

Resource for Infection Prevention in Utah Long-term Care Facilities

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The information in this guideline is advisory only. *It is intended to assist long-term care facilities by providing an introduction or review of epidemiological techniques for infection control programs. It contains basic information on surveillance issues, a rational approach to preventing the transmission of epidemiologically important infectious agents, and pertinent topics. Specific infection control programs are the responsibility of the individual facility.* A reference list is included so infection control practitioners (ICPs) can expand their knowledge by reviewing the current medical literature. Additionally, practitioners can improve their knowledge of infection control by networking with others working in the field, attending conferences and workshops, and reading periodicals, newsletters, and journals. Facilities may also consider purchasing *Infection Prevention Manual for Long-Term Care Facilities* published by APIC in 2009, a comprehensive manual with useful tools, best practices, and samples of policies, procedures, and implementation techniques. It is available for purchase at: <http://www.apic.org>.

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Introduction

The Utah Department of Health (UDOH) first published *A Resource for Infection Control in Long-term Care Facilities*¹ in 1997. This document has been revised to reflect changes in current accepted practices, guidelines, and regulations. Much of this updated document is based upon *Joint Infection Prevention and Control Guidelines: Enhanced Standard Precautions (ESP) in California Long-term Care Facilities*² with special recognition given to Christine K. Cahill, MS, BS, RN, Jon Rosenberg, MD, and Sue Chen, RN, MPH, CIC for permission to use that resource.

The Centers for Disease Control and Prevention (CDC) *Guideline for Isolation Precautions in Hospitals*³ introduced the concept of Standard Precautions (SP) as the basic approach to reducing the transmission of infectious agents in hospitals. Standard Precautions synthesized the major features of Universal Precautions (designed to protect healthcare workers from occupational exposure to bloodborne pathogens) with Body Substance Isolation (designed to reduce transmission of infectious agents from patient to patient). In theory, SP, when applied consistently to all patients regardless of diagnosis, presumed infectious status, or confirmed presence of an epidemiologically important infectious agent such as methicillin-resistant *Staphylococcus aureus* (MRSA), and to patients unknowingly colonized with these organisms, both patients and healthcare workers would be protected from exposure to and possible infection with any infectious agent.

Despite the implementation of SP, the incidence of healthcare-associated infections (HAI), including those caused by multi-drug resistant organisms (MDRO) such as MRSA and vancomycin-resistant Enterococcus (VRE), have escalated over the past 10 years in all healthcare settings, including LTCF. During this period of time, a new strain of MRSA, community-associated MRSA (CA-MRSA) emerged. CA-MRSA initially infected persons who had no or very little contact with hospitals or other healthcare settings such as outpatient dialysis centers. Not long after CA-MRSA emerged, hospitals began reporting outbreaks in adult, neonatal, and burn intensive care units. Other infectious agents, such as *Acinetobacter baumannii* and carbapenem-resistant *Klebsiella pneumoniae* (CRKP) that are resistant to virtually all available classes of antibiotics and rarely identified as a cause of HAI, were emerging as new threats and resulting in hospital outbreaks. One of the most prolific infectious agents, *Clostridium difficile* (*C. difficile*), a spore-forming, gram-positive bacillus, has recently mutated to become more virulent. *C. difficile* is increasingly associated with severe diarrhea in recently hospitalized patients and now has a propensity for infecting persons in the community. In a recent national prevalence study⁴ of 1062 acute care patients with confirmed *C. difficile* infection, 35.1% had resided in a long-term care facility within the previous 30 days.

For many years, infection prevention and control activities in LTCF have been based on practices recommended by the CDC for implementation in acute care settings. This approach does not take into account the different mission and societal roles played by

LTCF. Whereas a hospital provides intensive medical, surgical, and trauma interventions in a high acuity setting, the goal of a LTCF is to maintain or restore the independence of the resident and to promote socialization.

Isolation precautions as recommended by the CDC and practiced in an acute care facility are not always appropriate for LTCF residents. There is widespread confusion in these settings about when to implement and discontinue Contact and Droplet Precautions and whether the resident should be placed in a private room. Contact Precautions when implemented according the CDC recommendations have been found to decrease resident-healthcare worker and even family interactions, result in an increase in noninfectious adverse events (e.g., falls), increase patient symptoms of depression and anxiety, and decrease family and resident satisfaction.⁵ According to the CDC 2007 Guideline for Isolation Precautions, different healthcare settings may adapt transmission prevention guidelines to meet their specific needs.⁶ To the extent possible, residents in the LTCF, must be free to move throughout the facility, have access to supportive and restorative care, and above all need to be encouraged to participate in social activities.

There is no single accepted definition for what constitutes an epidemiologically important infectious agent, and it is confusing to caregivers to base infection prevention practices on a specific organism such as MRSA. A more global approach to preventing the transmission of infectious agents in LTCF includes conscientious compliance with basic hygiene measures by healthcare workers, residents and visitors and, as necessary, individualize resident care plans for those residents who may have a temporary condition that may facilitate transmission. The care plans should communicate when it is necessary to move from Enhanced Standard Precautions (ESP) to a higher level of precautions (e.g., Contact or Droplet Precautions) as recommended by the CDC.⁷

The Centers for Medicare and Medicaid Services (CMS) issued new Interpretive Guidelines for the Condition of Coverage 42 CFR 483.65 Infection Control, effective September 30, 2009.* The intent of the interpretive guidelines is to assure that each facility develops, implements, and maintains a program to recognize and control the transmission of infectious agents within the facility. The interpretive guidelines require, to the extent practical, the implementation of evidence-based practices as recommended by the CDC. According to the CMS, LTCF are “challenged to promote the individual resident’s rights and well-being while trying to prevent and control the spread of infectious agents.”

Enhanced Standard Precautions (ESP) integrates and consolidates several recommendations found in the recent HICPAC/CDC publications for preventing the transmission of infectious agents.^{6,7} For instance, the section on environmental hygiene stresses the importance of daily and terminal cleaning and disinfecting of residents’ rooms as well as ancillary areas of the facility. Additionally, ESP includes recommendations for resident care such as bathing and hand hygiene. To the extent possible, ESP has integrated the new CMS interpretive guidelines for infection control.

*Updated December 2, 2009

Resident Admission and Room Placement

Rationale

In addition to MRSA, VRE, and *C. difficile*, other infectious agents that are virtually resistant to all available classes of antibiotics such as *Acinetobacter baumannii* and carbapenem-resistant *Klebsiella pneumoniae* (CRKP) may be thriving in LTCF and should be included in the category of epidemiologically important infectious agents. Therefore, when developing a room placement policy for known infected or colonized admissions and readmissions, it is important to develop a policy that specifically defines conditions that facilitate transmission rather than knowledge of a positive test (culture).

There are several references to resident placement as a MDRO transmission prevention and control measure in the revised CMS interpretive guidelines. The following are examples of those recommendations:

- “In nursing homes, it is appropriate to individualize decisions regarding resident placement (shared or private), balancing infection risks with the need for more than one occupant in the room, the presence of risk factors that increase the likelihood of transmission, and the potential for adverse psychological impact on the infected or colonized resident.”
- “It is appropriate to use the least restrictive approach possible that adequately protects the resident and others. Maintaining isolation longer than necessary may adversely affect psychosocial well-being. The facility should document in the medical record the rationale for selected Transmission-based Precautions.”
- “Depending on the situation, options for residents on Contact Precautions may include the following: a private room, cohorting, or sharing a room with a roommate with limited risk factors.”
- “Transmission-based precautions are employed for residents who are actively infected with multi-drug resistant organisms.” The CMS definition of infection is “the establishment of an infective agent in or on a suitable host, producing clinical signs and symptoms (e.g., fever, redness, heat, purulent exudates, etc.).”

The CMS also states: “It is important that all infection prevention and control practices reflect current CDC guidelines.” The CDC/HICPAC guideline⁷ for Contact Precautions in LTCF states:

- V.A.5.c.ii. “Consider the individual patient’s (resident’s) clinical situation and prevalence or incidence of MDRO in the facility when deciding whether to implement or modify Contact Precautions...”
- V.A.5.c.ii.1. “For relatively healthy residents (e.g., mainly independent) follow Standard Precautions making sure that gloves and gowns are used for contact with uncontrolled secretions, pressure ulcers, draining wound, stool incontinence, and ostomy tubes/bags.”
- V.A.5.c.ii.2. “For ill residents (e.g., those totally dependent upon healthcare personnel for healthcare and activities of daily living...) and for those residents whose infected secretions or drainage cannot be contained, use Contact Precautions, in addition to Standard Precautions.”
- V.A.5.g.i. “When single-patient (resident) rooms are available, assign priority for these rooms to patients (residents) with known or suspected MDRO colonization or infection. Give highest priority to those patients (residents) who have conditions that may facilitate transmission (e.g., uncontained secretions or excretions).”
- V.A.5.g.ii. “When single-patient rooms are not available, cohort patients with the same MDRO in the same room.”
- V.A.5.g.iii. “When cohorting ... is not possible, place MDRO patients in rooms with patients who are at low risk for acquisition.”
- V.B.6.a.iii. “In LTCF, modify Contact Precautions to allow MDRO colonized/infected patients (residents) whose site of colonization or infection can be appropriately contained and who can observe good hand hygiene practices to enter common areas and participate in group activities.”

From a review of the new CMS interpretive guidelines and the CDC/HICPAC recommendations for Contact Precautions, one can see that there is no boilerplate answer when it comes to placing residents known to be colonized or infected with an infectious agent, including those designated as MDRO. **It is also important to remember that residents who may have a condition that facilitates transmission may or may not have a positive test (culture) for an infectious agent.** For instance, when testing residents with diarrhea for *C. difficile*, it is not uncommon to have a negative toxin test when in fact a more sensitive test such as a polymerase chain reaction (PCR) test might be positive. Similarly, MRSA surveillance cultures are generally taken from the nares. However, it is possible to have a negative MRSA nares culture and a positive MRSA culture or PCR test at a different site such as a gastrostomy insertion site.

Process Measures

- **NO** request for LTCF placement should be refused based on knowledge of a positive test for any infectious agent, including those designated as MDRO (e.g., MRSA, VRE, C. difficile, etc). New or returning residents should be admitted based on the ability of the facility's personnel to provide supportive and restorative care.
- Obtain information about new or returning resident's infection or colonization status prior to transfer. Interview the hospital's discharge coordinator or infection preventionist and request information on conditions that may facilitate transmission of infectious agents such as uncontrolled excretions or secretions (e.g., diarrhea, wound drainage, copious pulmonary secretions) and the results of diagnostic or surveillance cultures obtained during hospitalization (e.g., wound, blood, respiratory, gastrointestinal, etc.). Using the *Utah Inter-Facility Infection Control Transfer Form* (See Appendix A: Forms) will facilitate in this process.
- Prior to transfer, meet with an interdisciplinary team (e.g., infection prevention coordinator, charge nurse, director of nurses, medical director, social worker, treatment nurse, etc.) and discuss the advantages and disadvantages of placing the resident in Contact Precautions/Isolation in a private room or placement with a roommate using ESP.
- Develop a resident care plan specific to containing the condition(s) that may facilitate transmission.
- Document the rationale for implementing Contact Precautions in the resident's medical record.
- Educate HCW about the resident's infection or colonization status and review the infection prevention measures to be implemented (e.g., gloves, gowns, masks, eye protectors, hand hygiene, etc.).
- Ensure that the appropriate instructions (signage) for precautions are communicated. A universal PPE sign may be used (See Appendix A: Forms, PPE Communication Tool) with the appropriate boxes checked based on the nurse's patient assessment. The sign should be displayed to alert all who enter the room which types of protection, such as gowns, gloves, masks, eye protection, etc., are necessary. A universal sign provides flexibility and allows the HCW to evaluate the patient daily and adjust the checked boxes as necessary to reflect the patient's current precaution needs.

Hand Hygiene

Rationale

Infectious agents including MDRO can be recovered from infected wounds, non-infected wounds, mucous membranes, and from dry, intact skin. The moist intact skin of the perineum and the inguinal areas are usually the most heavily colonized, but the axillae, trunk and upper extremities including the hands are also colonized. Residents with chronic diseases such as diabetes, renal failure and dermatological conditions can be heavily colonized with *Staphylococcus aureus*, including MRSA. Because approximately 10^6 skin squames (1 million skin cells) containing viable organisms are shed daily from normal intact skin, surfaces such as bed linens, furniture, countertops and other objects in the resident's immediate environment are also contaminated.⁸ Therefore, any contact with the resident or surfaces in their immediate environment can contaminate the gloved and ungloved hands as well as clothing worn by the healthcare worker.

Employee Education

Each employee, including those who have direct resident contact and those in administrative positions, should be educated during new employee orientation, annually, and when observations indicate that employees are not in compliance with the facility hand hygiene procedure. Visitors, volunteers, and residents should also be educated and instructed in hand hygiene procedures. Guidelines for developing an effective facility hand hygiene procedure have been published by the CDC and the World Health Organization (WHO).^{8,9} Artificial nails, including extenders and jewelry (except wedding bands) should be prohibited for all HCW who may have direct or indirect resident contact, including contact with the immediate environment.⁷

Essential elements of the hand hygiene education program should include:

- rationale for hand hygiene (e.g., prevent transmission of infectious agents)
- Indications for performing hand hygiene (e.g., touching intact and non-intact skin, blood, body fluids, and environmental surfaces)
- techniques for hand hygiene (amount of product to use, duration of application, differentiation between visibly dirty and contaminated hands)
- selection of an appropriate product
- maintaining the integrity and health of the skin
- expectations of the facility administrative staff (e.g., monitoring compliance with procedure)
- indications for and limitations of glove use (e.g., does not replace hand hygiene)

Product Instruction

Each employee, resident, and visitor should be trained in the use of the specific hand hygiene products. Training should include:

- instructions for the use of the alcohol-based hand hygiene product
- location of the alcohol-based product dispensers within the facility
- hazards (e.g., fire, accidental ingestion) associated with alcohol-based products
- the department responsible for replacing empty dispensers
- selection and use of soap products, water, and paper towels

Demonstration of Knowledge

Each HCW, volunteer, and visitor should periodically be required to verbally and physically demonstrate the proper procedures for hand hygiene, including alcohol-based products and soap and water. (See *Appendix A: Forms, Hand Hygiene Skills Checklist*).

Observation of Hand Hygiene

The infection prevention professional or other designated person specifically trained to observe and document compliance with the hand hygiene procedure should, at least every 2–3 weeks and on all shifts, observe HCW including physicians, physician assistants and nurse practitioners as well as ancillary staff, volunteers and visitors. Non-compliance should be immediately addressed. (See *Appendix A: Forms, Hand Hygiene Skills Checklist*).

Location of Alcohol-based Hand Hygiene Dispensers

Alcohol-based hand hygiene dispensers should be located as close to the entrance (e.g., immediately adjacent to the door frame) to resident-occupied areas as possible and between each bed in multiple-bed rooms. As permitted by the fire code, dispensers should also be located in hallways between resident rooms and at other strategic areas including nursing stations, dictation booths, medication and treatment carts, dining rooms, physical therapy, and computer terminals.

Process Measures

Healthcare workers, visitors and volunteers must wash their hands with soap (antimicrobial or non-antimicrobial) and water:

- before eating
- after using the bathroom
- when soiled with visible dirt

- after unprotected (ungloved and damaged gloves) contact with blood, other body fluids, secretions, excretions, mucous membranes, non-intact skin, intact skin soiled with blood and other body fluids, wound drainage, and soiled dressings
- after contact with intact and non-intact skin, clothing, and environmental surfaces of residents with diarrhea, even if gloves are worn

Alcohol-based hand hygiene products can and should be used to decontaminate hands:

- immediately upon entering a resident-occupied area (single or multiple bed room, procedure or treatment room)
- immediately upon exiting a resident-occupied area (e.g., before exiting into a common area such as a corridor)
- before moving from one resident to another in a multiple-bed room or procedure area
- before putting on sterile gloves for the purpose of performing procedures for which aseptic technique is required (e.g., insertion of vascular access devices, urinary catheters, etc.)
- after removing personal protective equipment (PPE) such as gloves, gowns, and facial protection

There is no CDC/HICPAC recommendation for decontaminating the bare skin between the wrist and the elbow following close resident contact. However, following activities that involve prolonged forearm contact such as lifting, moving, and turning immobile or partially immobile residents who are unable to assist in these activities, the forearms should be washed with soap and water if gowns are not worn.

Residents should perform hand hygiene:

- before meals
- before and after therapy and social activities
- after toileting
- frequently throughout the day

Personal Protective Equipment

Rationale

Personal protective equipment (gowns, gloves, masks, eye protection) is worn to prevent:

- resident-to-resident, HCW-to-resident, and resident-to-HCW exposure to and possible colonization or infection with community- and healthcare-associated infectious agents, including MDRO
- occupational exposure to bloodborne pathogens including, but not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV)

Personal protective equipment should be readily available on all nursing units and in ancillary departments (e.g., physical therapy, activities, dining rooms, etc.) at all times. (See *Appendix A: Forms, Personal Protective Equipment (PPE) Inventory Tool*). All healthcare workers who may have resident contact should be periodically observed for compliance with the PPE policy. (See *Appendix A: Forms, Personal Protective Equipment (PPE) Skills Checklist*). For detailed instruction on how to put on and remove PPE, the facility should consult the CDC/HICPAC Guideline for Isolation Precautions.⁶ (See *Appendix A: Forms, CDC's Donning and Removing Personal Protective Equipment (PPE)*).

Gloves

The effectiveness of wearing gloves in preventing hand contamination and transmission of infectious agents in health care settings has been confirmed in many clinical studies. However, to be effective, gloves must be worn appropriately and hand hygiene must be performed when gloves are removed.

Gloves should not be washed for the purpose of reuse and should be disposed according to state or county regulatory requirements. When medical examination gloves are worn by environmental services personnel to clean and disinfect residents' rooms, they should be removed and discarded upon exiting each room or procedure area.

Process Measures

Clean, durable, non-sterile, snug-fitting, disposable, medical examination gloves should be:

- put on after hand hygiene and immediately prior to contact with the resident's:
 - non-intact skin
 - intact skin soiled with blood and body fluids
 - clothing and linens soiled with blood and body fluids
 - contact with mucous membranes

- worn when in contact with containers of blood and body fluids (e.g., suction canisters, urinals or commodes, emesis basins)
- removed and hand hygiene performed after completing procedures that involve direct resident contact, contact with blood and body fluids, contact with environmental surfaces
- changed and hands washed with soap and water when the integrity of the glove is compromised and hands have been exposed to blood or body fluids
- changed and hand hygiene performed when moving from a contaminated body site (perineum) to a clean body site (e.g., face)
- removed and hand hygiene performed before moving from one resident to another in a multi-bed room or procedure area
- removed and hand hygiene performed immediately upon exiting a resident-occupied room (e.g., before exiting into a common area, such as a corridor)
- should not be worn for multiple-resident contacts

Gowns

Gowns are worn to prevent soiling of clothing with blood and body fluids. Gowns are also worn to prevent the transfer of infectious agents from the resident's skin, clothing, bedding, and environmental surfaces surrounding the resident to the HCW's bare skin and clothing. The physical characteristics of the material (e.g., moisture-repelling vs. cloth) are based on the anticipated degree of physical contact with the resident and the potential for fluid penetration. Laboratory coats or jackets worn over personal clothing, uniforms, and scrubs are **NOT** considered PPE.

