

Evidence-Based Best Practices – Infection Control and Prevention

Infection Preventionist

The designated Infection Preventionist (IP) is responsible for coordinating all infection control and prevention program activities, and must have a basic knowledge of:

- Resident care practices
- Infectious diseases, epidemiology and surveillance practices
- Current immunization guidelines
- Disinfection and sterilization processes
- Adult education and communication methods

The IP should complete a basic infection control training course, and have access to continuing education programs to advance his/her knowledge.

Infection Control Committee

A multidisciplinary Infection Control Committee (ICC) is a key element of a facility's infection control and prevention program. The ICC should:

- Provide input on facility-wide infection control and prevention, policies and procedures, and surveillance processes
- Evaluate data obtained through surveillance
- Meet on a regular basis, at least quarterly or more frequently as necessary
- Include, at a minimum, the IP, facility Medical Director, nursing and administrative staff members, as well as representatives from dietary, housekeeping and maintenance
- The pharmacy consultant should attend on an as needed basis



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Policies and Procedures

Evidence-based policies and procedures are the foundation of a facility's infection control and prevention program. Specific policies and procedures should include:

- Roles and responsibilities of facility staff, including the IP
- Identification and management of outbreaks of communicable diseases, including reporting to state or local authorities as required by statute
- Implementation of standard precautions, including hand hygiene and use of alcohol-based hand sanitizer
- Parameters for implementation and discontinuation of transmission-based precautions, including the use of personal protective equipment
- Environmental cleaning and disinfection, including terminal cleaning procedures when transmission-based precautions are discontinued
- Handling and disposal of biohazard waste and single use equipment
- Sanitizing multiple use equipment and supplies, such as blood glucose monitors, stethoscopes and pulse oximetry units
- Handling of soiled linen, including linen from isolation areas
- Collection and handling of laboratory specimens
- Management of exposures to blood-borne pathogens, such as needlesticks, etc
- Kitchen sanitation and safe food handling
- Immunization programs for staff and residents
- Planning for internal and external disaster situations

Surveillance

Essential elements of a surveillance system include:

- Use of standardized definitions and listings of symptoms of infections
- Use of surveillance tools such as infections surveys, data collection templates, walking rounds throughout the facility
- Identify segments of the resident population at risk for infection
- Identify processes or outcomes selected for surveillance
- Conduct statistical analysis of data that can uncover outbreaks of infection
- Feedback of results of surveillance to primary caregivers so they can assess residents for signs of infection



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The facility's surveillance program should choose to either track the prevalence of infections (existing/current cases both old and new) at a specific point, or focus on regularly identifying new cases during defined periods of time.

Education and Staff Training

The facility should commit openly to staff education and identify methods for delivery. Essential conditions for training include:

- Availability of infection control expertise
- Appropriate facilities
- Dedicated budget and time during working hours

Educational supports and documents should include the following concepts:

- Definitions, impacts and burdens of health care-associated infections (HAI)
- Major patterns for transmission of health care-associated pathogens, with a particular focus on hand transmission

Hand Hygiene

All health care workers, particularly those with direct resident contact, require continuous training on the importance of hand hygiene. Staff education should include:

- Basic concepts of hand hygiene, include why, when and how to perform hand hygiene
- Correct techniques for hand washing and use of alcohol-based hand sanitizer

The IP should assess staff compliance with hand hygiene, and implement correction actions. Regular monitoring is helpful to measure and demonstrate changes resulting from training.

Use of Medical Devices

The use of medical devices on more than one person increased the risk for infections. Devices such as blood glucose monitors, blood pressure cuffs, electronic thermometers, stethoscopes are all devices that have the potential to spread infection from one resident to another. Guidelines are in place for the disinfection of these devices (CDC, FDA and CMS).



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- Critical items (such as needles, intravenous catheters, indwelling bladder catheters) are items that normally enter sterile tissue or the vascular system, or through which blood flows. If single use equipment is not used, the item **must** be sterile when used, based on the CDC's sterilization procedures.
- Semi-critical items (such as thermometers, podiatry equipment, electric razors, blood glucose monitors) are objects that have contact with mucous membranes or skin that is not intact. These items require meticulous cleaning followed by high-level disinfection treatment using and FDA approved chemo-sterilizing agent or they may be sterilized.
- Non-critical items (such as stethoscopes, blood pressure cuffs and over-bed tables) are items that come into contact with intact skin or do not contact the resident. These items require low-level disinfection by periodic cleaning, or when visibly soiled, with an EPZ disinfectant detergent or germicide that is approved for health care settings.

