic and pathologic studies or microbiologic culturing, a biological safety cabinet is not necessary. However, biological safety cabinets (Class I or II) should be used whenever procedures are conducted that have a high potential for generating droplets. These include activities such as blending, sonicating, and vigorous mixing.
- 4. Mechanical and/or automated pipetting devices will be used for manipulating all liquids in the laboratory. Do not perform mouth pipetting.
- 5. Sharps safety devices or needle-free systems should be utilized.
- 6. Use of needles and syringes will be limited to situations in which there is no alternative, and the recommendations for preventing injuries with needles outlined above will be followed.
- 7. Laboratory work surfaces will be decontaminated with a hospital-approved disinfectant after a spill of body fluids and when work activities are completed.
- 8. Contaminated materials used in laboratory tests will be decontaminated before reprocessing or be placed in biohazard bags and disposed of in accordance with institutional policies for disposal of infective waste.

- 9. Scientific equipment that has been contaminated with body fluids will be decontaminated and cleaned before being repaired in the laboratory or transported to the manufacturer.
- 10. All persons will wash their hands after completing laboratory activities and will remove protective clothing before leaving the laboratory.

I. SAFE INJECTION PRACTICES

The following recommendations apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems.

- 1. Use aseptic technique to avoid contamination of sterile injection equipment.
- Do not administer medications from a syringe to multiple patients, even if the needle
 or cannula on the syringe is changed. Needles, cannulae and syringes are sterile,
 single-use items; they should not be reused for another patient nor to access a
 medication or solution that might be used for a subsequent patient.
- 3. Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set.
- 4. Use single-dose vials for parenteral medications whenever possible.
- 5. Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use.
- 6. If multi-dose vials must be used, both the needle or cannula and syringe used to access the multi-dose vial must be sterile and are single use only.
- 7. Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.

J. STERILIZATION AND DISINFECTION

Reusable instruments or devices that enter sterile tissue or the vascular system of any patient or through which sterile body fluid flows should be sterilized before reuse. Devices or items that contact mucous membranes will be sterilized or receive high-level disinfection. A hospital-approved disinfectant will be utilized with approved contact time. (See Infection Control Policy 3-001, Cleaning, Disinfection, Sterilization and Storage of Patient Care Equipment https://www.musc.edu/medcenter/policy/infec/3-001CleaningDisinfAndSterilization.pdf).

K. CLEANING AND HOUSEKEEPING (INCLUDING BODY FLUID SPILLS)

Cleaning and removal of soil from environmental surfaces such as wall, floors and other non-patient contact surfaces will be done routinely. Cleaning schedules and methods vary according to the area of the hospital, type of surface to be cleaned, and the amount and type of soil present.

- 1. Frequently or high-touched surfaces in in patient care areas, such as beds, bedrails and other bedside equipment, (e.g. telephones) will be cleaned with a hospital-approved disinfectant using approved contact time.
- 2. Cleaning of walls, blinds, and curtains is recommended only if they are visibly soiled.

- Chemical germicides that are approved for use as "hospital disinfectants" and are tuberculocidal when used at recommended dilutions will be used to decontaminate spills of body fluids.
- 4. In patient-care areas, visible material should first be removed and then the area should be decontaminated. Gloves will be worn during cleaning and decontaminating procedures.
- 5. Body Fluid Spills:
 - a. With large spills of cultured or concentrated infectious agents in the laboratory, the contaminated area should be flooded with a liquid germicide before cleaning, then decontaminated with fresh germicidal chemical (See specific laboratory protocol for spills in the Department of Laboratory Safety Manual). Gloves will be worn during cleaning and decontaminating procedures.

L. LAUNDRY

Soiled linen will be handled as little as possible and with minimum agitation to prevent gross microbial contamination of the air and of persons handling the linen.

- a. All soiled linen should be bagged at the location where it was used; it will not be sorted or rinsed in patient-care areas.
- b. All soiled linen is considered contaminated and must be placed in a leak-proof yellow bag with biohazard label. Bags must be tied securely before putting in laundry chute or transporting.

M. INFECTIOUS WASTE

The MUSC policy for disposing of infectious waste is detailed in the Safety Manual policy "Infectious Waste Management" and in the Medical Center Policy A-022 Red Bag Usage in the Disposal of Biohazardous/Regulated Waste (https://www.musc.edu/medcenter/policy/Med/A022.pdf).

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Approvals:

As Required	Date
List Hospital Committee(s): Infection	01/18
Prevention & Control Committee	
Ethics Committee	
Accreditation Review	02/18
Legal Review	
Administration/Operations	
Medical Staff Executive Committee	
Governing Body	

Distribution:

Policy Applies to:	Physicians (Y/N): Y	Nursing (Y/N): Y
	Other Clinical Staff (Specify): All	Other Staff (Specify):
Educational Plan	Policy Posting	
Required Competencies		