Disposable aprons or cloth cover gowns can be worn for routine resident care activities that require prolonged contact (e.g., bed bath, changing bed linens, moving or turning the patient, physical therapy, etc.). Reusable cloth cover gowns, if used, should not be worn by multiple HCW or for contact with more than one resident and should be discarded when wet or soiled and at the end of each shift.

Gowns should be worn correctly (tied at the neck and waist, if applicable) and always in combination with disposable gloves that cover the cuff of the gown's sleeve. Gowns should be removed after gloves and immediately before or upon exiting the resident's room or when moving from one resident to another in a multi-bed room. Hand hygiene should be performed following gown and glove removal.

Process Measures

To prevent the transmission of infectious agents and soiling of clothes and exposed skin of the forearm with blood and body fluids, disposable gloves, in combination with moisture-repelling gowns, should be worn when:

- in contact with non-intact skin (e.g., large draining wounds, extensive dermatological conditions including skin rashes, burns, etc.)

- handling fluid filled containers that are likely to leak, splash, spill, or splatter when moved (e.g., bedside commodes, bedpans, urinals, and emesis basins)
- in contact with residents who soil their bed linens, clothing, and/or environmental surfaces with blood and body fluids
- performing procedures likely to generate splashes, sprays, splatters or droplets of blood, and other body fluids

Masks and Eye Protectors or Face Shields

The mucous membranes of the mouth, nose, and eyes are susceptible portals of entry for viral and bacterial respiratory infectious agents expelled from the lungs and upper airway of infected and colonized residents. Masks and eye protectors or face shields are worn to:

- protect HCW from exposure to and possible infection with bloodborne pathogens (e.g., HBV, HCV and HIV) when performing procedures or activities likely to aerosolize splashes, sprays, splatters or droplets of blood and other body fluids
- when performing procedures that require sterile technique (e.g., lumbar puncture, insertion of vascular access devices) to protect residents from exposure to infectious agents that may be colonizing the HCW's mouth or nose

Procedure and surgical masks should not be confused with particulate (N-95) respirators that are recommended to prevent the transmission of airborne infectious agents, such as *Mycobacterium tuberculosis*. Additionally, a higher level of respiratory protection (N-95 respirators) may be required for novel (new) respiratory infectious agents (e.g., pandemic H1N1 influenza).

Long-term care facilities should consult with their local health department for recommendations for preventing the transmission of airborne infectious agents. When influenza-like illnesses are circulating in the community, the facility should implement a respiratory hygiene/cough etiquette program as defined by the CDC/HICPAC Guideline for Isolation Precautions.⁶

Process Measures

Wear disposable masks (surgical or procedure) over the nose and mouth and in combination with eye protection (goggles) or a face shield when performing any of the following procedures:

- intubation, nebulized respiratory therapy treatments, bronchoscopy, CPR, open airway suctioning (if not using in-line suction catheters), and sputum induction
- oral or tracheal suctioning that induces projectile secretions
- irrigation of open infected and non-infected wounds including burns

Wear disposable masks only over the nose and mouth when:

- performing invasive procedures, such as lumbar puncture or the insertion of vascular access devices, including percutaneous intravascular catheters (PIC)
- performing dressing changes on large open wounds
- a HCW has a new onset of productive cough and nasal congestion (upper respiratory infection) without fever
- a resident has a new onset or exacerbation of a respiratory condition with increased sputum production

Lab Coats and Uniforms

Lab coats and jackets are not PPE and should not be worn when exposure to blood and other body fluids is anticipated. Healthcare workers, including physicians, nurse practitioners, and technicians, should be reminded that lab coats and jackets become contaminated during direct resident contact encounters and that transmission of infectious agents from one resident to another is possible. Direct healthcare workers should wear clean apparel (e.g., uniforms, scrubs) each working day.

Environmental Hygiene

Rationale

Environmental hygiene is as important as hand hygiene in preventing the transmission of infectious agents in healthcare facilities. A recent study concluded that admission to a room previously occupied by a known MRSA or VRE culture-positive patient was a significant risk factor for acquiring those pathogens by subsequent room occupants.¹⁰ In another study, 70% of cultures obtained from environmental surfaces in the rooms of patients known to be infected or colonized with MRSA were positive for MRSA.¹¹

What is known from published studies is that regardless of the original site of the infection (e.g., wound, respiratory, etc.) or colonization (e.g., nares), infectious agents, such as MRSA, VRE, and *C. difficile*, can contaminate all or parts of the patient's skin surface, especially those sites that are moist (e.g., groin, axillae, etc.). The bacteria are then shed in the skin squames (cells) onto environmental surfaces, such as bedrails and table tops in the patient's immediate environment. These organisms can survive on dry environmental surfaces from several hours to many weeks and serve as a source of hand, glove and clothing contamination.

Definition of Environmental Hygiene

Cleaning and disinfecting environmental surfaces and medical equipment to remove soil and contamination.

Employee Education

Each employee working in environmental services should be trained during new employee orientation, annually, and when observations indicate non-compliance with the facility procedures for maintaining a hygienic environment. Additionally, HCW who provide direct resident care (e.g., nursing personnel, physical therapists, activities coordinator, etc.) should be educated about their responsibilities in cleaning and disinfecting medical equipment and environmental surfaces.

Essential elements of the employee education program include:

- the rationale for environmental hygiene (e.g., prevent transmission of infectious agents)
- the development and implementation of current, evidence-based procedures
- demonstration with return demonstration of the correct method to clean and disinfect a resident-occupied room, bathroom, and recreational and food service areas
- demonstration with return demonstration of the correct method to clean and disinfect a discharge/transfer room

- a review of the hazards (e.g., material safety data sheets) associated with all products
- selection and use of appropriate products for specific surfaces
- delineation of responsibilities (e.g., nursing vs. environmental services employees) for cleaning and disinfecting medical equipment (e.g., electronic thermometers and other electronic equipment, monitors, fluid administration pumps, ventilators, etc.)
- proper use of PPE
- compliance with daily, weekly, and monthly schedules
- proper product dilution and contact time
- compliance with Occupational Safety and Health Administration (OSHA) standards

Demonstration of Knowledge

Each employee should periodically be required to verbally and physically demonstrate the proper procedures for environmental hygiene, including the selection and application of the appropriate product.

Observation of Environmental Hygiene

The infection prevention professional or other designated person specifically trained to observe for and document compliance with facility procedures should, at least every 2–3 weeks, visually observe employees responsible for environmental hygiene. Non-compliance should be immediately addressed. (*See Appendix A: Forms, Environmental Hygiene Terminal (Quarterly/Discharge/Transfer) Skills Checklist and Environmental Hygiene Daily Resident Skills Checklist*).

Process Measures

- Assign responsibility and accountability for environmental hygiene to each department manager, supervisor and employee.
- Daily or more frequently if visibly soiled, environmental services employees should clean and disinfect frequently touched surfaces and objects (e.g., bed rails, table tops, chairs, television and nurse call and television controls, etc.) in resident-occupied rooms, nursing stations, and other areas as assigned.
- Daily or more frequently if visibly soiled, nursing service employees should clean and disinfect equipment, such as monitors, fluid administration pumps, and other equipment directly related to the care and treatment of a resident.
- Develop and implement a schedule for cleaning and disinfecting air vents, supply storage cabinets, offices, waiting areas, carpets, medication and treatment carts, as well as other equipment.
- Develop and implement a schedule for cleaning and disinfecting beds, furniture, storage closets, and equipment in rooms assigned to long-term residents.
- Rooms where residents have been residing longer than one month should have terminal cleaning performed monthly.

- Terminally clean and disinfect all equipment, furniture, cabinets, and shelves and change privacy curtains in discharge-transfer rooms.
- Use an Environmental Protection Agency (EPA) registered detergent/disinfectant in all resident care areas. The manufacturer's recommendations for amount, dilution, and contact time should be followed. Currently, there is no approved EPA-registered detergent/disinfectant that is effective in killing *C. difficile* spores. Therefore, a 1:10 dilution of 5.25% sodium hypochlorite (household bleach) and water freshly mixed daily should be used to disinfect the rooms of those residents with symptomatic (e.g., diarrhea) infection. If there is evidence of ongoing *C. difficile* transmission, the facility should consider using a bleach solution daily in all resident rooms until transmission has ceased.
- Use a clean cloth saturated with a properly diluted disinfecting solution for each resident's area of the room. Work from clean to dirty (e.g., bedside tables, bed rails to bathroom). Spray bottles should be replaced with bottles that pour the disinfecting solution onto a cloth or surface. Replace mop bucket solution every 3rd room and/or when debris is visible in the solution, whichever occurs first. Wash and dry cloths and mops daily.¹²
- Clean and disinfect multiple-resident use equipment (e.g., commodes, shower chairs, bedside scales, lifts, blood pressure cuffs, electronic thermometers, etc.) between each resident use.
- Clean and disinfect equipment such as computer keyboards, as well as other frequently touched peripheral equipment, at least daily.
- Locate disinfectant-impregnated disposable wipes close to shared, moveable monitoring equipment, such as electronic thermometers and blood pressure devices. Shared equipment, such as thermometers, stethoscopes, and blood pressure cuffs, should be disinfected between each resident encounter.
- Use moisture-resistant mattress covers and replace when soiled with blood and body fluids and at discharge/transfer. Replace torn pillows and mattresses. Wash pillows and their protective covers when soiled.
- Clean and disinfect glucometers and other point-of-care testing devices after each use. Consult manufacturer's recommendations for disinfecting solution concentration.

Resident Hygiene

Rationale

There are no CDC recommendations for resident hygiene to reduce skin colonization with MRSA, VRE or other infectious agents. In one recent study, chlorhexidine bathing was associated with a reduction in the incidence of MRSA and VRE bloodstream infection rates in intensive care unit patients who were bathed daily with 4% chlorhexidine gluconate when compared to those bathed with plain soap and water. Further, in this study, weekly surveillance cultures found a 32% and 50% reduction in MRSA and VRE colonization respectively. The study warned that chlorhexidine gluconate was only effective against gram-positive bacteria and that the incidence of gram-negative bacteria should be monitored.¹³

Process Measures

- Shower residents according to facility schedule. If the incidence of gram-positive infectious agent, such as MRSA or VRE, is increasing, consider using an antibacterial agent, such as 4% chlorhexidine gluconate, in place of the general purpose shower and bath gel.
- Ensure that incontinent residents are cleansed with each diaper change.
- Assist residents to decontaminate their hands with soap and water after bowel and bladder elimination.
- Remind or assist residents to decontaminate their hands with an alcohol hand hygiene product or soap and water when leaving their room and prior to attending social activities and before eating.

Resident Transport

Rationale

Transporters pushing a wheelchair or a gurney rarely need to wear PPE such as gloves and gowns in corridors or elevators. If exposure to blood or body fluids is anticipated, the transporter should put on a clean gown and gloves after assisting the resident and upon exiting the room. Appropriate protective barriers (e.g., reinforced wound dressings, surgical/procedure mask, diaper, etc.) should be used, when applicable, to contain and confine blood, body fluids and respiratory secretions.

Process Measures

- Assist the resident with hand hygiene prior to exiting the room.
- Ensure containment of fecal and urinary excretions and wound drainage.
- Place a mask over the nose and mouth if resident has new evidence of upper respiratory infection (URI) or exacerbation of chronic respiratory disease with increased sputum production.
- Communicate change of condition (e.g., URI) to receiving department.
- Notify transport service and complete the *Utah Infection Control Transfer Form* (See *Appendix A: Forms*) if resident has an active infection or is colonized with a multi-drug resistant organism, such as MRSA or VRE.

Soiled Linens

Soiled linens, such as sheets, towels, incontinence pads and patient gowns, are contaminated with community- and healthcare-associated organisms, even if visible soil is not evident. According to the latest CMS guidance document, double-bagging of linens from isolation rooms (Contact Precautions) is not necessary unless the outside of the bag is wet or visibly soiled with blood or body fluids. Laundry wash water temperatures should be maintained at or above 160° F (71° C). Alternately, low temperature washing at 71–77° F (22-25° C) plus 125 parts-per-million (ppm) chlorine bleach rinse has been found to be effective. If the latter recommendation is implemented, the use of chlorine bleach should be carefully monitored. Commercial laundry facilities, if used, should be monitored for compliance with recommended practices.

Process Measures

- Wear gowns and gloves when in contact with visibly soiled linens.
- Avoid contact with skin and clothing when handling linens regardless of visible soil.
- Locate the laundry hamper close to point-of-use and place soiled linen directly into a leak-proof laundry bag or other container.
- Avoid putting soiled linens on floors, tabletops, and chairs.
- Ensure that employees assigned to the laundry service wear PPE, including moisture-repelling gowns and gloves, when handling and sorting soiled linens.
- Periodically observe employees assigned to the laundry for compliance with facility policies and procedures, including PPE, laundry wash water temperature, and cleanliness of clean and soiled laundry areas.

Dishes and Utensils

Routine dietary sanitation procedures should be used for dishes, eating utensils, water carafes and cups; no special handling is required. There are no requirements for the use of disposable dishes or utensils for patients in ESP.

Visitors

Visitors, including children, should be verbally screened for symptoms of current upper respiratory infection, gastrointestinal infection, and draining and non-draining skin and soft tissue lesions and, if any of these conditions are present, should be dissuaded from visiting. The number of visitors, including children permitted in a resident's room at any given time, should be limited.

Outcome Surveillance

Outcome surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data related to the occurrence of infections in LTCF. It consists of documenting each individual case of an infection occurring in residents using standardized definitions¹⁶. Assuming a reported infection meets the definition for an infection when applied to the criteria for the facility's definition, the ICP must then determine whether the infection is a healthcare-associated infection (HAI) or community-acquired. Failure to discriminate between these two types of infections is important because doing so obscures the true healthcare-associated infection rate. Once analyzed, the infection rates should be reported to the infection control and/or quality improvement committee.^{14, 15, 16} (See *Appendix A: Forms, Healthcare-associated Infections (HAI) in Long-term Care Facilities (LTCF) Suggested Definitions of Infections for Surveillance Purposes*)

Calculation of Infection Rates

Collected surveillance information is used to develop a log of patients with an infection. The log should be a line listing of all infections with pertinent patient information such as location of infection, organism, onset, and treatment. The information collected on the line listing may then be used to calculate various rates to describe data. (See *Appendix A: Forms, Calculation of Infection Rates*)

Recognizing and Controlling Outbreaks

Outbreaks will be identified when data are collected and analyzed and there is recognition of an excess of infections from normal. The determination of an outbreak is shown with a commonality of symptoms among staff or residents. During an outbreak, control and prevention measures may be instituted, including isolating individuals who are ill from those who are not ill, discontinuing group activities, cohorting residents and staff, and limiting visitors. Any outbreak, epidemic, or unusual or increased occurrence of any illness that may indicate an outbreak or epidemic, including suspected or confirmed outbreaks of food-borne disease, waterborne disease, disease caused by antimicrobial resistant organisms, any infection that may indicate a bioterrorism event, or of any infection that may be indicated as a public health hazard, is reportable as set forth in Utah Administrative Code (R385-702. Communicable Disease Rule).

Reportable Diseases

There are more than 70 conditions that are reportable in Utah according to Utah Administrative Code (R386-702. Communicable Disease Rule). Conditions are included on the list because they have public health implications for Utah's citizens; for example, they may be easily transmissible, have a significant probability of severe morbidity or mortality, may represent emerging infections, or may represent a suspect bioterrorism event. There are some reportable conditions that are of national and regional significance, and some that are important locally in Utah. Conditions that are reportable may change over time depending on disease trends and priorities. Making changes to the reportable disease list in Utah occurs through the Utah Administrative Code rule-changing process.

Most conditions that are reportable in Utah require reporting within three working days of identification of a case of that condition. There is a group of diseases that are reportable within 24 hours of identification. These diseases constitute those that require immediate attention and/or intervention, for example, because they have implications for rapid treatment of the case, or for identifying and managing contacts of a case; because they may draw media attention; or because they may require prompt investigation to determine if a bioterrorism threat may be present. *(See Appendix A: Forms, Utah Reportable Disease List)*

The Communicable Disease Rule (R386-702) is available in full for reference at: <https://rules.utah.gov/publicat/code/r386/r386-702.htm>.

Appendix A: Forms

Infection Control Transfer Form

PPE Communication Tool

Hand Hygiene Skills Checklist

Personal Protective Equipment (PPE) Inventory Tool

Personal Protective Equipment (PPE) Skills Checklist

CDC's Donning and Removing Personal Protective Equipment (PPE)

Environmental Hygiene Terminal (Quarterly/Discharge/Transfer) Skills Checklist

Environmental Hygiene Daily Resident Room Skills Checklist

Healthcare-associated Infections (HAI) in Long-term Care Facilities (LTCF)

Calculation of Infection Rates

INFECTION CONTROL TRANSFER FORM

This form should be sent with the patient/resident upon transfer. It is NOT meant to be used as criteria for admission, only to foster the continuum of care once admission has been accepted.