Blood Glucose Monitors should be cleaned according to the manufacturer's instructions and the following guidelines:

- Clean and disinfect using germicidal wipes (EPA Reg. No. 67619-12 or equivalent)> A 1:10 bleach solution is also acceptable (1 part bleach to 9 parts water).
- Blood glucose monitors that are shared by multiple residents must be thoroughly wiped with disinfectant and allowed to air dry after every use and between every resident.
- A fresh wipe must be used each time a blood glucose monitor is cleaned.
- Using a disinfectant wipe, cleanse all surfaces, including the top, bottom and sides, ensuring you avoid the bar code scanner and electrical connection.

Blood Pressure Cuffs must be cleaned with a disinfectant wipe between each resident use.

- Allow the cuff to air dry after cleaning.
- A fresh wipe must be used each time the cuff is cleaned.
- Wipe down the entire cuff, including the hose that extends from the cuff to the blood pressure machine.
- Disposable cuffs should be used whenever possible.
- A dedicated blood pressure cuff must be available for any resident on transmission-based precautions, and used only for that resident for the duration of isolation.

Stethoscopes must be cleaned with an alcohol wipe between each resident use.

- Allow the stethoscope to dry before the next use.
- Clean the entire stethoscope, including the ear pieces.
- Whenever possible, use a disposable stethoscope for residents on transmission-based precautions. If disposable stethoscopes are not available, ensure there is a dedicated stethoscope to be used only for that resident for the duration of the isolation.



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Employee Health

The facility must place a major emphasis on promoting the health and well-being of all its employees, including:

- Developing and implementing procedures for staff who are exposed to or diagnosed with communicable diseases
- Developing and implementing procedures for job-related injuries with exposure to blood or body fluids, such as needlesticks, sharps , contact via mucous membranes or contact with non-intact skin (chapped, abraded,etc).
- Develop an immunization program, consistent with the current adult immunization guidelines from the CDC

TB Screening for Staff and Residents

The facility should ensure its procedures for screening of residents and staff are in line with current recommendations from the CDC, including:

- Use of the Tuberculin Skin Test (also known as the Mantoux tuberculin skin test), injecting a small amount of serum intradermally to the lower part of the individual's arm, creating a small wheal. Within 48-72 hours, the injection site is assessed for a reaction to the serum, presenting as a wheal 6mm or larger in diameter.
- TB blood tests can be used to determine if an individual has been exposed to or infected with the bacterium that causes TB.
- If an individual presents with a "positive" skin test, a chest x-ray or sputum sample for culture will be conducted to determine if the individual has an active TB or a latent TB infection.
- If an individual is diagnosed with an active TB infection, treatment will be determined by his/her health care provider.
- Latent TB infections are treated based on the individual's risk factors for developing the active disease, including
 - A weakened immune system due to chronic disease processes such as HIV infection, diabetes mellitus, low body weight, treatment with corticosteroids and treatment for rheumatoid arthritis
 - People who work with or reside with individuals who are at high risk for TB
 - Close contact with a person with infectious TB disease
 - Contact with people from areas of the world with high rates of TB, or travel to those areas

Resident and Staff Immunization Program

Immunization programs protect staff and residents from infectious diseases for which there are recommended vaccines, including:

- Annual influenza vaccination of all staff and residents, unless a medical contraindication is present.
- Pneumococcal vaccination of each resident, according to current CDC immunization guidelines.
- Hepatitis B for staff members without documented evidence of complete series, or who have no serologic evidence of immunity.



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- Varicella vaccination for staff members who have not had Chickenpox, have not previously received the vaccine or who have no serologic evidence of immunity.
- MMR if born in 1957 or later and have not received the MMR, or if no serologic evidence of immunity.
- Tdap – one dose if never received previously. Td boosters should be given every 10 years thereafter.

Staff members should be referred to their physician or other community resources for the Varicella, MMR and Tdap vaccines.

