

APPENDIX 4: Overview of Infection Control Precautions

Adapted from:

Guideline for Isolation Precautions in Hospitals: Preventing Transmission of Infectious Agents in Healthcare Settings 2007 [Accessed 1/2013] Available from: URL:

<http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf>.

Infection Control for the Health Care Worker Protocol, New Mexico Department of Health, Public Health Division, October 2010 Available from url:

http://intranet/phd/documents/PHDInfectionControlHCW_102010_002.pdf, accessed 01_2013.

Transmission of Infectious Agents

Microorganisms are transmitted by several routes, and the same microorganism may be transmitted by more than one route. There are five main routes of transmission: contact, droplet, airborne, common vehicle, and vector borne. For the purpose of this guideline, contact, droplet and airborne will be discussed.

- (1) *Contact transmission* - The most important and frequent mode of transmission of healthcare-associated infections is divided into two subgroups: direct-contact transmission and indirect-contact transmission.
 - (a) Direct-contact transmission involves a direct body surface-to-body surface contact and physical transfer of microorganisms from one individual to another.
 - (b) Indirect-contact transmission involves contact of an individual with a contaminated intermediate object, usually inanimate, such as contaminated instruments, needles, or dressings, or contaminated hands that are not washed and gloves that are not changed between patients.
- (2) *Droplet transmission* - Droplets are generated from the source person primarily during coughing, sneezing, and talking, and during the performance of certain procedures such as suctioning and bronchoscopy. Transmission occurs when droplets (i.e., small-particle residue [5 μm or smaller in size]) that contain microorganisms generated from the infected person are propelled a short distance through the air and deposited on the host's conjunctivae, nasal mucosa, or mouth, necessitating facial protection. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission; that is, droplet transmission *must not* be confused with airborne transmission.
- (3) *Airborne transmission* occurs by dissemination of either airborne droplet nuclei (small-particle residue [5 μm or smaller in size] of evaporated droplets containing microorganisms that remain suspended in the air for long periods of time) or dust particles containing the infectious agent. Microorganisms carried in this manner can be dispersed widely by air currents and may become inhaled by a susceptible host within the same room or over a

longer distance from the source patient, depending on environmental factors; therefore, special air handling and ventilation are required to prevent airborne transmission. Microorganisms transmitted by airborne transmission include *Mycobacterium tuberculosis* and the rubeola and varicella viruses.

Standard Precautions

Hand Hygiene

Hand washing is the single most important method to prevent transmission of infectious agents.

Hands should be washed:

- Before and after each patient contact.
- After exposure to blood or potentially infectious body fluid.
- Between dirty and clean procedures.
- Before putting on gloves
- Immediately after removing gloves.
- Before and after performing invasive procedures.
- After using the restroom.
- Whenever they are visibly soiled.

Routine hand washing is performed by covering the hands with soap and vigorously rubbing all surfaces of the hands for at least 20 seconds. Liquid soap in pump dispensers is recommended. Paper towels are recommended for hand drying. Alcohol-based waterless hand washing solutions are appropriate when hands are not visibly soiled. The waterless solutions are high in alcohol and can be drying to the skin. Hand lotions are recommended to prevent or minimize skin dryness and irritation, but only lotions that are not petroleum-based. When exposure to spores (e.g., *Clostridium difficile*) or norovirus is likely, hand washing with soap and water is recommended.

Personal Protective Equipment

Standard precautions should be used in the care of every client to prevent transmission of all infectious agents.

Gloves should be available for use by all health care personnel. Gloves should be worn when contact with blood, body fluids, secretions, excretions, items contaminated with these fluids or nonintact skin, is anticipated. Gloves do not need to be worn for routine well care. Gloves should also be changed for each blood draw. When gloves are used, hands should be washed after gloves are removed because contamination can occur during removal or from a break in the glove. Hands should be washed before donning sterile gloves. Masks, face shields, and protective eyewear should be worn if splashing of body fluids is anticipated. When soiling of clothes with blood, body fluids, secretions, or excretions is highly likely, gowns can be worn. Water impermeable gowns are needed if splashes of blood or blood-containing body fluids might occur.

Transmission-Based Precautions

Transmission-based precautions should be used for patients with proven or suspected infection with highly transmissible or pathogenic agents and are always in addition to standard precautions.

Personal protective equipment (PPE) should be put on prior to entering a patient room or contaminated area and removed prior to leaving the room or area where any of these precautions are in place.

Type of precaution	Examples of conditions requiring this type of precaution	<i>Isolation procedures</i>
Contact	Impetigo; infected skin lesions; infectious diarrhea; hepatitis A; <i>Clostridium difficile</i> ; infection or colonization due to multi-drug resistant bacteria (e.g., methicillin-resistant <i>Staphylococcus aureus</i> , vancomycin-resistant enterococcus)	<ul style="list-style-type: none"> • Single room preferred or cohort with similar patient. • Patients with diarrhea need individual toilet. • Gloves and protective clothing for contact with exudates, infected secretions or excretions, soiled laundry.
Droplet	Pneumonic plague, influenza Group A streptococcal infection, meningococcal infection; mumps, rubella, pertussis	<ul style="list-style-type: none"> • Single room or cohort with similar patient; keep door closed. • Gloves and protective clothing for contact with exudates and infected secretions. • Worker/visitor wears surgical mask when in room. • Patient wears surgical mask when out of room.
Airborne	Measles, varicella, active pulmonary tuberculosis (TB), SARS	<ul style="list-style-type: none"> • Single room with isolated, negative-pressure airflow if possible; keep door closed. • Worker/visitor wears surgical mask when in room (N95 respirator for TB). • For vaccine preventable diseases, an immune caregiver is preferred. • Patient wears surgical mask when out of room. • Protective equipment (face shield, gown, gloves) for contact with respiratory secretions.