Affix any patient labels here

Demographics				
Patient/Resident (Last Name, First Name):				
Date of Birth:	MRN:	Transfer Date:		
Sending Facility Name:				
Contact Name:		Contact Phone:		
Receiving Facility Name:				
⚠ Currently in Isolation Precautions? <input type="checkbox"/> Yes If Yes, check: <input type="checkbox"/> Contact <input type="checkbox"/> Droplet <input type="checkbox"/> Airborne <input type="checkbox"/> Other:				<input type="checkbox"/> No isolation precautions
Organisms				
Did or does have (send documentation, e.g. culture and antimicrobial test results with applicable dates):		Current (or previous infection or colonization, or ruling out*)		<input type="checkbox"/> No known MDRO or communicable diseases
Acinetobacter resistant to carbapenem antibiotics (CRA)		<input type="checkbox"/>		
E. coli, Klebsiella or Enterobacter resistant to carbapenem antibiotics (CRE)		<input type="checkbox"/>		
Pseudomonas aeruginosa resistant to carbapenem antibiotics (CRPA)		<input type="checkbox"/>		
Carbapenemase production in any of the above organisms (CP+)		<input type="checkbox"/>		
MRSA		<input type="checkbox"/>		
VRE		<input type="checkbox"/>		
E. coli, Klebsiella resistant to expanded-spectrum cephalosporins (ESBL)		<input type="checkbox"/>		
C. difficile		<input type="checkbox"/>		
Other*: <small>*e.g. C. auris, C. haemulonii, lice, scabies, disseminated shingles, norovirus, influenza, TB, etc.</small>		<input type="checkbox"/> (current or ruling out*)		
*Additional information if known:				
Symptoms				
Check yes to any that currently apply**: <input type="checkbox"/> Cough/uncontrolled respiratory secretions <input type="checkbox"/> Incontinent of urine <input type="checkbox"/> Vomiting				<input type="checkbox"/> No Symptoms / PPE not required as "contained"
<input type="checkbox"/> Concerning rash (e.g.; vesicular) <input type="checkbox"/> Acute diarrhea or incontinent stool <input type="checkbox"/> Draining wounds <input type="checkbox"/> Other uncontained bodily fluid/drainage				
**NOTE: Appropriate PPE required ONLY if incontinent/drainage/rash NOT contained.				
PPE				
PERSONAL PROTECTIVE EQUIPMENT CONSIDERATIONS <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="checkbox"/></div> <div style="text-align: center;"> <input type="checkbox"/></div> <div style="text-align: center;"> <input type="checkbox"/></div> </div>		ANY YES ◇ Answers to sections above ALL NO ▽		
CHECK ALL PPE TO BE CONSIDERED AT RECEIVING FACILITY		Person completing form: Role: _____ Date: _____		
Other MDRO Risk Factors				
Is the patient currently on antibiotics? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Antibiotic:	Dose, Frequency:	Treatment for:	Start date:	Stop date:
Does the patient currently have any of the following devices? <input type="checkbox"/> Yes <input type="checkbox"/> No				
<input type="checkbox"/> Central line/PICC, Date inserted:		<input type="checkbox"/> Suprapubic catheter	<input type="checkbox"/> Fecal management system	
<input type="checkbox"/> Hemodialysis catheter		<input type="checkbox"/> Percutaneous gastrostomy tube		
<input type="checkbox"/> Urinary catheter, Date inserted:		<input type="checkbox"/> Tracheostomy		
Immunizations				
Were immunizations received at sending facility? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If yes, specify:			Date(s):	

Definitions

MDRO (multi-drug resistant organism) - A bacterium that has become resistant to multiple groups (classes) of antibiotics. An example of this is methicillin-resistant Staphylococcus aureus (MRSA). Cultures can identify an MDRO based on the culture's antibiotic susceptibility pattern (e.g., test the bacteria to see whether it is sensitive (S), resistant (R) or intermediate (I) to different antibiotics). MDROs are not necessarily more aggressive than susceptible bacteria, but are more difficult to treat as there are fewer antibiotics that work.

Colonization - Presence of an organism (such as an MDRO) on tissue without symptoms of illness or infection.

Infection - Invasion and multiplication of an organism (such as an MDRO) in tissue with clinical symptoms of infection, such as increased white blood cell counts, fever, lesions, furuncles, drainage from a break in skin continuity and erythema. Infection requires treatment.

Carrier - A person who is colonized with an MDRO is a carrier. The organism may be present in the nares (nose), sputum, urine, open wound, in the stool or on the skin without clinical manifestations of disease. A carrier may transmit the organism to another person through direct contact, usually by contact with hands.

Positive culture - A positive culture for an organism does not automatically equal clinical infection. For example, individuals with nasal carriage of MRSA may have no signs and symptoms of infection. In this case, the patient would be colonized with MRSA, but not infected.

Contact Isolation Precautions - CDC-based isolation category - used for those diseases spread by direct or indirect contact. This means that the bacteria or virus can be acquired by either directly touching the colonized or infected site or body fluid or by touching equipment that may be contaminated with infectious material.

Droplet transmission - Occurs when respiratory secretions with organisms are transferred to the eyes, nose, or mouth of another person. Secretions are most commonly passed through coughing or sneezing, and generally do not travel farther than 3-6 feet from the patient. Droplet Isolation Precautions is the CDC-based isolation category used, when indicated.

Airborne Isolation Precautions - Used with diseases spread by minute particles that can remain suspended in the air for long periods of time because of their size, even after the infected patient has left the room. Airborne transmitted diseases are tuberculosis (TB), varicella (chickenpox), disseminated zoster (shingles) pneumonia, and measles (rubeola). Placement in a private room with special air handling (monitored negative pressure) and ventilation is required to prevent release of these organisms into the healthcare environment. **Facilities accepting patients suspected to have, or been diagnosed with, TB must meet OSHA Respiratory Protection Standards (TB-specific Airborne Precautions criteria NOT addressed in this document).**

Standard Precautions - Assume and handle every patient's blood, body fluids, secretions, and excretions as potentially infectious, regardless of diagnosis. Use personal protective equipment (PPE) - gloves, gowns, and face protection - to prevent exposure/direct contact with these body substances.

General Recommendations for Isolation Precautions

Patient placement - In long-term care and other residential settings, make decisions regarding patient placement on a case-by-case basis. When making decisions for isolation, facilities should consider the following: 1) balance infection risks to other patients in the room; 2) the presence of symptoms that increase the likelihood of transmission (such as uncontrolled coughing, uncontained drainage from a wound); 3) the presence of risk factors in persons that increase their susceptibility to infection (such as on high doses of prednisone); and 4) the potential adverse psychological impact on the infected or colonized patient. When single-patient (private) rooms are available, assign priority for these rooms to the patient with known or suspected colonization or infection. Give highest priority to those patients who have symptoms that increase transmission (e.g., uncontained secretions or excretions). When private rooms are not available, cohort (place together in the same room) patients infected or colonized with the same MDRO/disease and who are suitable roommates. If cohorting is not possible, place the colonized or infected patient in a room with a patient who is less susceptible to colonization/infection/disease and associated adverse outcomes (e.g., those who are immunocompromised, have open wounds, or have anticipated prolonged lengths of stay, etc.).

Contact Isolation Precautions - Single-patient private room preferred.

- Don gloves and gown upon entry into the room or cubicle.
- Use disposable non-critical patient-care equipment (e.g., blood pressure cuffs) or dedicate equipment for use with only one patient. If use of equipment with multiple patients is unavoidable, clean and disinfect equipment before use on another patient.
- Ensure that rooms are prioritized for frequent cleaning and disinfection (e.g., at least daily) with a focus on frequently touched surfaces (e.g., bed rails, over bed table, etc.).

Droplet Isolation Precautions - Single-patient private room preferred.

- Don a mask upon entry into the patient room or cubicle.
- No recommendation for *routinely* wearing eye protection (e.g., goggle or face shield), but use in addition to a mask to protect mucous membranes of the eyes during procedures and care activities likely to generate splashes or sprays of blood, body fluids, secretions, and excretions to one's eyes and with coughing patients who cannot control their secretions.

Airborne Isolation Precautions - (For chickenpox and measles) Private negative pressure room required.

- Only immune healthcare personnel should care for patients.
- No recommendation for *routinely* wearing PPE upon room entry.
- Under standard precautions, healthcare personnel should use PPE whenever potential contact with a patient's blood and body fluids, secretions, or excretions exists.

Version 1.0 07/2011

PPE Communication Tool

Wash or gel hands

- ✓ Before, during, and after patient care



Wear gloves

- Direct patient contact
- Upon room entry



Wear face protection (ear-loop mask & eye protection)

- Within cough zone
- Upon room entry



Wear a gown

- Direct patient contact
- Upon room entry



VISITORS

Please check with nurse before entering room.
Por favor de anunciarse a la enfermera de
piso antes de entrar al cuarto.

Hand Hygiene Skills Checklist

Date Observed: _____

Observer: _____

Shift Observed: 1 2 3

HCW Name	HCW Position	Nursing Unit or Ancillary Department	Hand Hygiene Random, Unannounced Observations	Person Compliant with Hand Hygiene Policy
1.				<input type="checkbox"/> Yes <input type="checkbox"/> No
2.				<input type="checkbox"/> Yes <input type="checkbox"/> No
3.				<input type="checkbox"/> Yes <input type="checkbox"/> No
4.				<input type="checkbox"/> Yes <input type="checkbox"/> No
5.				<input type="checkbox"/> Yes <input type="checkbox"/> No
	1. RN/LVN 2. Nurse Aid/CNA 3. Physician 4. Physician Assistant 5. Nurse Practitioner 6. Volunteer 7. Dietary 8. Visitor 9. Student 10. Respiratory Therapist 11. Radiology Tech 12. IV Therapist 13. Other	1. Unit A 2. Unit B 3. Dietary 4. EVS 5. Rehab SVC 6. Dining room 7. Activities room 8. Other	1. Enter room 2. Leave room 3. Touch resident 4. Touch equipment in room 5. Remove gloves 6. Before med pass 7. After med pass 8. Before feeding 9. After feeding 10. Other	Comments: For the purpose of observation, consider contact with the resident and the resident's immediate (e.g., bedroom and bathroom; dining room and chair and table; activities room chair and table) environment as a single, contiguous contact
Hand hygiene verbal skills assessed:				<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many HCW assessed: _____				
How many HCW failed verbal skills assessment: _____				
Percent failure rate: _____				
Hand Hygiene with an alcohol-based product return demonstration skills assessed:				<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many HCW assessed: _____				
How many HCW failed return demonstration: _____				
Percent failure rate: _____				
Hand Hygiene random, unannounced observations performed:				<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many random observations: _____				
How many HCW failed random observations: _____				
Percent failure rate: _____				
Were visitors or volunteers observed for compliance with hand hygiene:				<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many visitors or volunteers observed: _____				
How many visitors or volunteers failed random observations: _____				
Percent failure rate: _____				
Data reported to Quality Improvement Committee: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____				
Recommended Actions:				

*Adapted from Guide to the Elimination of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Long-Term Care Facility, 2009; published by the Association for Professionals in Infection Control and Epidemiology, Inc. (04/11)

Personal Protective Equipment (PPE) Inventory Tool

Date Observed: _____

Observer: _____

Shift Observed: 1 2 3

Adequate Levels of PPE Maintained		
Process Measures	Observation	Comment
On each shift a HCW is assigned to inventory and restock PPE cart/caddy/cabinet	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supplies are inventoried and restocked at end of each shift and as needed	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supplies are located on each nursing unit	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supplies are located in ancillary care areas, such as physical therapy	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supply cart, caddy, or storage cabinet prominently labeled "PPE Supplies"	<input type="checkbox"/> Yes <input type="checkbox"/> No	
HCWs know location of supply cart/caddy/cabinet	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Extra supplies are easily obtained from store room on all shifts	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Storage cart/caddy/cabinet contains <i>only</i> the following supplies		
Supply	Par level (established by facility)	Observation
Gloves (small, medium, large)		<input type="checkbox"/> Yes <input type="checkbox"/> No
Gowns (moisture-repelling)		<input type="checkbox"/> Yes <input type="checkbox"/> No
Gowns/aprons; may be plastic aprons or cloth gowns		<input type="checkbox"/> Yes <input type="checkbox"/> No
Masks (surgical or procedure)		<input type="checkbox"/> Yes <input type="checkbox"/> No
Goggles or face shield		<input type="checkbox"/> Yes <input type="checkbox"/> No
Blood/body fluid spill containment kit		<input type="checkbox"/> Yes <input type="checkbox"/> No
Alcohol-based hand hygiene refill dispensers		<input type="checkbox"/> Yes <input type="checkbox"/> No
Environmental hygiene disinfectant wipes		<input type="checkbox"/> Yes <input type="checkbox"/> No

NOTE: N-95 or higher level respiratory protection should be immediately available in storeroom in the event of a pandemic influenza outbreak. Consult with local health department.

Data reported to Quality Improvement Committee:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date:
Recommended Actions:		

(04/11)

Personal Protective Equipment (PPE) Skills Checklist

Date Observed: _____ Observer: _____ Shift Observed: 1 2 3

Note: If PPE worn correctly during resident care activities, place a check mark in the appropriate box

HCW Name	Location of Observation	Gloves	Gowns	Aprons	Mask + Eye Protectors	Masks only
1.						
2.						
3.						
4.						
5.						
	1. Unit A (room #) 2. Unit B (room #) 3. Dietary 4. EVS 5. Rehab SVC 6. Dining room 7. Activities room 8. Other					

Verbal knowledge of PPE procedure assessed: Yes No
 If yes, how many HCW assessed: _____
 How many HCW failed assessment: _____
 Percent HCW failed assessment: _____

Compliance during resident care activities observed: Yes No
 If yes, how many HCW assessed: _____
 How many HCW failed assessment: _____
 Percent HCW failed assessment: _____

Data reported to Quality Improvement Committee: Yes No Date: _____
 Recommended Actions:

(04/11)



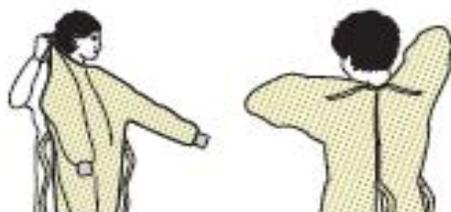
CDC's Donning and Removing of Personal Protection Equipment

SEQUENCE FOR DONNING PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required; e.g., Standard and Contact, Droplet or Airborne Infection Isolation.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



SECUENCIA PARA PONERSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)

El tipo de PPE que se debe utilizar depende del nivel de precaución que sea necesario; por ejemplo, equipo Estándar y de Contacto o de Aislamiento de infecciones transportadas por gotas o por aire.

1. BATA

- Cubra con la bata todo el torso desde el cuello hasta las rodillas, los brazos hasta la muñeca y dóblela alrededor de la espalda
- Átesela por detrás a la altura del cuello y la cintura

2. MÁSCARA O RESPIRADOR

- Asegúrese los cordones o la banda elástica en la mitad de la cabeza y en el cuello
- Ajustese la banda flexible en el puente de la nariz
- Acomódesela en la cara y por debajo del mentón
- Verifique el ajuste del respirador

3. GAFAS PROTECTORAS O CARETAS

- Colóquesela sobre la cara y los ojos y ajústela

4. GUANTES

- Extienda los guantes para que cubran la parte del puño en la bata de aislamiento

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

UTILICE PRÁCTICAS DE TRABAJO SEGURAS PARA PROTEGERSE USTED MISMO Y LIMITAR LA PROPAGACIÓN DE LA CONTAMINACIÓN

- Mantenga las manos alejadas de la cara
- Limite el contacto con superficies
- Cambie los guantes si se rompen o están demasiado contaminados
- Realice la higiene de las manos



CDC's Donning and Removing of Personal Protection Equipment

SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)

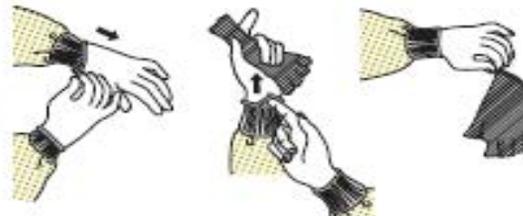
SECUENCIA PARA QUITARSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)

Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.

Con la excepción del respirador, quítese el PPE en la entrada de la puerta o en la antesala. Quítese el respirador después de salir de la habitación del paciente y de cerrar la puerta.

1. GLOVES

- Outside of gloves is contaminated!
- Grasp outside of glove with opposite gloved hand; peel off
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist
- Peel glove off over first glove
- Discard gloves in waste container



1. GUANTES

- ¡El exterior de los guantes está contaminado!
- Agarre la parte exterior del guante con la mano opuesta en la que todavía tiene puesto el guante y quíteselo
- Sostenga el guante que se quitó con la mano enguantada
- Deslice los dedos de la mano sin guante por debajo del otro guante que no se ha quitado todavía a la altura de la muñeca
- Quítese el guante de manera que acabe cubriendo el primer guante
- Arroje los guantes en el recipiente de desechos

2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield is contaminated!
- To remove, handle by head band or ear pieces
- Place in designated receptacle for reprocessing or in waste container



2. GAFAS PROTECTORAS O CARETA

- ¡El exterior de las gafas protectoras o de la careta está contaminado!
- Para quitárselas, tómelas por la parte de la banda de la cabeza o de las piezas de las orejas
- Colóquelas en el recipiente designado para reprocessar materiales o de materiales de deshecho

3. GOWN

- Gown front and sleeves are contaminated!
- Unfasten ties
- Pull away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard



3. BATA

- ¡La parte delantera de la bata y las mangas están contaminadas!
- Desate los cordones
- Tocando solamente el interior de la bata, pásela por encima del cuello y de los hombros
- Voltee la bata al revés
- Dóblela o enróllela y deséchela

4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- Grasp bottom, then top ties or elastics and remove
- Discard in waste container



4. MÁSCARA O RESPIRADOR

- La parte delantera de la máscara o respirador está contaminada — ¡NO LA TOQUE!
- Primero agarre la parte de abajo, luego los cordones o banda elástica de arriba y por último quítese la máscara o respirador
- Arrojela en el recipiente de desechos

PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE

EFECTÚE LA HIGIENE DE LAS MANOS INMEDIATAMENTE DESPUÉS DE QUITARSE CUALQUIER EQUIPO DE PROTECCIÓN PERSONAL

Environmental Hygiene Terminal (Quarterly/Discharge/Transfer) Skills Checklist

Date Observed: _____ Observer: _____

Employee Observed: _____

Process Measures Terminal Environmental Hygiene Tasks	Compliance	Comments/Actions Taken
Detergent/disinfectant solution mixed according to manufacturer's instructions	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Solution in wet contact with surfaces according to manufacturer's instructions	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Clean, saturated cloth used in each room (do not use spray bottles)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Solution in bucket changed every 3 rd room and when debris is visible in bucket	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Responsibilities of EVS personnel (e.g., bed, bed rails, furniture) and nursing (infusion pumps, respiratory therapy equipment, etc.) delineated and understood	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Isolation instruction signage (gowns, gloves, and/or masks) followed, when applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Tasks Performed		
Vent covers (high and low)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Ceiling/wall light fixtures	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Television front/back, cables, vent, cabinet	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Wall-mounted monitors, cables, vent, cabinet	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Ledges, blinds	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Privacy curtains changed; rods dusted	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Bed frame, bed rails, head/foot boards, springs	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Mattress (top/bottom/sides)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Television control, nurse call control, bed controls	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Night stand (inside and outside)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Locker (inside and outside), shelves	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Over bed table (inside and outside)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Bed and other furniture moved	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Baseboards behind bed and night stand	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Electrical outlet panel, oxygen/suction valves	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Bathroom (shower, toilet, sink, grab bars, mirror, spot walls, nurse call control)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Floors damp dust and mop	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Vacuums HEPA filtered; bags changed when 2/3 full	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Other equipment/furniture cleaned/disinfected	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Broken, torn or malfunctioning equipment reported	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Equipment cleaned, maintained and stored appropriately	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Carpet/upholstered furniture (according to policy)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Waste receptacles emptied, cleaned, relined	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Needle box replace, if 2/3 full	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Nursing cleans/disinfects critical equipment (infusion pumps, monitors, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

*Adapted from Guide to the Elimination of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Long-Term Care Facility, 2009; published by the Association for Professionals in Infection Control and Epidemiology, Inc.