Antimicrobial Stewardship

Antibiotic resistance is a serious public health threat. Antimicrobial stewardship interventions have been proven to improve resident outcomes, reduce the overall burden of antimicrobial resistance and save healthcare dollars. Nursing facilities can:

- Have clear policies and practices that ensure residents are not started on antibiotics unless they are necessary
- Review the facility's microbiology reports and antibiogram to detect trends in antibiotic resistance
- Implement policies that encourage best practices for antibiotic prescribing, including establishment of minimum criteria for prescribing antibiotics and review of antibiotic appropriateness and resistance patterns
- Implement nursing protocols for monitoring residents' status for evolving conditions if there is no specific indication for antibiotics
- Obtain microbiology cultures before starting antibiotics whenever possible to antibiotics can be adjusted or discontinued when appropriate
- Treat with antibiotics only when appropriate, when the practitioner determines on the basis of an evaluation that the most likely cause of the resident's symptoms is a bacterial infection.
- Use antibiotics only for as long as necessary to treat infections, minimize risk or relapse or control active risk to others
- Avoid use of antibiotics to treat colonization
- Avoid use of antibiotics to treat viral illnesses such as cold, influenza and viral gastroenteritis
- Engage residents and family members in addressing the need to improve antibiotic use in the facility

Food Service/Kitchen Sanitation

Unsafe food handling practices can increase the risk of for pathogen exposure to residents. Sanitary conditions must be present to promote safe food handling.



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Categories of food contamination include:

- Biological – involving pathogens such as bacteria, viruses, toxins and spores
- Chemical – from cleaning supplies or other common chemical used by staff
- Physical – contamination from foreign objects such as fingernails, hair and metal shavings

Tips for preventing foodborne illnesses include:

- Proper food handling and storage – cooking to 165 degrees F, and maintaining proper holding temperatures of hot foods, keeping cold foods at appropriate holding temperatures (including snacks between meals and at bedtime)
- Keeping employees free of communicable diseases
- Follow hand hygiene guidelines, use gloves when indicated
- Wear hair restraints, avoid jewelry and keep nails clean and neat
- Store chemical products, including cleaning supplies, separately from food items

Disease Specific Issues

MDROs are microorganisms, generally bacteria, that are resistant to one or more classes of antimicrobial agents. MDROs include:

- Methicillin-resistant Staphylococcus Aureus (MRSA)
- Vancomycin-resistant Enterococci (VRE)
- Carbapenem-resistant Enterobacteriaceae (CRE)
- Extended Spectrum Beta Lactamase Producers (ESBLs)

If a resident tests positive for an MDRO, specific precautions should be put into place to prevent the spread of infection to other residents. Contact precautions should be implemented until the resident is treated, and test negative for the pathogen. Contact precautions include:

- Wearing gloves at all times when caring for the resident or the residents belongings
- Wearing a gown on entering the resident's room
- Performing hand hygiene after any contact with the resident. And when gown and gloves are removed
- All personal protective equipment should be removed prior to leaving the resident's room

Residents who are colonized with an MDRO should remain on contact precautions. Transportation of the resident should be limited and the affected area should be covered prior to transport. Dedicated resident care equipment (such as blood pressure machines/cuffs, stethoscope) should remain in the resident's room for the duration of transmission based precautions. Any equipment that cannot be dedicated to one specific resident must be properly disinfected after use on an infected resident.



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Clostridium Difficile (C. diff) is a bacterium that can cause multiple and sometimes severe symptoms in residents who have been on prolonged courses of antibiotics. C. diff is commonly spread by person-to-person contact, so any resident diagnosed with C. diff should be placed on contact precautions, including:

- Proper hand hygiene
- Use of personal protective equipment as necessary
- Disinfection of resident rooms and equipment thoroughly with a bleach/water solution

Antimicrobial stewardship is an important measure in preventing C. diff infections; antibiotics should be used only when medically necessary. Residents and their families should be educated about the ways C. diff can be transmitted and the use of contact precautions.

Seasonal Influenza and Pneumococcal Disease – additional information regarding current immunization guidelines can be found at <http://www.dads.state.tx.us/providers/qmp/evidence-based-best-practices/nursing-facilities/vaccinations.html>

Subject matter expertise provided by: The Centers for Disease Control and Prevention (CDC), AMDA; The Society for Post-Acute and Long-Term Care Medicine and APIC: The Association for Professionals in Infection Control and Epidemiology

Quality Monitoring Program <http://www.dads.state.tx.us/providers/qmp/evidence-based-best-practices/nursing-facilities/infection-control.html>

