Staff Educational Training Program and Toolkit

Infection Control and Prevention

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TEXAS
Health and Human Services

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Introduction

Overview and Impact of the Problem, and Those Affected

Healthcare-associated infections (HAI) can lead to significant illnesses and even death among residents of long-term care facilities. One to three million serious infections occur each year in long-term care facilities, with approximately 380,000 infection-related deaths annually. HAIs are responsible for nearly half of all transfers from nursing facilities to hospitals, leading to between 150,000 to 200,000 hospital admissions each year. When a nursing facility resident is hospitalized with a primary diagnosis of infection, the mortality rate can be as high as 40 percent, with pneumonia being the leading cause of death.[1]

Reason for the Toolkit

To effectively prevent HAIs, the facility's Infection Prevention and Control Program (IPCP) must address all areas of the facility and all disciplines. The facility should use a systems-based approach when evaluating and updating their IPCP.

This toolkit will provide NF staff with information and resources for developing an effective IPCP. Facilities will be able use this toolkit to evaluate their current IPCP and staff education processes, identifying areas that need improvement and resources that can help the facility strengthen the program.

Orientation to the Toolkit

This toolkit will provide NFs with information that can help them develop effective IPCPs, including:
- Operational and Administrative functions;
- Surveillance Processes;
- Antibiotic stewardship program;
- Hand hygiene;
- Appropriate use of PPE;
- Resident immunization practices and pneumococcal vaccines;
- Notifiable conditions and how to report;
- Preventing UTIs;
- Federal Regulations; and
- Evidence-based resources.

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[1] Centers for Disease Control and Prevention. Nursing Homes and Assisted Living (Long-Term Care Facilities): https://www.cdc.gov/longtermcare/index.html

Root Cause Analysis (RCA)

To use this toolkit effectively, the NF should conduct an evaluation of their current IPCP, identifying opportunities for improvement and completing a root cause analysis[2] (RCA) related to any issues noted during the evaluation. RCA can be an early step in a performance improvement project (PIP), helping to identify what needs to be changed to improve performance. Once the changes that need to be made are identified, the steps that are followed are the same as those that would be used in any type of PIP.

Seven Steps to RCA

Use the following steps to walk through a RCA to investigate problems/situations:

1. Identify the problem/situation to be investigated and gather preliminary information: Problems/situations can be the result of many different things. There should be a process in place to determine which problems/situations will undergo an RCA.
2. Charter and select team facilitators and team members: Leadership should provide a project charter to launch the team. The facilitator is appointed by leadership. The team members involved should be those with personal knowledge of the processes and systems involved in the problem/situation that is being investigated.
3. Describe what happened: Collect and organize the facts related to the problem/situation to fully understand what happened.
4. Identify the contributing factors: Determine what other situations, circumstances, or conditions increased the likelihood of the problem/situation.
5. Identify the root cause: A thorough analysis of contributing factors leads to identification of the underlying process and system issues (root causes) of the problem/situation.
6. Design and implement changes to eliminate the root causes: The team works together to determine how best to change processes and systems to reduce the likelihood of another similar problem/situation.
7. Measure the success of changes: Like all improvement projects, the success of improvement actions needs to be evaluated.

RCA Tools

There are many tools that can be used when conducting RCA. The tool you ultimately use depends on which one works best for the current problem/situation. These tools include:

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[2] Guidance for Performing Root Cause Analysis (RCA) with Performance Improvement Projects (PIPs).
https://www.cms.gov/medicare/provider-enrollment-and-certification/qapi/downloads/guidanceforrca.pdf

1. Five Why Analysis[3]: A tool to drill down to the root cause of a problem by asking "why" five times. The purpose of the 5 Why's is not to arrive at a single root cause but to uncover as many contributing why's as possible, as most complex healthcare problems are multifactorial.
2. Brainstorming[4]: Bringing together a group of people to jointly discuss the problem/situation in a facilitated manner. It is important that the individuals brainstorming have some knowledge about the problem/situation. It is important to encourage as much participation as possible. When facilitating brainstorming it is best to have a flip chart and markers, but it can be done with a white board and have someone take notes of what was recorded. Be sure to go around the room and ask each person to throw out an idea without having anyone else comment (positively or negatively) on the idea. The faster you move, the more the participants will add ideas and be encouraged to speak up. The wilder the better, because you never know which idea may be THE ONE that is the solution. Silent brainstorming works as well to generate ideas. Give the team a pad of paper or sticky notes and ask them to write down all of their ideas, one on each page. Collect all of the papers and work with the team to group similar ideas and confirm meanings to anything that might not be clear.
3. Fishbone Diagram[5]: Also known as a cause and effect diagram, this tool can be used to identify the many possible causes for a problem. Using a fishbone diagram allows for ideas to be sorted into useful categories.

Additional information and resources related to RCA are available through the Institute for Healthcare Improvement (IHI). The Quality Improvement Essentials Toolkit[6] can be accessed here: http://www.ihi.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx. Registration is required to access the toolkit.