(04/11)

Environmental Hygiene Daily Resident Room Skills Checklist

Date Observed: _____ Observer: _____

Employee Observed: _____

Process Measures Daily Environmental Hygiene	Compliance	Comments/ Actions Taken
Environmental Services Responsibilities		
Detergent/disinfectant solution mixed according to manufacturer's instructions	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Solution in wet contact with surfaces according to manufacturer's instructions	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Clean, saturated cloth used in each room (do not use spray bottles)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Solution in mop bucket changed every 3 rd room and when debris visible in bucket	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Employees can verbally delineate responsibilities of EVS personnel (e.g., bed, bed rails, furniture) and nursing (infusion pumps, respiratory therapy equipment, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Isolation instruction signage (gowns, gloves and masks) followed, when applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Night stand, over bed table, bed rails, chair, other equipment in close proximity to resident cleaned and disinfected daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Syringe disposal box		
Check daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Replace when 2/3 full	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Remove to disposal area (dirty utility room)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Isolation Signage		
Appropriate PPE (gowns, gloves masks) worn	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Red bag waste sealed and transported to appropriate receptacle in dirty utility room	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Mop and cloths placed in appropriate bag at completion of each isolation room	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Nursing Responsibilities		
Patient care equipment (infusion pumps, respirators, etc.) cleaned and disinfected daily and as necessary	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Shared Responsibilities		
Spills of food/liquid cleaned up immediately	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Spills of blood and other body fluids cleaned up immediately according to facility procedure	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Blood and body fluid spill procedure reviewed with both nursing and EVS personnel	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Adapted from Guide to the Elimination of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Long-Term Care Facility, 2009; published by the Association for Professionals in Infection Control and Epidemiology, Inc.

(04/11)

Healthcare-associated Infections (HAI) in Long-term Care Facilities (LTCF)

Suggested Definitions of Infections for Surveillance Purposes

Date of Onset of Symptoms: _____ Resident Name: _____ Unit: _____
 Date of Initial Admission: _____ Date of Previous Admission: _____

Site of Infection	Type of Infection	Criteria for infection	Comments
<input type="checkbox"/> Respiratory Check all applicable symptoms	<input type="checkbox"/> Common Cold No viral/bacterial cultures needed unless outbreak suspected	At least 2 new symptoms: <input type="checkbox"/> runny nose or sneezing <input type="checkbox"/> nasal congestion <input type="checkbox"/> sore throat, hoarseness <input type="checkbox"/> dry cough	Fever may or may not be present. Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Check all applicable symptoms	<input type="checkbox"/> Influenza-like illness (ILI) Viral testing suggested if 2 or more residents have onset of similar symptoms within 24-72 hours Viral test obtained: Date: Results:	Any 3 of the following new symptoms: <input type="checkbox"/> chills <input type="checkbox"/> headache (eye pain) <input type="checkbox"/> muscle ache <input type="checkbox"/> malaise <input type="checkbox"/> loss of appetite <input type="checkbox"/> sore throat <input type="checkbox"/> cough dry or productive <input type="checkbox"/> altered mental/functional status	Fever may or may not be present. Did resident receive annual influenza vaccination? <input type="checkbox"/> Yes <input type="checkbox"/> No Date: Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Check all applicable symptoms NOTE: Rule out CHF or exacerbation of chronic diseases such as COPD.	<input type="checkbox"/> Pneumonia <input type="checkbox"/> Bronchitis Sputum culture obtained: Date: Results: Resistance pattern:	<u>Pneumonia</u> CXR suggestive of new infiltrate and any 2 of the following new or increased symptoms <input type="checkbox"/> cough <input type="checkbox"/> new or increased sputum <input type="checkbox"/> pleuritic chest pain <input type="checkbox"/> rales/rhonchi/wheezing <input type="checkbox"/> short of breath <input type="checkbox"/> respiratory rate > 25/min <input type="checkbox"/> altered mental/functional status <u>Bronchitis</u> CXR negative or not done and any 3 new symptoms listed under pneumonia	Fever may or may not be present. Did resident receive pneumococcal vaccination on admission or documented history of vaccination? <input type="checkbox"/> Yes <input type="checkbox"/> No Date: Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Urinary Tract Check all applicable symptoms NOTE: Repeat culture after completion of antibiotic therapy is not necessary.	<input type="checkbox"/> Lower tract infection <input type="checkbox"/> Upper tract (kidney) infection *Culture obtained: Date: Results: Resistance pattern: *Must be clean catch or cath urine specimen	Any 3 of the following new symptoms: <u>No indwelling catheter</u> <input type="checkbox"/> burning or painful urination <input type="checkbox"/> chills <input type="checkbox"/> urgency/frequency <input type="checkbox"/> flank/suprapubic tenderness <input type="checkbox"/> altered mental/functional status <u>Indwelling catheter</u> Any 2 new symptoms listed under no indwelling catheter	Fever may or may not be present. Did resident have indwelling urinary or super pubic catheter? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, can catheter be discontinued? <input type="checkbox"/> Yes <input type="checkbox"/> No Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No NOTE: A change in character of urine (color, foul smell, amount of sediment) may be indication of dehydration; increase fluid intake for 2-4 hours before obtaining specimen for laboratory analysis

<input type="checkbox"/> Gastro-enteritis Check all applicable symptoms NOTE: Rule out non-infectious causes such as new medications.	<input type="checkbox"/> Lower GI tract <input type="checkbox"/> Upper GI tract Cultured obtained: Date: Results: Resistance pattern: C. difficile toxin assay or other test? Date: Results:	Any of the following: <input type="checkbox"/> 2 or more loose or watery stools above what is normal for resident in 24 hour period and/or <input type="checkbox"/> 2 or more episodes of vomiting within 24 hour period and/or <input type="checkbox"/> stool positive for bacterial/viral/toxin	Fever may or may not be present. Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Skin/soft tissue wound Check all applicable symptoms NOTE: Skin scrapings should be done on index or suspect case. <input type="checkbox"/> Yes <input type="checkbox"/> No Results:	<input type="checkbox"/> Surgical wound <input type="checkbox"/> Pressure ulcer <input type="checkbox"/> Other skin and soft tissue wound Culture obtained: Date: Results: Resistance pattern:	Skin and soft tissue or surgical wound and any of the following: <input type="checkbox"/> heat/redness at site <input type="checkbox"/> swelling/tenderness at site <input type="checkbox"/> new or increase serous drainage <input type="checkbox"/> new or increase purulent drainage <input type="checkbox"/> alter mental/functional status <input type="checkbox"/> incision and drainage (I&D) yields purulent drainage	Fever may or may not be present. Surgery performed in past 30 days? <input type="checkbox"/> Yes <input type="checkbox"/> No Date: Procedure: NOTE: Infected surgical wounds should be reported to hospital ICP where surgery performed. Hospital ICP notified? <input type="checkbox"/> Yes <input type="checkbox"/> No Date: Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> EENT	Conjunctivitis Culture obtained: Date: Results: Resistance Pattern:	1 of the following new symptoms: <input type="checkbox"/> pus from 1 or both eyes for 24 hours <input type="checkbox"/> conjunctival redness with or without pain or itching	Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Systemic (Blood) stream infection) Check all applicable symptoms	<input type="checkbox"/> Invasive device related infection <input type="checkbox"/> No device related infection Blood culture obtained: Date: Results: Resistance pattern:	1 of the following: <input type="checkbox"/> 2 sets of blood cultures taken from different sites at least 15 minutes apart are positive for the same organism; or <input type="checkbox"/> 1 of 2 sets of blood cultures taken from different sites are positive for an organism(s) (not considered contaminated specimen) and any 2 of the following: <input type="checkbox"/> blood pressure < 80 systolic <input type="checkbox"/> pulse > 100/minute <input type="checkbox"/> respirations > 25/minute <input type="checkbox"/> chills <input type="checkbox"/> alter mental/functional status <input type="checkbox"/> Other	Fever or hypothermia may or may not be present. Treatment/antibiotic(s) prescribed? <input type="checkbox"/> Yes <input type="checkbox"/> No Risk factors to consider in diagnosing blood stream infections; presence of <input type="checkbox"/> central/peripheral vascular access device <input type="checkbox"/> indwelling urinary catheter <input type="checkbox"/> mechanical ventilation with tracheostomy <input type="checkbox"/> prosthesis (hip, knee) <input type="checkbox"/> recent surgical procedure

Healthcare-associated – not present or incubating at time of or within 3 days after admission; new onset or worsening of symptoms;
Community-associated – acquired at home or another facility (GACH or transfer from another SNF)
Reference: McGeer A, Campbell B, Emori G, et al. *Definitions of Infection for Surveillance in Long-Term Care Facilities*, Am J Infect Control 19(1): 1-7, 1991. Also available on the Internet; Definitions modified by C. Cahill.

(04/11)

Calculation of Infection Rates

Knowing just the numbers of cases of infection identified by surveillance activities is not sufficient to identify the risk (probability) of infection occurring in the facility residents; rates must be used. Rates measure the probability of occurrence in a population of some particular infection. An **incidence rate** is typically used to measure the frequency of occurrence of **new cases** of infection within a defined population during a specified time frame.

$$\frac{\text{\# of Infections}}{\text{Population at Risk}} \times \text{constant (k)} = \text{Rate of Infection}$$

The “**number (#) of infections**” is the cases identified by surveillance activities (for example five UTIs), during a defined time frame in a defined population. The “**population at risk**” would be all the patients on the patient care unit during the time frame where surveillance occurs (for example, 120 patients on the Medicare Unit in April) or all the patients in the facility, if facility-wide surveillance is being conducted. The “**constant or K**” is usually an assigned value of 100, 1,000, 10,000 or 100,000, which represents a standard population and time period for interpretation of the rate. Using 100 as the “K” will give an infection rate that may be interpreted as a percentage. A percentage rate is easiest for most people to understand and to display when presenting data month to month.

For example, to find the **percentage** of residents with a UTI infection in April on the Medicare Unit:

$$\frac{5 \text{ UTIs in April}}{120 \text{ Residents on Medicare Unit in April}} \times 100 = 4.2\% \text{ UTI rate in April}$$

Another way to calculate infection rate is by using the number of resident days for the population at risk. Using the same example, perform the following calculation:

$$\frac{5 \text{ UTIs in April}}{120 \text{ residents on Medicare Unit} \times 30 \text{ days in April} = 3600 \text{ resident days}} \times 1000 = 1.4 \text{ Infections per } 1000 \text{ resident days}$$

In addition, incidence rates can be further defined to specific medical devices. To calculate the incidence of UTIs related to urinary tract catheterization, use the same formula:

$$\frac{3 \text{ catheter-related UTIs in April}}{20 \text{ residents on Medicare Unit with catheters in April} \times 30 \text{ days} = 600 \text{ catheter days}} \times 1000 = 5 \text{ infections per } 1000 \text{ catheter days}$$

The incidence rate is a way to measure the extent or frequency with which residents experience infections; it does not matter which method is used to calculate the rate. Choosing one method and using it consistently ensures rates can be compared accurately over time. The information can be displayed in charts or graphs for comparison purposes. They can be used to report trends and to identify and implement control measures, and monitor impact of those measures, as indicated.

UTAH REPORTABLE DISEASES

Utah law requires that the following diseases be reported to your local health department or the Utah Department of Health.

REPORT WITHIN 24 HOURS OF A SUSPECT DIAGNOSIS

- Anthrax (*Bacillus anthracis*) or anthrax-like illness caused by *Bacillus cereus* strains that express anthrax toxin genes²
- Botulism (*Clostridium botulinum*)²
- Cholera (*Vibrio cholerae*)
- Diphtheria (*Corynebacterium diphtheriae*)²
- *Haemophilus influenzae*, invasive disease²
- Hepatitis A
- Influenza infection, non-seasonal strain²
- Measles (Rubeola virus)²
- Meningococcal disease (*Neisseria meningitidis*)²
- Plague (*Yersinia pestis*)²
- Poliomyelitis, paralytic and non-paralytic
- Rabies (human and animal)
- Rubella (excluding congenital syndrome)
- Severe acute respiratory syndrome (SARS)
- Smallpox (*Variola virus*)
- *Staphylococcus aureus*, with resistance (VISA)^{1,2} to vancomycin
- Transmissible spongiform encephalopathies (prion diseases), including Creutzfeldt-Jakob disease
- Tuberculosis (*Mycobacterium tuberculosis* complex)^{1,2}
- Tularemia (*Francisella tularensis*)²
- Typhoid, cases and carriers²
- Viral hemorrhagic fevers, including Ebola, Lassa, Marburg, and Nipah virus-related illnesses

Also Immediately Reportable: Unusual diseases or outbreaks of any kind and any exposure/infection that may indicate a bioterrorism event

REPORT WITHIN 3 WORKING DAYS OF IDENTIFICATION

- Acute flaccid myelitis (AFM)
- Adverse event resulting from smallpox vaccination (*Vaccinia virus*)
- Anaplasmosis (*Anaplasma phagocytophilum*)
- Arbovirus infection, including Chikungunya, West Nile², and Zika virus²
- Babesiosis (*Babesia*)
- Botulism, infant (*Clostridium botulinum*)²
- Brucellosis (*Brucella* species)
- *Campylobacteriosis* (*Campylobacter*)²
- *Candida auris* or *haemulonii* from any body site^{1,2}
- Carbapenem-resistant or carbapenemase producing *Acinetobacter* species, *Enterobacter* species, *Escherichia coli*, and *Klebsiella* species^{1,2}
- Chagas disease
- Chancroid (*Haemophilus ducreyi*)
- Chickenpox (*Varicella-zoster virus*)
- *Chlamydia trachomatis* infection
- Coccidioidomycosis (*Coccidioides*)
- Colorado tick fever
- Cryptosporidiosis (*Cryptosporidium*)
- Cyclosporiasis (*Cyclospora cayentanensis*)
- Dengue fever
- Ehrlichiosis (*Ehrlichia*)
- Encephalitis or meningitis (bacterial, fungal, parasitic, protozoan and viral))
- Shiga toxin-producing *Escherichia coli* (STEC) infection²
- Giardiasis (*Giardia lamblia*)
- Gonorrhea (*Neisseria gonorrhoeae*) sexually transmitted and ophthalmia neonatorum¹
- Hantavirus infection (Sin Nombre virus)
- Hemolytic uremic syndrome, post-diarrheal
- Hepatitis, viral, including hepatitis B (acute, chronic and perinatal), C (acute, chronic and perinatal), D, and E
- Human immunodeficiency virus (HIV) infection, including perinatal and acquired immunodeficiency syndrome (AIDS) diagnosis
- Influenza-associated hospitalization²
- Influenza-associated death in a person less than 18 years of age
- Legionellosis (*Legionella*)²
- Leprosy (Hansen's Disease)
- Leptospirosis (*Leptospira*)
- Listeriosis (*Listeria monocytogenes*)²
- Lyme disease (*Borrelia burgdorferi*)
- Malaria (*Plasmodium*)
- Mumps
- Mycobacteria other than tuberculosis
- Pertussis (*Bordetella pertussis*)
- Psittacosis (*Chlamydia psittaci*)
- Q Fever (*Coxiella burnetii*)
- Relapsing fever, tick-borne and louse-borne (*Borrelia*)
- Rubella, including congenital syndrome
- Salmonellosis (*Salmonella*)^{1,2}
- Shigellosis (*Shigella*)^{1,2}
- Spotted fever rickettsioses, including Rocky Mountain spotted fever (*Rickettsia*)
- Streptococcal disease, invasive, due to *Streptococcus pneumoniae*¹ and Groups A and B
- Syphilis, all stages, congenital, and syphilitic stillbirths
- Tetanus (*Clostridium tetani*)
- Toxic shock syndrome, staphylococcal or streptococcal
- Trichinellosis (*Trichinella*)
- Vibriosis (*Vibrio*)², including Cholera

Also Reportable: Pregnancies associated with Hepatitis B, Hepatitis C, HIV, *Listeria*, Rubella, Syphilis, or Zika virus infection even if the disease was reported to public health prior to the pregnancy

¹ Full panel susceptibility results, including minimum inhibitory concentration and results suppressed to the ordering clinician, are reportable when performed on the following organisms

² Laboratories shall submit clinical material to the Utah Public Health Laboratory for all cases identified with these organisms, or any organism implicated in an outbreak when instructed by authorized local or state health department staff.

Electronic Laboratory Reporting (ELR)

Entities reporting via ELR have additional reporting requirements not listed on this document. Those requirements can be found under the "Information for Reporters" tab at <http://health.utah.gov/epi/reporting> or by contacting the Utah Department of Health at elr@utah.gov.

Diseases may be reported to your [local health department](#) or the Utah Department of Health (UDOH) by fax ([801-538-8923](tel:801-538-8923)), email (reporting@utah.gov) or telephone (1-888-EPI-UTAH). Email reports should be sent encrypted, through a secure email system. Reports sent without encryption risk breach of confidentiality. The UDOH cannot guarantee the security of information submitted without encryption. For questions about disease reporting, email the Utah Department of Health at reporting@utah.gov, call [801-538-8191](tel:801-538-8191) or visit <http://health.utah.gov/epi/reporting>.



Rev. 1/2018

Appendix B: Fact Sheets

Acinetobacter

Bedbugs

Clostridium difficile

Creutzfeldt-Jacob Disease (CJD)

Carbapenem-resistant Enterobacteriaceae (CRE)

Hepatitis B

Hepatitis C

Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS)

Influenza

Legionnaires' Disease

Lice

Methicillin-resistant Staphylococcus Aureus (MRSA)

Norovirus

Respiratory Syncytial Virus (RSV)

Scabies

Shingles

Tuberculosis (TB)

Vancomycin-resistant Enterococcus (VRE)

What is *Acinetobacter*?

Acinetobacter is a group of bacteria commonly found in soil and water, but they can survive on various surfaces (moist and dry). *Acinetobacter* bacteria can also be found on the skin of healthy people, especially healthcare personnel. While there are many types or “species” of *Acinetobacter* and all can cause human disease, *Acinetobacter baumannii* accounts for about 80% of reported infections. Unfortunately, strains of *A. baumannii* that are multi-drug (antibiotic) resistant are becoming a problem in healthcare settings worldwide.

How is *Acinetobacter* spread?

Acinetobacter can be spread to susceptible persons by person-to-person contact, contact with contaminated surfaces, or exposure in the environment.

Outbreaks of drug-resistant *Acinetobacter* infections typically occur in intensive care units and healthcare settings housing very ill patients. *Acinetobacter* infections rarely occur outside of healthcare settings.

What are the symptoms of *Acinetobacter*?

Acinetobacter causes a variety of diseases, ranging from pneumonia to serious blood or wound infections and the symptoms vary depending on the disease. *Acinetobacter* may also “colonize” or live in a patient without causing infection or symptoms, especially in tracheostomy sites or open wounds.

Are certain people at risk of getting *Acinetobacter*?

Acinetobacter poses very little risk to healthy people. However, people who have weakened immune systems, chronic lung disease, or diabetes may be more susceptible to *Acinetobacter* infections. Hospitalized patients, especially very ill patients on a ventilator, those with a prolonged hospital stay, or those who have open wounds, are also at greater risk for drug-resistant *Acinetobacter*.

What is the treatment for *Acinetobacter*?

Acinetobacter species are innately resistant to many commonly prescribed antibiotics. Decisions on treatment of infections with *Acinetobacter* should be made on a case-by-case basis by a healthcare provider. A microbiology laboratory must run tests to determine which antibiotics will treat the infection. *Acinetobacter* infection typically occurs in very ill patients and can either cause or contribute to death in these patients.

Am I at risk in taking care of patients with *Acinetobacter*?

This type of infection generally occurs in very ill patients. As a healthy individual, you are **not** at risk of “catching” this type of infection. However, without taking proper infection control precautions, you are at risk of spreading *Acinetobacter* to other patients.

How can *Acinetobacter* be prevented in the healthcare setting?

Acinetobacter can live on the skin and may survive in the environment for several days. Careful attention to infection control procedures such as hand hygiene and environmental cleaning can reduce the risk of transmission.

To prevent spreading drug-resistant *Acinetobacter* bacteria between patients, the CDC recommends use of contact isolation precautions, enhanced environmental cleaning, dedicated patient care equipment, and prudent use of antibiotics. Healthcare personnel should follow specific infection control precautions, such as wearing gowns and gloves when entering the room of a patient infected with drug-resistant *Acinetobacter* and strict adherence to hand hygiene (See: [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007](#)).

To prevent the spread of infections, patients should also clean their hands frequently, including:

- before preparing or eating food
- before touching eyes, nose, or mouth
- before and after changing wound dressings or bandages
- after using the restroom
- after blowing nose, coughing, or sneezing
- after touching hospital surfaces, such as bed rails, bedside tables, doorknobs, remote controls, or the phone

Information on infection control practices, hand hygiene, and environmental cleaning in healthcare facilities is available in the following documents:

- Hand Hygiene in Healthcare Settings (<http://www.cdc.gov/handhygiene>)
- Guideline for Isolation Precautions in Hospitals (<http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007/pdf>)
- Guidelines for Environmental Infection Control in Healthcare Facilities (http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf)

For more information regarding *Acinetobacter*, visit the following resources:

- <http://www.cdc.gov/HAI/organisms/acinetobacter.html>
- <http://www.cdc.gov/hicpac/pdf/MDRO/MDROGuideline2006.pdf> (Management of Multi-drug Resistant Organisms in Healthcare Settings, 2006)

What are bedbugs?

Bedbugs are small insects (adults are about ¼ inch long) that feed on the blood of humans and animals. Adults are reddish-brown in color and larva or nymphs are a clear-yellowish color, but when they feed, their bodies swell and become bright red. They can be found in homes, apartments, hotels, hospitals, and other dwellings.

How are bedbugs spread?

Bedbugs are usually carried into settings on items like furniture, clothing, bags, and luggage. They may be picked up while spending time in other locations infested with *bedbugs*, or while traveling to a hotel or motel infested with *bedbugs*.

What are the symptoms of bedbugs?

Bedbugs cause itchy raised red bumps or flat welts in previously unexposed patients. They are known to cause allergic reactions from their saliva in sensitive people.

What is the treatment for bedbugs?

Treatment for bedbugs is symptomatic, ranging from anti-inflammatory topical corticosteroid preparations, oral antihistamines, and antibacterial agents for secondary infections.

Do bedbugs cause disease?

Although *bedbugs* may be a nuisance to people, they are not known to spread disease.

How do healthcare settings get rid of bedbugs?

Because *bedbugs* are difficult to exterminate, a *bedbug* infestation is best handled by a licensed, professional pest control company. A careful inspection must be conducted and all possible hiding places within infested and adjoining rooms examined. Professionals will use special tools, equipment, and insecticides to eliminate them from the setting.

For more information regarding *bedbugs*, visit the following resource:

http://www.cdc.gov/nceh/ehs/Publications/Bed_Bugs_CDC-EPA_Statement.htm

What is *Clostridium difficile* (*C. difficile*)?

Clostridium difficile (*C. difficile*) are spore-forming bacteria that normally live in the intestinal tract of humans. *C. difficile* produces two exotoxins: toxin A and toxin B. *C. difficile* is a common cause of antibiotic-associated diarrhea (AAD) and accounts for 15-25% of all episodes of AAD.

How is *C. difficile* spread?

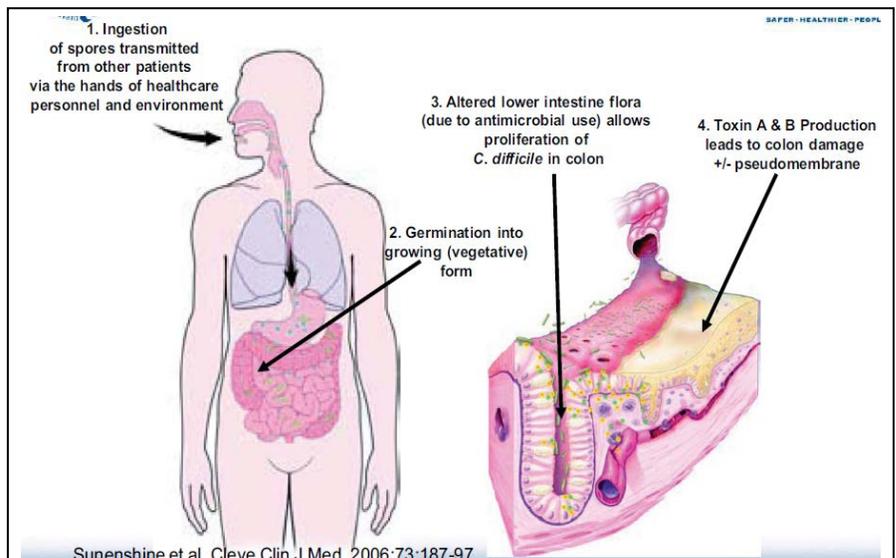
C. difficile is shed in feces. Any surface, device, or material (e.g., commodes, bathing tubs, and electronic rectal thermometers) that becomes contaminated with feces may serve as a reservoir for the *C. difficile* spores. *C. difficile* spores are transferred to patients mainly via the hands of healthcare personnel who have touched feces, a contaminated surface or item.

What are the symptoms of *C. difficile*?

Symptoms of infection are usually watery diarrhea and abdominal cramps, but serious complications can result that require hospitalization and on rare occasions cause death. Some people carry the bacteria without having symptoms.

Clinical symptoms include:

- watery diarrhea (at least three bowel movements per day for two or more days)
- fever
- loss of appetite
- nausea
- abdominal pain/tenderness

**Are certain people at risk of getting *C. difficile*?**

C. difficile is the most frequent cause of healthcare-associated diarrhea. The risk for disease increases in patients with:

- antibiotic exposure
- gastrointestinal surgery/manipulation
- long length of stay in healthcare settings
- a serious underlying illness
- immunocompromising conditions such as cancer
- advanced age

What is the treatment for *C. difficile*?

C. difficile is generally treated for 10 days with antibiotics prescribed by a healthcare provider. The drugs are effective and appear to have few side-effects.

How can *C. difficile* infection be prevented in the healthcare setting?

- Use antibiotics judiciously.
- Use Contact Precautions for patients with known or suspected *C. difficile*-associated disease:
 - Place patients in private rooms. If private rooms are not available, these patients can be placed in rooms (cohorted) with other patients diagnosed with *C. difficile*-associated disease.
 - Perform Hand Hygiene using soap and water.
 - If your institution experiences an outbreak, consider using only soap and water for hand hygiene when caring for patients with *C. difficile*-associated disease; alcohol-based hand rubs may not be as effective against spore-forming bacteria.
 - Use gloves when entering patients' rooms and during patient care.
 - Use gowns if soiling of clothes is likely.
 - Dedicate equipment whenever possible.
 - Continue these precautions until diarrhea ceases.
- Implement an environmental cleaning and disinfection strategy:
 - Ensure adequate cleaning and disinfection of environmental surfaces and reusable devices, especially items likely to be contaminated with feces and surfaces that are touched frequently.
 - Use an Environmental Protection Agency (EPA)-registered hypochlorite-based disinfectant for environmental surface disinfection after cleaning in accordance with label instructions; generic sources of hypochlorite (e.g., household chlorine bleach) also may be appropriately diluted and used. (Note: alcohol-based disinfectants are not effective against *C. difficile* and should not be used to disinfect environmental surfaces.)
 - Follow the manufacturer's instructions for disinfection of endoscopes and other devices.
 - Infection control practices in long-term care and home health settings are similar to those practices taken in traditional healthcare settings.
 - Follow CDC's "Guidelines for Environmental Infection Control in Healthcare Facilities" (http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf).

For more information regarding *C. difficile*, visit the following resources:

- http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_infect.html
- http://www.cdc.gov/hai/organisms/cdiff/Cdiff_settings.html
- <http://www.cdc.gov/HAI/toolkits/Environmental-Cleaning-Checklist-10-6-2010.pdf>
- Educational materials available at:
http://www.cdc.gov/hai/pdfs/toolkits/CDItoolkitwhite_clearance_edits.pdf

What is Classic CJD?

Classic Creutzfeldt-Jacob disease (CJD) is a rare, fatal, degenerative brain disease caused by abnormal, transmissible proteins called prions.

There are three types of classic CJD: (1) Sporadic CJD, (2) Familial CJD, and (3) Iatrogenic CJD. Sporadic CJD occurs occasionally with no known cause. It accounts for approximately 85-90% of diagnosed classic CJD cases. Familial CJD is an inherited form of CJD that occurs in families. Familial CJD accounts for approximately 10-15% of diagnosed classic CJD cases. Iatrogenic CJD occurs in a patient who was infected during a medical or surgical procedure. Iatrogenic CJD accounts for less than 1% of diagnosed classic CJD cases.

Classic CJD occurs at a rate of approximately one case per 1 million per population per year. The risk of CJD increases with age, and in persons over 50 years of age, the annual rate is approximately 3.4 cases per million.

How is classic CJD transmitted?

The risk of CJD is low. The disease can't be transmitted through coughing or sneezing, touching or sexual contact. The three ways it develops are: (1) spontaneously, (2) by genetic mutation, and (3) by contamination.

A small number of people have developed CJD after being exposed to infected human tissue during certain medical procedures, such as cornea or skin transplants and dura mater grafts from infected donors. There have also been documented cases of CJD for persons receiving injections of pituitary hormones from infected cadavers. Also, because standard sterilization methods do not destroy abnormal prions, a few people have developed CJD after undergoing brain surgery with contaminated instruments and after being exposed to contaminated electrodes used during electroencephalographic (EEG) procedures.

All equipment-related cases of CJD occurred before the routine implementation of sterilization procedures currently used in healthcare facilities. There have been no such cases reported since 1976, and no iatrogenic CJD cases associated with exposure to the CJD agent from surfaces such as floors, walls, or countertops have been identified.

What are the symptoms of classic CJD?

Symptoms of CJD are marked by rapid mental deterioration, usually within a few months. Initial signs and symptoms of CJD include:

- personality changes
- anxiety
- depression
- memory loss
- impaired thinking
- blurred vision
- insomnia
- difficulty speaking
- difficulty swallowing
- sudden jerky movements

As the disease progresses, mental symptoms worsen. Most people eventually lapse into a coma. Heart failure, respiratory failure, pneumonia or other infections are generally the cause of death.

The disease usually runs its course in about seven months, although a few people may live up to one or two years after diagnosis. There is no cure for CJD; the disease is ultimately fatal.

Are certain people at risk for getting classic CJD?

Most cases of CJD disease occur for unknown reasons, and no risk factors can be identified. However, a few factors seem to be associated with different kinds of CJD and these include age (associated with Sporadic CJD), genetics (associated with Familial CJD), and exposure to contaminated tissues (associated with Iatrogenic CJD).

What is the treatment for classic CJD?

Symptoms of the disease are treated, but there is no treatment available that slows or stops the disease.

How can classic CJD be prevented in the healthcare setting?

The World Health Organization (WHO) has developed CJD infection control guidelines (http://www.who.int/csr/resources/publications/bse/WHO_CDS_CSR_APH_2000_3/en/) that can be a valuable guide for healthcare workers involved in the care of CJD patients. The WHO guidelines provide guidance upon which infection control practitioners, healthcare workers, medical officers, and all those involved with the care of persons infected with CJD can base their care and infection control practices.

For more information regarding CJD, visit the following resources:

- <http://www.cdc.gov/ncidod/dvrd/cjd/index.htm>
- http://www.cdc.gov/ncidod/dvrd/cjd/ga_cjd_infection_control.htm
- CJD Infection Control Guidelines (WHO) - http://www.who.int/csr/resources/publications/bse/WHO_CDS_CSR_APH_2000_3/en/

What is Carbapenem-resistant *Enterobacteriaceae* (CRE)?

Carbapenem-resistant *Enterobacteriaceae* is a type of gram-negative bacteria that is resistant to carbapenem antibiotics. This is considered a threat to patient safety because carbapenem antibiotics often are the last line of defense against gram-negative infections that are resistant to other antibiotics. Currently, carbapenem-resistant *Klebsiella pneumoniae* (CRKP) is the species of CRE most commonly encountered in the United States. It has been associated with high rates of morbidity and mortality.

How is CRE spread?

To get a CRE infection, a person must be exposed to the bacteria. For example, CRE must enter the respiratory tract to cause pneumonia, or the blood to cause a bloodstream infection.

In healthcare settings, CRE bacteria can be spread through person-to-person contact and from patient-to-patient on the hands of healthcare personnel. The bacteria are not spread through the air.

What types of infections do CRE cause?

CRE bacteria can cause infections in healthcare settings, including pneumonia, bloodstream infections, wound or surgical site infections, and meningitis. Symptoms of CRE infections can vary based on the type of infection a person gets; for example, a lung infection can result in pneumonia.

Are certain people at risk of getting a CRE infection?

Healthy people usually do not get a CRE infection. The infections are most often seen in patients with prolonged hospitalization and those who are critically ill. Patients may be exposed to CRE when they are on ventilators (breathing machines), or have intravenous (vein) catheters or wounds (caused by injury or surgery). Unfortunately, these medical tools may allow CRE to enter the body and cause infection.

What is the treatment for CRE infections?

Klebsiella infections that are not drug-resistant can be treated with antibiotics. Infections caused by CRE are difficult to treat because fewer antibiotics will treat the infections. A microbiology laboratory must run tests to determine which antibiotics will treat the infection.

Am I at risk in taking care of patients with carbapenem-resistant *Enterobacteriaceae*?

This type of infection generally occurs in more sick patients following long courses of broad spectrum antibiotics. As a healthy individual, you are **not** at risk of “catching” this type of infection. However, without taking proper infection control precautions, you are at risk of spreading carbapenem-resistant *Enterobacteriaceae* to other patients.

How can carbapenem-resistant *Enterobacteriaceae* infections be prevented in the healthcare setting?

To prevent spreading *CRE* infections between patients, healthcare personnel must follow specific infection control precautions (See: [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007](#)). All patients colonized or infected with *CRE* should be placed on contact precautions. These precautions include wearing gowns and gloves when they enter carbapenem-resistant *enterobacteriaceae* patient rooms and strict adherence to hand hygiene. Healthcare facilities also must follow strict cleaning procedures to prevent the spread of *CRE*. No recommendation can be made regarding when to discontinue contact precautions.

To prevent the spread of infections, patients should also clean their hands very often, including:

- before preparing or eating food
- before touching eyes, nose, or mouth
- before and after changing wound dressings or bandages
- after using the restroom
- after blowing nose, coughing, or sneezing
- after touching hospital surfaces such as bed rails, bedside tables, doorknobs, remote controls, or the phone

Information on infection control practices, hand hygiene, and environmental cleaning in healthcare facilities is available in the following documents:

- Hand Hygiene in Healthcare Settings (<http://www.cdc.gov/handhygiene>)
- Guideline for Isolation Precautions in Hospitals (<http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf>)
- Guidelines for Environmental Infection Control in Healthcare Facilities (http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf)

For more information regarding carbapenem-resistant or carbapenemase-producing *Enterobacteriaceae*, visit the following resources:

- <http://www.cdc.gov/HAI/organisms/cre/index.html>
- <http://www.cdc.gov/hai/organisms/cre/cre-toolkit/index.html>
- <http://www.cdc.gov/hicpac/pdf/MDRO/MDROGuideline2006.pdf> (Management of Multi-drug Resistant Organisms in Healthcare Settings, 2006)
- <http://www.cdc.gov/hai/organisms/cre/cre-toolkit/f-level-prevention-supmeasures.html#facility-summary>

What is hepatitis B virus (HBV)?

Hepatitis B is a disease caused by the hepatitis B virus which infects the liver. Formerly, hepatitis B was called serum hepatitis. In children, the disease may be mild, but adults can have more severe illness that may cause death. Long-term infection can occur and may result in liver disease or cancer.

How is hepatitis B spread?

The hepatitis B virus is usually spread through sexual activity or contaminated blood. It can also be spread through close household contact and from infected mothers to their infants at birth. Other common ways hepatitis B is spread include:

- injection drug use that involves sharing needles, syringes, or drug-preparation equipment
- contact with blood or open sores of an infected person
- needle sticks or sharp instrument exposures
- sharing items such as razors or toothbrushes with an infected person

What are the symptoms of hepatitis B?

The presence of signs and symptoms varies by age. Most children under age five years and newly infected immunosuppressed adults are asymptomatic, whereas, 30-50% of persons aged ≥ 5 years have initial signs and symptoms. When present, signs and symptoms can include:

- fever
- fatigue
- loss of appetite
- nausea
- vomiting
- abdominal pain
- dark urine
- clay-colored bowel movements
- joint pain
- jaundice (yellow skin/eyes)

Persons with chronic HBV infection might be asymptomatic, have no evidence of liver disease, or have a spectrum of disease ranging from chronic hepatitis to cirrhosis or hepatocellular carcinoma (a type of liver cancer).

Are certain people at risk of getting hepatitis B?

The following populations are at increased risk of becoming infected with HBV:

- infants born to infected mothers
- sex partners of infected persons
- sexually active persons who are not in a long-term, mutually monogamous relationship
- men who have sex with men
- injection drug users
- household contacts of persons with chronic HBV infection
- healthcare and public safety workers at risk for occupational exposure to blood or blood-contaminated body fluids
- hemodialysis patients
- residents and staff of facilities for developmentally disabled persons
- travelers to countries with intermediate or high prevalence of HBV infection

What is the treatment for hepatitis B?

For acute infection, no medication is available; treatment is supportive.

For chronic infection, several antiviral drugs (adefovir dipivoxil, interferon alfa-2b, pegylated interferon alfa-2a, lamivudine, entecavir, and telbivudine) are available. Persons with chronic HBV infection require medical evaluation and regular monitoring to determine whether disease is progressing and to identify liver damage or hepatocellular carcinoma.

How can hepatitis B be prevented in the healthcare setting?

The delivery of health care has the potential to transmit hepatitis B virus (HBV) and hepatitis C virus (HCV) to both healthcare workers and patients. Outbreaks of HBV and HCV infection have occurred in outpatient settings, hemodialysis units, long-term care facilities, and hospitals, primarily as a result of unsafe injection practices; reuse of needles, finger stick devices, and syringes; and other lapses in infection control. To prevent transmission of bloodborne pathogens, healthcare workers should adhere to recommended standard precautions and fundamental infection control principles, including safe injection practices and appropriate aseptic techniques.

For continued protection, the Advisory Committee on Immunization Practices (ACIP) recommends that healthcare and public safety workers with reasonably anticipated risk for exposures to blood or infectious body fluids receive the complete hepatitis B vaccine series and have their immunity documented through post vaccination testing.

Healthcare workers should receive a three-dose series of the hepatitis B vaccine. Dose one, then approximately one month later dose two, and approximately five months after dose two, dose three should be given. Test for the hepatitis B surface antibody should be done 1-2 months after dose three to document immunity.

Healthcare personnel vaccination recommendations (including hepatitis B) are available at: <http://www.immunize.org/catg.d/p2017.pdf>.

For more information regarding hepatitis B, visit the following resources:

- <http://www.cdc.gov/hepatitis/HBV/index.htm>
- <http://www.cdc.gov/hepatitis/Settings/HealthcareSettings.htm>
- <http://www.cdc.gov/hepatitis/Resources/Professionals/PDFs/ABCTable.pdf>

What is hepatitis C Virus (HCV)?

Hepatitis C is a contagious liver disease that results from infection with the hepatitis C virus (HCV). It can range in severity from mild illness lasting few weeks to a serious lifelong illness. Hepatitis C virus can be either “acute” or “chronic.” Acute hepatitis C virus infection is a short-term illness that occurs within the first six months after a person is exposed to the virus. For most people, acute infection leads to chronic infection. Chronic hepatitis C is a serious disease that can result in long-term health problems, or even death. Hepatitis C virus is the most common chronic bloodborne infection in the United States.

There is no vaccine for hepatitis C.

How is hepatitis C spread?

Hepatitis C is spread when blood from a person infected with the hepatitis C virus enters the body of someone who is not infected. Most people become infected with the hepatitis C virus by sharing needles or other equipment to inject drugs.

People can become infected with the hepatitis C virus during such activities as:

- sharing needles, syringes, or other equipment to inject drugs
- needle stick injuries in healthcare settings

Less commonly, a person can also get hepatitis C virus infection through:

- sharing personal care items that may have come in contact with another person’s blood, such as razors or toothbrushes
- having multiple sexual contacts
- having sex, in a long-term monogamous relationship, with a person infected with the hepatitis C virus
- being born to a mother who has hepatitis C

What are the symptoms of hepatitis C?

Approximately 70-80% of people with acute hepatitis C do not have any symptoms. Some people, however, can have mild to severe symptoms soon after being infected, including:

- fever
- fatigue
- loss of appetite
- nausea
- vomiting
- abdominal pain
- dark urine
- clay-colored bowel movements
- joint pain
- jaundice

Most people with chronic hepatitis C do not have any symptoms. However, if a person has been infected for many years, his or her liver may be damaged. In many cases, there are no symptoms of the disease until liver problems have developed. In persons without symptoms, hepatitis C is often detected during routine blood tests to measure liver function and liver enzyme levels.

Are certain people at risk of getting hepatitis C?

Some people are at increased risk for hepatitis C, including:

- current injection drug users (the most common way HCV is spread in the U.S.)
- past injection drug users, including those who injected only one time or many years ago
- hemodialysis patients or persons who spent many years on dialysis for kidney failure
- people who received body piercing or tattoos done with non-sterile instruments
- healthcare workers injured by needle sticks
- HIV-infected persons
- children born to mothers infected with the hepatitis C virus

What is the treatment for hepatitis C?

There is no medication available to treat acute hepatitis C infection. Doctors usually recommend rest, adequate nutrition, and fluids.

People with chronic hepatitis C should be monitored regularly for signs of liver disease and evaluated for treatment. The treatment most often used for hepatitis C is a combination of two medicines, interferon and ribavirin. However, not every person with chronic hepatitis C needs or will benefit from treatment. In addition, the drugs may cause serious side effects in some patients.

How can hepatitis C be prevented in the healthcare setting?

The delivery of healthcare has the potential to transmit hepatitis C virus (HCV) to both healthcare workers and patients. Outbreaks of HCV infection have occurred in outpatient settings, hemodialysis units, long-term care facilities, and hospitals, primarily as a result of unsafe injection practices, reuse of needles, finger stick devices and syringes, and other lapses in infection control. To prevent transmission of bloodborne pathogens, healthcare workers should adhere to recommended standard precautions and fundamental infection control principles, including safe injection practices and appropriate aseptic techniques.

For more information regarding hepatitis C, visit the following resources:

- <http://www.cdc.gov/hepatitis/HCV/index.htm>
- <http://www.cdc.gov/hepatitis/ChooseC.htm>
- <http://www.cdc.gov/hepatitis/Settings/HealthcareSettings.htm>
- <http://www.cdc.gov/injectionsafety/unsafePractices.html>

What is HIV/AIDS?

HIV is another name for the human immunodeficiency virus. HIV is a virus that causes a weakening of the person's immune system. AIDS is another name for acquired immune deficiency syndrome. AIDS is caused by HIV, and it is a disease in which the body's immune system breaks down.

HIV damages a person's body by destroying specific blood cells, called CD4 + T cells. These cells are crucial to helping the body fight infectious diseases.

How is HIV/AIDS spread?

You get infected with HIV in two main ways:

- having sexual activity with an infected person
- sharing needles or syringes with an infected person

Babies born to HIV-infected women may become infected. People with hemophilia or anyone who received blood transfusions between 1978 and 1985 may be at risk for an HIV infection.

While the transmission of HIV from HIV positive patients to healthcare workers is rare, proper sterilization and disinfection procedures are required. Some healthcare workers have become infected after being stuck with needles containing HIV-infected blood or, less frequently, when infected blood comes in contact with a worker's open cut or is splashed into a worker's eyes or inside their nose.

You do not become infected by casual contact with an infected person or through insect bites or stings. HIV is not spread by coughs or sneezes. You cannot get HIV from giving blood at a blood bank or other established blood collection center. You won't get HIV from items such as clothes, phones, or toilet seats. It can't be passed on by things like spoons, cups, or other objects that someone who is infected with the virus has used.

What are the symptoms of HIV/AIDS?

The only way to know if a person is infected is to be tested for HIV infection. Many people who are infected with HIV do not have any symptoms at all for 10 years or more.

The following may be warning signs of advanced HIV infection:

- rapid weight loss
- dry cough
- recurring fever or profuse night sweats
- profound and unexplained fatigue
- swollen lymph glands in the armpits, groin, or neck
- diarrhea that lasts for more than a week
- white spots or unusual blemishes on the tongue, in the mouth, or in the throat
- pneumonia
- red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids
- memory loss, depression, and other neurological disorders

However, no one should assume they are infected if they have any of these symptoms. Each of these symptoms can be related to other illnesses. The only way to determine whether a person is infected is to be tested for HIV infection.

Are certain people at risk of getting HIV/AIDS?

The following persons are at known to be at increased risk for HIV infection:

- current or former injection drug users, including those who injected only once many years ago
- recipients of clotting factor concentrates made before 1987, when more advanced methods for manufacturing those products were developed
- recipients of blood transfusions or solid organ transplants before July 1992, when better testing of blood donors became available
- chronic hemodialysis patients
- persons with known exposures to HIV, such as:
 - healthcare workers after needle sticks involving HIV-positive blood
 - recipients of blood or organs from a donor who tested HIV-positive
- persons with HIV infection
- children born to HIV-positive mothers

What is the treatment for HIV/AIDS?

Although there is no cure for HIV infection, there are treatment options that can help people living with HIV experience long and productive lives. Treatments include the use of antiretroviral agents and antiretroviral therapy.

The Centers for Disease Control and Prevention has treatment guidelines available on its website at: <http://www.cdc.gov/hiv/topics/treatment/index.htm>

How can HIV/AIDS be prevented in the healthcare setting?

Healthcare personnel are at risk for occupational exposure to bloodborne pathogens, including HIV. Exposures occur through needle sticks or cuts from other sharp instruments contaminated with an infected patient's blood or through contact of the eye, nose, mouth, or skin with a patient's blood. Important factors that influence the overall risk for occupational exposures to bloodborne pathogens include the number of infected individuals in the patient population and the type and number of blood contacts. Most exposures do not result in infection.

To prevent the transmission of HIV in the healthcare setting, healthcare workers can do a few things, such as not recapping a used needle by hand, disposing of used needles in appropriate sharps disposal containers, and using medical devices with safety features designed to prevent injuries. Using appropriate barriers such as gloves, eye and face protection, or gowns when contact with blood is expected or a possibility can prevent exposures to the eyes, nose, mouth, or skin.

If an exposure occurs, what should a healthcare worker do?

- 1) Immediately following an exposure to blood:
 - a. Wash needle sticks and cuts with soap and water.
 - b. Flush splashes to the nose, mouth, or skin with water.
 - c. Irrigate eyes with clean water, saline, or sterile irrigants.

No scientific evidence shows that using antiseptics or squeezing the wound will reduce the risk of transmission of a bloodborne pathogen.

- 2) Report the exposure to the department responsible for managing exposures. Prompt reporting is essential because, in some cases, post exposure treatment may be recommended and it should be started as soon as possible.

The Centers for Disease Control and Prevention has informational resources available regarding the prevention and control of HIV in the healthcare setting both for protecting healthcare workers and for protecting patients. These informational resources are located at:

<http://www.cdc.gov/HAI/organisms/hiv/hiv.html>.

For more information regarding HIV/AIDS, visit the following resources:

- <http://www.cdc.gov/hiv/guidelines/index.html>

What is influenza?

Influenza is a contagious respiratory disease caused by influenza viruses. It can cause substantial illness and death among long-term care facility residents and illness among personnel in long-term care facilities.

How is influenza spread?

Influenza is primarily transmitted from person-to-person through droplets made when people ill with influenza cough and sneeze; these large droplets can then settle on the mucosal surfaces of the upper respiratory tracts of susceptible persons who are near (e.g., within about six feet) infected persons. Three feet has often been used by infection control professionals to define close contact and is based on studies of respiratory infections; however, for practical purposes, this distance may range up to six feet.

Transmission may also occur through direct contact or indirect contact with respiratory secretions, such as touching surfaces contaminated with influenza virus and then touching the eyes, nose or mouth. Adults may be able to spread influenza to others from one day before getting symptoms to approximately five days after symptoms start. Young children and persons with weakened immune systems may be infectious for 10 or more days after onset of symptoms.

What are the symptoms of influenza?

People who have the flu often feel some or all of these symptoms:

- fever or feeling feverish/chills
- cough
- sore throat
- runny or stuffy nose
- Some people may have vomiting and diarrhea, though this is more common in children than adults.
- muscle or body aches
- headaches
- fatigue (very tired)

Are certain people at risk of getting influenza?

Certain groups of people are at greater risk of getting influenza and further developing influenza related complications, this includes:

- children younger than 5, but especially children younger than 2 years old
- adults 65 years of age and older
- pregnant women
- people who have medical conditions including:
 - asthma
 - neurological and neurodevelopmental conditions (including disorders of the brain, spinal cord, peripheral nerves, and muscles such as cerebral palsy, epilepsy (seizure disorders), stroke, intellectual disability (mental retardation), moderate to severe developmental delay, muscular dystrophy, or spinal cord injury)
 - chronic lung disease, such as COPD
 - heart disease
 - blood disorders
 - endocrine disorders (such as diabetes)

- kidney disorders
- liver disorders
- metabolic disorders
- weakened immune systems due to disease or medication
- people younger than 19 years of age receiving long-term aspirin therapy
- people who are morbidly obese (Body Mass Index (BMI) of 30 or greater)

What is the treatment for influenza disease?

Most healthy individuals who become ill with the influenza virus will recover without complications and do not need to be treated with antiviral drugs. However, treatment with antiviral drugs is recommended for ill persons who fit into a high-risk category for influenza related complications.

How can influenza be prevented in the healthcare setting?

Strategies for the prevention and control of influenza in long-term care facilities include the following:

- Annual influenza vaccination of all residents and healthcare personnel (For more information regarding influenza vaccination in long-term care facilities, visit: <http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm>.)
- Implementation of Standard and Droplet Precautions when a person is suspected or confirmed to have influenza (For more information regarding the prevention of infectious agents in healthcare settings, visit: <http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html>.)
- Active surveillance and influenza testing for new illness cases (For more information regarding influenza surveillance in long-term care facilities, visit: <http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm>.)
- Restriction of ill visitors and personnel from entering the facility (For more information regarding the restriction of ill visitors, visit: <http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm>.)
- Administration of influenza antiviral medications for prophylaxis and treatment when influenza is detected in the facility (For more information regarding antiviral use and prophylaxis in long-term care facilities, visit: <http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm>.)
- Other prevention strategies, such as respiratory hygiene/cough etiquette programs (For more information about respiratory hygiene/cough etiquette programs in healthcare settings, visit: <http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>.)

For information regarding influenza in the healthcare setting, visit the following resources:

- <http://www.cdc.gov/flu/professionals/infectioncontrol/>
- <http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm>

What is Legionnaires' disease?

Legionnaires' disease (Legionellosis) is caused by a type of bacteria called *Legionella*. The bacteria got its name in 1976, when many people who went to a Philadelphia convention of the American Legion suffered from an outbreak of this disease, a type of pneumonia (lung infection). Although this type of bacteria was around before 1976, more illness from Legionnaires' disease is being detected now. This is because *Legionella* tests are more often done for patients with pneumonia.

Each year, between 8,000 and 18,000 people are hospitalized with Legionnaires' disease in the U.S. However, many infections are not diagnosed or reported, so this number may be higher. More illness is usually found in the summer and early fall, but it can happen any time of year.

How is Legionnaires' disease spread?

Legionella bacteria are found naturally in the environment, usually in water. The bacteria grow best in warm water, such as the kind found in hot tubs, cooling towers, hot water tanks, large plumbing systems, or parts of the air-conditioning systems of large buildings.

People get Legionnaires' disease when they breathe in a mist or vapor (small droplets of water in the air) that has been contaminated with the bacteria. The bacteria are NOT spread from one person to another person.

What are the symptoms of Legionnaires' disease?

Legionnaires' disease can have symptoms like many other forms of pneumonia, so it can be hard to diagnose at first. Signs of the disease can include a high fever, chills, and a cough. Some people may also suffer from muscle aches and headaches. These symptoms usually begin 2-14 days after being exposed to the bacteria.

Chest X-rays are needed to find the pneumonia caused by the bacteria, and other tests can be done on sputum (phlegm), as well as blood or urine to find evidence of the bacteria in the body.

A milder infection caused by the same type of *Legionella* bacteria is called *Pontiac Fever*. The symptoms of Pontiac Fever usually last for 2-5 days and may also include fever, headaches, and muscle aches; however, there is no pneumonia. Symptoms go away on their own without treatment and without causing further problems.

Are certain people at risk of getting Legionnaires' disease?

People most at risk of getting sick from the bacteria are older people (usually 65 years of age or older), as well as people who are smokers, or those who have a chronic lung disease (such as emphysema).

People who have weak immune systems from diseases like cancer, diabetes, or kidney failure are also more likely to get sick from *Legionella* bacteria. People who take drugs to suppress (weaken) the immune system (like after a transplant operation or chemotherapy) are also at higher risk. Many people in hospitals already have illnesses that increase their risk for *Legionella* infection.

What is the treatment for Legionnaires' disease?

While Legionnaires' disease can be very serious and can cause death in up to 5-30% of cases, most cases can be treated successfully with antibiotics.

How can Legionnaires' disease be prevented in the healthcare setting?

Hospital buildings have complex water systems. If there is no *Legionella* in the healthcare facility environment, then disease cannot occur.

To help prevent the spread of *Legionella* in the healthcare facility, there are a few control measures that can be taken such as:

- Sterilize/disinfect aerosol-producing devices before use.
- Use sterile water to rinse and clean respiratory apparatuses and other respiratory equipment (humidifiers, nebulizers, and respiratory machines).
- Use only sterile water for respiratory humidifying devices.
- Do not use cool-mist room air humidifiers without adequate sterilization or disinfection.

Outbreaks are when two or more people become ill in the same place at about the same time, such as patients in healthcare settings.

In the event of an outbreak of legionellosis, it is recommended that the following control measures be implemented for immunocompromised patients (or those at high risk for legionellosis):

- Immunocompromised and at-risk residents should be on complete water restrictions. This population should not bathe, shower, use ice, brush teeth or in any way use or consume water from the facility's taps, unless legionella-specific filters have been placed on potable water sources.
- Immunocompromised and at-risk residents should drink bottled or filtered water and use ice made from bottled/filtered water.
- Immunocompromised and at-risk residents should shower or bathe with filtered water sources.

For information regarding Legionnaires' disease, visit the following resources:

- <http://www.cdc.gov/legionella/index.htm>

What are head lice?

The head louse is a small, grayish-white insect about 1/16 to 1/8 of an inch in length that lives in hair and on the scalp. The nits (eggs), larvae, and adult lice can be seen easily and are often found near the nape of the neck and around the ears.

Who gets head lice?

Head lice occur in all socioeconomic groups and are not a sign of uncleanliness. Anyone may get head lice under the right conditions. Head lice are most typically found in children who are in elementary and day care.

How are lice spread?

Spread of head lice can happen during close personal contact with a person who has head lice. Head lice are wingless insects that move relatively quickly, which is why they spread easily from person to person. However, they do not jump or hop. They can also be spread by sharing combs, brushes, hats, caps, wigs, curlers, and other headgear or by storage of items in a shared locker.

What are the symptoms of head lice?

Itching is the most common symptom of head lice infestation, but those with a light infestation (1-5 lice) may not complain. Therefore, a thorough examination of the hair and scalp is necessary to find head lice or nits.

How soon do symptoms appear?

Itching may occur two to three weeks after infestation with head lice.

How long is a person able to spread head lice?

Lice can spread as long as they remain alive on a person or on clothing.

What is the treatment for head lice?

Medicated shampoos or cream rinses are used to kill lice. They are available by prescription or over-the-counter. Some shampoos are not recommended for infants, young children, or women who are pregnant or breast feeding. Always follow the directions on the label of the shampoo. The shampoo should be used again in 7-10 days to make sure any lice which hatched after the first treatment are killed. Special fine-toothed combs are usually available with the shampoo to aid in removing nits.

What can be done to prevent the spread of head lice?

- Contacts of people with head lice should be checked for nits or lice and treated, if necessary. They should also be taught not to share combs, brushes, hats, or other headgear.
- Clothing, sheets, blankets, and bedspreads should be washed in hot water (128° F) for five minutes to destroy lice and eggs. Dry cleaning or storing clothing in plastic bags for 10 days is also effective.
- Combs, brushes, and similar items can be treated by soaking them for 5-10 minutes in a pan of water heated to 128° F or by soaking them for one hour in the medicated shampoos.
- Cleaning of carpets or furniture should be limited to a simple vacuuming.

For more information regarding lice, visit the following resource:

- www.cdc.gov/parasites/lice/

What is healthcare-associated MRSA?

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of staph bacteria that does not react to certain antibiotics and will normally cause skin infections, but MRSA can also cause other infections— including pneumonia. MRSA can be fatal. In 1974, MRSA infections accounted for two percent of the total number of staph infections; in 1995, it was 22%; in 2004, it was 63%. Staph infections, including MRSA, occur most often among people in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems.

How is healthcare-associated MRSA spread?

In the case of MRSA, patients who already have a MRSA infection or who carry the bacteria on their bodies but do not have symptoms (colonized) are the most common sources of transmission.

The main mode of transmission to other patients is through human hands, especially healthcare workers' hands. Hands may become contaminated with MRSA bacteria by contact with infected or colonized patients. If appropriate hand hygiene such as washing with soap and water or using an alcohol-based hand sanitizer is not performed, the bacteria can be spread when the healthcare worker touches other patients.

There are 5 “C” factors that can contribute to the spread of MRSA:

- Contact – frequent skin-to-skin contact with a person who is infected
- Compromised skin – breaks in the skin allow pathogens to enter more easily
- Contaminated items and surfaces – for example towels and shared equipment
- Lack of Cleanliness – such as not washing hands regularly
- Crowding – germs spread more easily in close quarters

What are the symptoms of MRSA infection?

Most staph infections, including MRSA, will grow as a bump or infected area on the skin. Signs of a MRSA infection on skin include:

- redness
- swelling
- pain
- warm to the touch
- full of pus or other drainage
- fever

What is the treatment for MRSA?

Treatment for MRSA skin infections may include having a healthcare professional drain the infection and, in some cases, prescribe an antibiotic. A patient should be instructed not to attempt to drain the infection himself/herself as doing so could worsen or spread the infection to others.

If an antibiotic is given, the patient should be sure to take all of the doses (even if the infection is getting better), unless instructed to stop taking the antibiotic by a healthcare professional.

Skin and soft tissue infections (SSTIs), specifically furuncles (abscessed hair follicles or “boils”), carbuncles (coalesced masses of furuncles), and abscesses, are the most frequently reported clinical manifestations.



Images: Courtesy of the Centers for Disease Control and Prevention

How can healthcare-associated MRSA be prevented?

In most instances in the healthcare setting, following **Standard Precautions**, as described in the [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007](#) should control the spread of MRSA.

Standard Precautions include:

- 1) Hand hygiene
- 2) Gloving
- 3) Mouth, nose, eye protection
- 4) Gowning
- 5) Appropriate device handling of patient care equipment and instruments/devices
- 6) Appropriate handling of laundry – Handle, transport, and process used linen to avoid contamination of air, surfaces, and persons.

In some instances **Contact Precautions** should be followed. To determine if a patient needs to be placed on Contact Precautions, see page 37 of [Management of Multi-drug Resistant Organisms in Healthcare Settings, 2006](#).

In addition to Standard Precaution, Contact Precautions consist of the following:

- 1) Patient placement
- 2) Gloving
- 3) Gowning
- 4) Patient transport
- 5) Patient-care equipment and instruments/devices
- 6) Environmental measures

For more information regarding MRSA, visit the following resources:

- CDC's Healthcare-associated MRSA website - <http://www.cdc.gov/mrsa>
- <http://www.cdc.gov/mrsa/healthcare/index.html>

What are noroviruses?

Noroviruses are a group of viruses that cause acute gastroenteritis in humans. Gastroenteritis is an inflammation of the lining of the stomach and intestines. Norovirus was recently approved as the official genus name for the group of viruses provisionally described as "Norwalk-like viruses" (NLV). Currently, human noroviruses belong to one of three norovirus genogroups (GI, GII, or GIV), each of which is further divided into >25 genetic clusters.

How are noroviruses spread?

Noroviruses are highly contagious, with as few as 100 virus particles thought to be sufficient to cause infection. Noroviruses are transmitted primarily through the fecal-oral route, either by direct person-to-person spread or fecally-contaminated food or water. Noroviruses can also spread via a droplet route from vomitus. These viruses are relatively stable in the environment and can survive freezing and heating to 60° C (140° F). In healthcare facilities, transmission can additionally occur through hand transfer of the virus to the oral mucosa via contact with materials, fomites, and environmental surfaces that have been contaminated with either feces or vomitus.

Persons working in long-term care facilities such as nursing homes should pay special attention to residents who have norovirus illness. This virus is very contagious and can spread rapidly throughout such environments.

What are the symptoms of noroviruses?

The symptoms of norovirus illness usually include nausea, vomiting, diarrhea, and some stomach cramping. Sometimes people also have a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness. The illness often begins suddenly, and the infected person may feel very sick. In most people the illness is self-limiting, with symptoms lasting for about 1 or 2 days. In general, diarrhea is more common in children and vomiting is more common in adults. Dehydration is the most common complication and may require intravenous replacement fluids.

Are certain people at risk of getting noroviruses?

Anyone can become infected with noroviruses. There are many different strains of norovirus, which make it difficult for a person's body to develop long-lasting immunity. Therefore, norovirus illness can recur throughout a person's lifetime. In addition, because of differences in genetic factors, some people are more likely to become infected with noroviruses and to develop more severe illness than others.

What is the treatment for noroviruses?

There is no vaccine to prevent norovirus infection, nor is there a drug to treat people who are infected with the virus. Antibiotic drugs will not help if you have a norovirus infection. This is because they fight against bacteria, not viruses.

Norovirus illness is usually brief in people who are otherwise healthy. But the infection can cause severe vomiting and diarrhea, which can lead to dehydration. During norovirus infection, young children, the elderly, and people with other illnesses are most at risk for dehydration.

Symptoms of dehydration in adults and children include a decrease in urination, a dry mouth and throat, and feeling dizzy when standing. Severe dehydration may require hospitalization for treatment with intravenous (IV) fluids. Thus, it is important to prevent dehydration during norovirus illness. The best way to protect against dehydration is to drink plenty of liquids. The most helpful fluids for this purpose are oral rehydration fluids. Other drinks that do not contain caffeine or alcohol can also help with mild dehydration. However, these drinks may not replace important nutrients and minerals lost due to vomiting and diarrhea.

How can noroviruses be prevented in the healthcare setting?

The most important means of preventing norovirus transmission and infection is exercising frequent and appropriate hand washing (<http://www.cdc.gov/handhygiene>). Alcohol-based hand sanitizers may be helpful as an adjunct method of hand hygiene, but should not replace washing with soap and water.

Other prevention measures include thorough cleaning and disinfecting of contaminated surfaces using a bleach-based cleaner. Noroviruses are relatively resistant. They are able to survive freezing and temperatures as high as 140° F. Moreover, noroviruses can survive in up to 10 ppm chlorine, well in excess of levels routinely present in public water systems.

Environmental surfaces that may be contaminated by norovirus should be disinfected using a chlorine bleach solution with a concentration of 1000-5000 ppm (5-25 tablespoons of household bleach [5.25%] per gallon of water) or other disinfectant registered as effective against norovirus by the Environmental Protection Agency. (See list at: http://www.epa.gov/oppad001/list_g_norovirus.pdf.)

Guidelines for Environmental Infection Control in Healthcare Facilities can be found at: http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf.

For more information regarding norovirus, visit the following resource:

- <http://www.cdc.gov/norovirus/about/index.html>

What is RSV?

Respiratory Syncytial Virus (RSV) is the most common cause of bronchiolitis (inflammation of the small airways in the lung) and pneumonia in children under one year of age in the United States. Each year, 75,000 to 125,000 children in this age group are hospitalized due to RSV infection. Nearly all children are infected with the virus by their second birthday, but only a small percentage develop severe disease.

While RSV is often thought of as a disease of only young children, it can also occur in adults with weakened immune systems and in the elderly.

How is RSV spread?

People infected with RSV are usually contagious for 3-8 days. However, some infants and people with weakened immune systems can be contagious for as long as four weeks. RSV can be rapidly transmitted to others.

RSV can be spread when droplets containing the virus are sneezed or coughed into the air by an infected person. Such droplets can linger briefly in the air, and if someone inhales the particles or the particles contact their nose, mouth, or eyes, they can become infected.

Infection can also result from direct and indirect contact with nasal or oral secretions from infected persons. Direct contact with the virus can occur, for example, by kissing the face of a child with RSV. Indirect contact can occur if the virus gets on an environmental surface, such as a doorknob that is then touched by other people. Direct and indirect transmissions of virus usually occur when people touch an infectious secretion and then rub their eyes or nose. RSV can survive on hard surfaces, such as tables and bed rails for many hours. RSV typically lives on soft surfaces, such as tissues and hands for shorter amounts of time.

What are the symptoms of RSV?

Illness usually begins 4-6 days after exposure (range: 2-8 days) with a runny nose and decrease in appetite. Coughing, sneezing, and fever may develop 1-3 days later. Wheezing may also occur. In very young infants, irritability, decreased activity, and breathing difficulties may be the only symptoms of infection. Most otherwise healthy infants infected with RSV do not require hospitalization. In most cases, including among those who need to be hospitalized, full recovery from illness occurs in about 1-2 weeks.

Visits to a healthcare provider for an RSV infection are very common. During such visits, the healthcare provider will assess the severity of disease to determine if the patient should be hospitalized. In the most severe cases of disease, infants may require supplemental oxygen, suctioning of mucus from the airways, or intubation (have breathing tubes inserted) with mechanical ventilation.

Are certain people at risk of getting RSV?

Premature infants, children less than two years of age with congenital heart or chronic lung disease, and children with compromised (weakened) immune systems due to a medical condition or medical treatment are at highest risk for severe disease. Adults with compromised immune systems and those 65 and older are also at increased risk of severe disease.

What is the treatment for human RSV?

There is no specific treatment for RSV. Most of the time an infant will recover in 1-2 weeks with supportive care. In the most severe cases in which an infant or young child is hospitalized with RSV, supplemental oxygen, suctioning of mucus from the airways, or intubation with mechanical breathing may be required.

How can RSV be prevented in the healthcare setting?

Frequent hand washing and wiping of hard surfaces with appropriate disinfectant may help stop infection and spread of RSV. Also, persons with RSV illness should not share cups or eating utensils with others and should not visit a long-term care facility.

Ideally, persons with cold-like symptoms should not interact with high-risk children and adults. If this is not possible, these persons should cover their mouth and nose when coughing or sneezing and then wash their hands before providing any care. They should also refrain from kissing high-risk children while they have cold-like symptoms. When possible, limiting the time that high-risk children spend in child care centers or other potentially contagious settings may help prevent infection and spread of the virus during the RSV season.

For more information regarding RSV, visit the following resources:

- <http://www.cdc.gov/rsv/index.html>
- <http://www.cdc.gov/rsv/about/index.html>

What is human scabies?

Human scabies is caused by an infestation of the skin by the human itch mite (*Sarcoptes scabiei* var. *hominis*). The microscopic scabies mite burrows into the upper layer of the skin where it lives and lays its eggs. The most common symptoms of scabies are intense itching and a pimple-like skin rash. The scabies mite usually is spread by direct, prolonged, skin-to-skin contact with a person who has scabies.

How is human scabies spread?

The adult female scabies mites burrow into the upper layer of the skin (epidermis) where they live and deposit their eggs. The microscopic scabies mite almost always is passed by direct, prolonged, skin-to-skin contact with a person who already is infested. An infested person can spread scabies, even if he or she has no symptoms. Humans are the source of infestation; animals do not spread human scabies.

What are the symptoms of human scabies?

When a person is infested with scabies mites the first time, symptoms may not appear for up to two months (2-6 weeks) after being infested; however, an infested person still can spread scabies during this time, even though he/she does not have symptoms.

If a person has had scabies before, symptoms appear much sooner (1-4 days) after exposure. An infested person can transmit scabies, even if they do not have symptoms, until they are successfully treated and the mites and eggs are destroyed.

Common symptoms of human scabies include itching (may be severe, especially at night) and papular skin rash (pimple-like skin rash). Itching and rash may affect much of the body or be limited to common sites such as:

- between the fingers
- wrist
- elbow
- armpit
- penis
- nipple
- waist
- buttocks
- shoulder blades



Source of images:
<http://en.wikipedia.org/wiki/Scabies>

The head, face, neck, palms, and soles often are involved in infants and very young children, but usually not adults and older children.

Tiny burrows sometimes are seen on the skin; these are caused by the female scabies mite tunneling just beneath the surface of the skin. These burrows appear as tiny raised and crooked (serpiginous) grayish-white or skin-colored lines on the skin surface. These burrows may be difficult to find. They are found most often in the webbing between the fingers, in the skin folds on the wrist, elbow, or knee, and on the penis, breast, or shoulder blades.

The intense itching of scabies leads to scratching that can lead to skin sores. The sores sometimes become infected with bacteria on the skin, such as *Staphylococcus aureus* or beta-hemolytic streptococci. Sometimes the bacterial skin infection can lead an inflammation of the kidneys called post-streptococcal glomerulonephritis.

Are certain people at risk of getting human scabies?

Scabies occurs worldwide and affects people of all races and social classes. Scabies can spread rapidly under crowded conditions where close body contact is frequent. Institutions such as nursing home and extended-care facilities are often sites of scabies outbreaks.

Some immunocompromised, elderly, disabled, or debilitated persons are at risk for a severe form of scabies called crusted, or Norwegian scabies. Persons with crusted scabies have thick crusts of skin that contain large numbers of scabies mites and eggs. The mites in crusted (Norwegian) scabies are not more virulent than in non-crusted scabies; however, they are much more numerous (up to 2 million per patient). Because they are infested with such large numbers of mites, persons with crusted (Norwegian) scabies are very contagious to other persons. In addition to spreading scabies through brief direct skin-to-skin contact, persons with crusted scabies can transmit scabies indirectly by shedding mites that contaminate items, such as their clothing, bedding, and furniture. Persons with crusted scabies should receive quick and aggressive medical treatment for their infestation to prevent outbreaks of scabies.

What is the treatment for human scabies?

Products used to treat scabies are called scabicides because they kill scabies mites; some also kill mite eggs. Scabicides used to treat human scabies are available only with a doctor's prescription.

Scabicide lotion or cream should be applied to all areas of the body from the neck down to the feet and toes. In addition, when treating infants and young children, scabicide lotion or cream also should be applied to their entire head and neck because scabies can affect their face, scalp, and neck, as well as the rest of their body. The lotion or cream should be applied to a clean body and left on for the recommended time before washing it off. Clean clothing should be worn after treatment.

Because the symptoms of scabies are due to a hypersensitivity reaction (allergy) to mites and their feces (scybala), itching still may continue for several weeks after treatment even if all the mites and eggs are killed. If itching still is present more than 2-4 weeks after treatment or if new burrows or pimple-like rash lesions continue to appear, retreatment may be necessary.

Skin sores that become infected should be treated with an appropriate antibiotic prescribed by a doctor.

In addition to the infested person, treatment also is recommended for household members and anyone who has had prolonged direct skin-to-skin contact with the infested person. Close personal contacts who have had direct prolonged skin-to-skin contact with an infested person within the preceding month should be examined and treated. All persons should be treated at the same time to prevent re-infestation.

How can human scabies be prevented in the healthcare setting?

In general scabies is prevented by avoiding direct skin-to-skin contact with an infested person or with items such as clothing or bedding used by an infested person.

Early detection, treatment, and implementation of appropriate isolation and infection control practices are essential in preventing scabies outbreaks. Institutions should maintain a high index of suspicion that undiagnosed skin rashes and conditions may be scabies, even if characteristic signs or symptoms of scabies are absent (e.g., no itching).

New patients and employees should be screened carefully and evaluated for any skin conditions that could be compatible with scabies. The onset of scabies in a staff person who has had scabies before can be an early warning sign of undetected scabies in a patient. Skin scrapings should be obtained and examined carefully by a person who is trained and experienced in identifying scabies mites.

Appropriate isolation and infection control practices (e.g., gloves, gowns, avoidance of direct skin-to-skin contact, etc.) should be used when providing hands-on care to patients who might have scabies. Epidemiologic and clinical information about confirmed and suspected scabies patients should be collected and used for systematic review in order to facilitate early identification of and response to potential outbreaks.

Bedding and clothing worn or used next to the skin anytime during the three days before treatment should be machine washed and dried using the hot water and hot dryer cycles or be dry-cleaned. Items that cannot be dry-cleaned or laundered can be disinfested by storing in a closed plastic bag for several days to a week. Scabies mites generally do not survive more than 2-3 days away from human skin.

Persons with crusted (Norwegian) scabies and their close contacts, including household members, should be treated rapidly and aggressively to avoid outbreaks. Institutional outbreaks can be difficult to control and require a rapid, aggressive, and sustained response.

Rooms used by a patient with crusted scabies should be thoroughly cleaned and vacuumed after use. The use of pesticide sprays or fogs generally is unnecessary and is discouraged.

For more information regarding human scabies, visit the following resources:

- <http://www.cdc.gov/scabies/hcp/institutions.html>
- <http://www.dpd.cdc.gov/dpdx/HTML/scabies.htm>

What is Shingles – Varicella Zoster Virus (VZV)?

Shingles, also called herpes zoster or zoster, is a painful skin rash caused by the varicella zoster virus (VZV). VZV is the same virus that causes chickenpox. After a person recovers from chickenpox, the virus stays in the body. Usually the virus does not cause any problems; however, the virus can reappear years later, causing shingles. Herpes zoster is not caused by the same virus that causes genital herpes, a sexually transmitted disease.

In the United States there are an estimated 1 million cases of shingles each year.

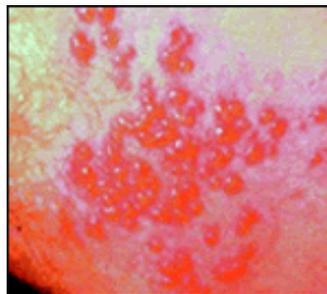
How is shingles spread?

Shingles cannot be passed from one person to another. However, the virus that causes shingles, VZV, can be spread from a person with active shingles to a person who has never had chickenpox through direct contact with the rash. The person exposed would develop chickenpox, not shingles. The virus is **not** spread through sneezing, coughing or casual contact. A person with shingles can spread the disease when the rash is in the blister phase. Once the rash has developed crusts, the person is no longer contagious. A person is not infectious before blisters appear or with post-herpetic neuralgia (pain after the rash is gone).

What are the symptoms of shingles?

Shingles usually starts as a rash on one side of the face or body. The rash starts as blisters that scab after 3-5 days. The rash usually clears within 2-4 weeks.

Before the rash develops, there is often pain, itching, or tingling in the area where the rash will develop. Other symptoms of shingles can include fever, headache, chills, and upset stomach.



Images: Courtesy of the Centers for Disease Control and Prevention

Are certain people at risk of getting shingles?

Anyone who has recovered from chickenpox may develop shingles, including children. However, shingles most commonly occurs in people 50 years old and older. The risk of getting shingles increases as a person gets older. People who have medical conditions that keep the immune system from working properly, like cancer, leukemia, lymphoma, and human immunodeficiency virus (HIV), or people who receive immunosuppressive drugs, such as steroids and drugs given after organ transplantation are also at greater risk to get shingles.

What is the treatment for shingles?

Several medicines, acyclovir (Zovirax), valacyclovir (Valtrex), and famciclovir (Famvir), are available to treat shingles. These medications should be started as soon as possible after the rash appears and will help shorten how long the illness lasts and how severe the illness is. Pain medicine may also help with pain caused by shingles.

How can shingles be prevented in the healthcare setting?

The Advisory Committee on Immunization Practices (ACIP), with support by the Hospital Infection Control Practices Advisory Committee (HICPAC), recommends that healthcare institutions ensure that all healthcare workers have evidence of immunity to varicella. For healthcare providers, evidence of immunity includes any of the following:

- documentation of two doses of varicella vaccine
- blood tests showing immunity to varicella or laboratory confirmation of prior disease or
- receipt from a healthcare provider of a) a diagnosis of chickenpox or herpes zoster (shingles); or b) verification of a history of chickenpox or herpes zoster (shingles)

The risk of spreading shingles is low if the rash is covered. People with shingles should keep the rash covered, not touch or scratch the rash, and wash their hands often to prevent the spread of VZV. Once the rash has developed crusts, the person is no longer contagious.

Other prevention steps healthcare workers can take include:

- Strict adherence to hand hygiene
 - Hand hygiene infection control information for healthcare settings can be found at: <http://www.cdc.gov/handhygiene>.
- Thorough environmental cleaning
 - Guidelines for Environmental Infection Control in Healthcare Facilities can be found at: http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf.

For more information regarding shingles, visit the following resources:

- <http://www.cdc.gov/vaccines/vpd-vac/shingles/dis-faqs.htm>
- <http://www.cdc.gov/vaccines/vpd-vac/shingles/vac-faqs.htm>
- <http://www.cdc.gov/hicpac/pdf/MDRO/MDROGuideline2006.pdf> (Management of Multi-drug Resistant Organisms in Healthcare Settings, 2006)

What is tuberculosis?

Tuberculosis or TB is a disease that is caused by a bacterium called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body, such as the kidney, spine, and brain. If not treated properly, TB disease can be fatal.

Not everyone infected with TB bacteria becomes sick. As a result, two TB-related conditions exist: latent TB infection (LTBI) and active TB disease.

Difference Between Latent TB Infection and TB Disease

A Person with Latent TB Infection	A Person with Active TB Disease
<ul style="list-style-type: none"> Has no symptoms 	<ul style="list-style-type: none"> Has symptoms that may include: <ul style="list-style-type: none"> - a bad cough that lasts 3 weeks or longer - pain in the chest - coughing up blood or sputum - weakness or fatigue - weight loss - no appetite - chills - fever - sweating at night
<ul style="list-style-type: none"> Does not feel sick 	<ul style="list-style-type: none"> Usually feels sick
<ul style="list-style-type: none"> Cannot spread TB bacteria to others 	<ul style="list-style-type: none"> May spread TB bacteria to others
<ul style="list-style-type: none"> Usually has a positive skin test or blood test result indicating TB infection 	<ul style="list-style-type: none"> Usually has a positive skin test or blood test result indicating TB infection
<ul style="list-style-type: none"> Has normal chest x-ray and a negative sputum smear 	<ul style="list-style-type: none"> May have an abnormal chest x-ray or positive sputum smear or culture
<ul style="list-style-type: none"> Needs treatment for latent TB infection to prevent active TB disease 	<ul style="list-style-type: none"> Needs treatment to treat active TB disease

How is tuberculosis spread?

TB bacteria are put into the air when a person with TB disease of the lungs or throat coughs, sneezes, speaks, or sings. These bacteria can stay in the air for several hours, depending on the environment. Persons who breathe in the air containing these TB bacteria can become infected; this is called latent TB infection.

Tuberculosis is not spread by:

- shaking someone's hand
- sharing food or drink
- touching bed linens or toilet seats
- sharing toothbrushes
- kissing

What are the symptoms of tuberculosis?

The general symptoms of TB disease include feelings of sickness or weakness, weight loss, fever, and night sweats. The symptoms of TB disease of the lungs also include coughing, chest pain, and the coughing up of blood. Symptoms of TB disease in other parts of the body depend on the area affected. People who have latent TB infection do not feel sick, do not have any symptoms, and cannot spread TB to others.

Are certain people at risk of getting tuberculosis?

Persons who are at higher risk for exposure to or infection with *M. tuberculosis* include:

- close contacts of persons known or suspected to have TB
- foreign-born persons, including children from areas that have a high TB prevalence
- residents and employees of high-risk group settings (such as hospitals, homeless shelters, correctional facilities, nursing homes)
- some medically underserved, low-income populations as defined locally
- populations, defined locally as having an increased prevalence of TB (such as Asians and Pacific Islanders, Hispanics, African Americans, Native Americans)
- infants, children, and adolescents exposed to adults in high-risk categories
- persons who inject illicit drugs; any other locally identified high-risk substance users
- healthcare workers who serve high-risk clients

Approximately 10% of all TB-infected persons (without HIV) will develop TB disease sometime in their life. For persons whose immune systems are weak, especially those with HIV infection, the risk of developing **TB disease** is much higher than for persons with normal immune systems. Generally, persons at higher risk for developing TB disease fall into two categories:

- persons who have been recently (newly) infected with TB bacteria (see above)
- persons with medical conditions that weaken the immune system

Medical conditions that weaken the immune system include:

- HIV infection
- silicosis
- severe kidney disease
- organ transplants
- medical treatments, such as corticosteroids or organ transplant
- specialized treatment for rheumatoid arthritis or Crohn's disease
- substance abuse
- diabetes mellitus
- low body weight
- head and neck cancer

Treatment for latent TB infection (LTBI):

People with latent TB may develop TB disease in the future. They are often prescribed treatment to prevent them from developing active TB disease. Because there are fewer bacteria in a person with latent TB infection, treatment is much easier. Usually, only one drug is needed to treat latent TB infection. The medicine usually taken for the treatment of latent TB infection is called isoniazid (INH). INH kills the TB bacteria that are in the body. INH for nine months is the preferred regimen. Children and people with HIV infection may need to take INH for a longer time.

Treatment for active TB Disease:

A person with active TB disease has a large amount of TB bacteria in the body. TB disease can be treated by taking several drugs for 6-12 months. It is very important that people who have TB disease finish the medicine, and take the drugs exactly as prescribed. If they stop taking the

drugs too soon, they can become sick again; if they do not take the drugs correctly, the germs that are still alive may become resistant to those drugs. TB that is resistant to drugs is harder and more expensive to treat.

How can tuberculosis be prevented in the healthcare setting?

All healthcare settings need an infection control program designed to ensure prompt detection, airborne precautions, and treatment of persons who have suspected or confirmed TB disease. Policies and procedures for TB control should be developed, reviewed periodically, and evaluated for effectiveness to determine the actions necessary to minimize the risk for transmission of TB.

The TB infection control program should be based on a **three-level hierarchy** of control measures. The first two control levels of the hierarchy minimize the number of areas in the healthcare setting where exposure to *M. tuberculosis* may occur, but do not eliminate the risk in those few areas where exposure to *M. tuberculosis* can still occur.

The **first level of the hierarchy—administrative measures**—affects the largest number of persons and is intended primarily to reduce the risk of uninfected persons being exposed to persons who have TB disease. These measures include, but are not limited to, the following activities:

- assigning responsibility for TB infection control in the healthcare setting
- conducting a TB risk assessment of the healthcare setting
- developing and instituting a written TB infection-control plan to ensure prompt detection, airborne precautions, and treatment of persons who have suspected or confirmed TB disease
- coordinating efforts with the local and/or state health department

The **second level of the hierarchy** is the use of **environmental controls** to prevent the spread and reduce the concentration of infectious droplet nuclei in ambient air, such as placing the TB patient in a negative pressure isolation room.

The **third level of the hierarchy** is the use of **respiratory protective equipment** in situations that pose a high risk of exposure to *M. tuberculosis*. Use of respiratory protection equipment can further reduce risk for exposure of HCW to infectious droplet nuclei that have been expelled into the air from a patient with infectious TB disease.

CDC guidelines for preventing the transmission of Mycobacterium tuberculosis in healthcare settings are available at: <http://www.cdc.gov/mmwr/pdf/rr/rr5417.pdf>.

For more information regarding tuberculosis, visit the following resources:

- www.cdc.gov/tb/
- <http://www.cdc.gov/tb/topic/infectioncontrol/default.htm>
- <http://www.cdc.gov/tb/publications/factsheets/prevention/ichcs.htm>
- <http://www.cdc.gov/tb/publications/factsheets/prevention/rphcs.htm>

What is Vancomycin-resistant Enterococci?

Enterococci are bacteria that are normally present in the human intestines and in the female genital tract and are often found in the environment. These bacteria can sometimes cause infections. Vancomycin is an antibiotic that is often used to treat infections caused by enterococci. In some instances, enterococci have become resistant to this drug and thus are called vancomycin-resistant enterococci (VRE). Most VRE infections occur in hospitals.

How is VRE spread?

In healthcare settings, contaminated hands often pass VRE person-to-person. VRE can “hitch a ride” on healthcare workers’ (HCW) hands after they have contact with patients who have VRE or after contact with VRE-contaminated surfaces. VRE can also be spread to a person who touches surfaces that are contaminated with VRE. People who are colonized (bacteria are present, but have no symptoms of an infection) can also spread VRE. VRE is not spread through the air by coughing or sneezing.

What types of infections does VRE cause?

VRE can live in the human intestines and female genital tract without causing disease (often called colonization). However, it can, sometimes, cause infections of the urinary tract, the bloodstream, or of wounds associated with catheters or surgical procedures.

Are certain people at risk of getting VRE?

Information collected by the Centers for Disease Control and Prevention during 2006 and 2007 showed that enterococci caused about 1 of every 8 infections in hospitals and only about 30% of these are VRE. The following persons are at an increased risk becoming infected with VRE:

- persons who have been previously treated with the antibiotic vancomycin or other antibiotics for long periods of time
- hospitalized patients, particularly those receiving long-term antibiotic treatment
- persons with weakened immune systems, such as patients in Intensive Care Units, or in cancer or transplant wards
- persons who have undergone surgical procedures, such as abdominal or chest surgery
- persons with medical devices that stay in for some time (e.g., urinary/central IV catheters)

What is the treatment for VRE?

Patients who are colonized (bacteria are present, but have no symptoms of an infection) with VRE do not usually need treatment. Most VRE infections can be treated with antibiotics other than vancomycin. Laboratory testing of the VRE can determine which antibiotics will work. For people who get VRE infections in their bladder and have indwelling urinary catheters, removal of the catheter when it is no longer needed can also help get rid of the infection.

How can VRE be prevented in the healthcare setting?

CDC's recommendations for preventing transmission of VRE in the healthcare setting consist of standard precautions, which should be used for all patient care. In addition, CDC recommends contact precautions when the facility deems the VRE to be of special clinical and epidemiologic

significance. The components of contact precautions may be adapted for use in non-hospital healthcare facilities, especially if the patient has draining wounds or difficulty controlling body fluids.

In addition to standard and contact precautions, the following procedures also may be considered for non-hospital healthcare facilities:

- Patient placement - Place the patient in a private room, if possible. When a private room is not available, place the patient in a room with a patient who is colonized or infected with the same organism, but doesn't have any other infection (cohorting). Another option is to place an infected patient with a patient who doesn't have risk factors for infection.
- Patient placement in dialysis facilities - Dialyze the patient at a station with as few adjacent stations as possible (e.g., at the end or corner of the unit).
- Group activities - It is extremely important to maintain the patient's ability to socialize and have access to rehabilitation opportunities. Infected or colonized patients should be permitted to participate in group meals and activities if draining wounds are covered, bodily fluids are contained, and the patients observe good hygienic practices.

The following are recommended for prevention of VRE in hospitals and may be adapted for use in non-hospital healthcare facilities:

- Obtain stool cultures or rectal swab cultures of roommates of patients newly found to be infected or colonized with VRE.
- Adopt a policy for deciding when patients can be removed from isolation (e.g., VRE-negative results on at least three consecutive occasions, one or more weeks apart.)
- Consult health departments regarding discharge requirements for patients with VRE.

The following are some things you can do to prevent the spread of VRE:

- Always practice good hand hygiene.
 - Clean your hands after contact with persons who have VRE. Wash with soap and water (particularly when visibly soiled) or use alcohol-based hand rubs.
 - Always wash your hands after using the bathroom and before handling food.
- Keep areas such the bathroom and other areas that can become contaminated with VRE clean and disinfected.
- Wear gloves if you may come in contact with body fluids that may contain VRE, such as stool or bandages from infected wounds. **Always** wash your hands after removing gloves.

For more information regarding VRE, visit the following resources:

- <http://www.cdc.gov/HAI/organisms/vre/vre-infection.html>

Glossary

Active Infection: Multiplication of infectious agents with tissue invasion and clinical symptoms such as fever; redness, swelling, and possible drainage from soft tissue lesions; new onset of diarrhea; new onset or exacerbation of pulmonary symptoms.

Asymptomatic Infection: Presence of an infectious agent without evidence of tissue invasion or clinical disease.

Cohorting: Placing residents infected or colonized with another resident known to be culture-positive for the same infectious agent in the same room or in a designated area of a nursing unit, clinic, or waiting room. During outbreaks, caregivers may be designated to work only with the infected or colonized group or with the non-infected, non-colonized group, but not both during the same shift.

Colonization: The presence, growth, and multiplication of an organism in one or more body sites without observable clinical symptoms or immune reactions.

Contact Precautions: A CDC approach intended to prevent the transmission of infectious agents that are spread by direct or indirect contact with the patient or the patient's environment or when the presence of excessive wound drainage, fecal incontinence, or other discharges from the body suggest an increased transmission risk.

Droplet Precautions: A CDC approach intended to prevent the transmission of infectious agents spread through close respiratory or mucous membrane contact with respiratory secretions. Because these agents do not remain infectious over long distances in a healthcare facility, special air handling and ventilation are not required to prevent droplet transmission.

Hand Hygiene: Removal of visible soil (e.g., dirt) and/or spore-forming microorganisms (e.g., *Clostridium difficile* or *C. diff*) from hands using soap (plain or antimicrobial) and water; removal of transient, vegetative microorganisms (e.g., *Staphylococcus aureus*, including Methicillin-resistant *Staphylococcus aureus* (MRSA) and other gram-negative and gram-positive microorganisms) from hands using an alcohol-based hand hygiene product.

Healthcare-associated Infection (HAI): An infection that develops in a resident who is cared for in any setting where healthcare is delivered (e.g., acute care hospital, skilled nursing facility, dialysis center, etc.) and was not incubating or present at the time of admission to that setting.

Infectious Agent: Microorganisms such as a bacteria, viruses, and fungi that may cause an active infection.

Long-term care facility (LTCF): Inpatient and outpatient facilities (e.g., skilled nursing facilities, chronic disease hospitals, foster and group homes, homes for the developmentally disabled, residential care facilities, assisted living facilities, adult day health facilities, rehabilitation centers, long-term psychiatric facilities, etc.) that provide care to people who are unable to manage activities of daily living independently in the community.

MDRO: Multi-drug resistant organisms; In general, bacteria (excluding *M. tuberculosis*) that are usually resistant to all but one or two commercially available antimicrobial agents (e.g., MRSA, VRE, extended spectrum beta-lactamase (ESBL)-producing or intrinsically resistant gram-negative bacilli).

Outbreak: One case of an infection that is highly communicable; an incidence of infections above what would normally be expected, considering seasonal variation; or occurrence of three or more cases of the same infection over a specified length of time.

Standard Precautions: A CDC approach to reducing the risk of transmission of any infectious agent from both recognized and unrecognized sources. Former names include “Universal Precautions” (precautions applied prevent the transmission of bloodborne pathogens) and “Body Substance Isolation” (precautions applied to contact with moist body substances). Standard precautions, as defined by the CDC, apply to: 1) blood; 2) all body fluids, secretions and excretions, except sweat, regardless of whether or not they contain visible blood; 3) non-intact skin; and 4) mucous membranes.

Transmission-based Precautions: A CDC approach to reducing the risk of transmission of an infectious agent from documented (e.g., culture positive for an infectious agent) or suspected (e.g., culture result unknown or culture not taken) infection or colonization with a highly transmissible or epidemiologically important infectious agent (e.g., MRSA, VRE, etc.). These precautions include three subcategories: (1) Contact Precautions, (2) Droplet Precautions, and (3) Airborne Precautions. For some diseases (e.g., SARS), multiple routes of transmission have been identified and more than one category may be required (e.g., CP plus AP).

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http://health.utah.gov/epi/diseases/HAI/resources/LTCF_IC_Manual.pdf