Once the RCA has been completed, processes must be put into place to eliminate the root cause of the problem/situation. This can best be accomplished through the use of Evidence-Based Practices (EBP).

RCA Example

The Health Services Advisory Group (HSAG) developed this Quality Assurance & Performance Improvement (QAPI) case study related to urinary tract infections in a nursing facility: https://www.hsag.com/contentassets/65bc6d984f18427c9b694beb8095a05f/infection-control-qapi-case-study_508.pdf. It describes the QAPI process, including using a fishbone diagram to conduct a RCA.

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[3] Determine the Root Cause: 5 Whys. https://www.isixsigma.com/tools-templates/cause-effect/determine-root-cause-5-whys/
[4] DADS Quality Monitoring Conference April 2014. Melody Malone-Brainstorming.
[5] Fishbone (Ishikawa) Diagram http://asq.org/learn-about-quality/cause-analysis-tools/overview/fishbone.html
[6] Institute for Healthcare Quality Improvement: Quality Improvement Essentials Toolkit. http://www.ihi.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx

Organizational Change

Changes made to facility processes related must be sustainable. The best way to ensure sustainability is to make the changes at the system level versus the person level. As you continue below, you will find how this can best be accomplished.

System Change vs. Person Changes

As change begins to be implemented in your facility, it is important that the change is made at a systemic level and not just the staff level. What does this mean? Well it quite simply means that it is not enough to only train the staff on the changes that are being made throughout the NF, but to put in to place policies and procedures that reflect those changes as well. When an NF experiences staff turnover, change that has been made at the staff level tends to be lost as a result.

The only effective way to ensure that the change will be maintained is to imbed it throughout the NF policies and procedures that detail the way that the NF will operate. How can an NF best put practices into operation? To guide the changes that will be needed, ask the following four questions[7]:

1. How do we manage the change process at the front line? Staff will need to understand their new roles and have the knowledge and resources to carry them out. To manage the change process effectively, an Implementation Team will need to guide, coordinate, and support the implementation efforts as the new practices roll out across the NF.

2. How do we put in to place new practices? It may be helpful to begin the change process in just one area of the NF to determine if it will be effective before rolling it out facility-wide. If changes need to be made, they get made prior to NF wide roll-out. Once the change has been rolled out across the NF, observe for problems or issues that may hamper successful implementation of the change.

3. How do we get staff engaged and excited about the changes? Engaging the buy-in, commitment, and ongoing participation of staff members is particularly important for staff who are involved in hands-on care and whose involvement will be needed to achieve implementation of the change. An important aspect of engaging staff and is key to success in any change made at a systemic level is clear communication. Be sure staff know the change is coming and are familiar with the available resources and their new roles prior to the change taking place.

4. How can we help staff learn new practices? Once the initial change takes place, assess what educational needs staff have. Providing this education will enhance their knowledge. Any and all plans for new staff education related to the

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[7] Preventing Pressure Ulcers in Hospitals.
https://www.ahrq.gov/professionals/systems/hospital/pressureulcertoolkit/putool4a.html

changes being made in the NF should be worked out in close collaboration with experts on the content.

The most important concept in organizational change is to ensure that it is sustainable. This can only happen if the change is made at the system level in the form of policies and procedures, as these will not leave the NF as turnover happens like it will if the changes are made at the staff level.

Empowerment

As you work through making changes in your facility to improve the quality of care for your residents, it is important that your staff feel empowered to assist in the implementation of the changes. As you read through the below, information will be provided to you defining what empowerment is and the benefits that it will have on your staff.

Empowerment is a practice of sharing information, rewards, and power with employees so that they can take initiative and make decisions to solve problems and improve service and performance. The concept of empowerment is based on the idea that giving employees skills, resources, authority, opportunity, motivations, as well as holding them responsible and accountable for outcomes of their actions will contribute to their competence and satisfaction. Empowering staff gives them a:

- Sense of meaning - the staff cares about what they are doing and ultimately, they feel as if their work is important.
- Sense of competence - staff members are confident in their abilities to do their job. They are trusted to do their job right.
- Sense of determination - they are able to choose how to do the work that they have been assigned to do and they are determined to do a good job for their residents.
- Sense of impact - the work they are doing has a positive impact on the lives of their residents as well as their own. They ultimately become comfortable taking risks to improve day-to-day operations.
- Sense of ownership, commitment, and teamwork - no one staff member works by him/herself; everyone works together to ensure the best care is given. Peers are comfortable with challenging each other to be the best they can be.
- Tolerate imperfections - understanding that as humans, mistakes are inevitable and that no one is perfect.
- Accountability - being accountable for the choices one makes, understanding that in many instances, the results of the choices made can be used as learning opportunities for the future.

Empowerment can't be delegated. It is possible to develop an empowering environment where people will take the initiative to empower themselves. Changes are seen as opportunities for growth.

Aging and the Immune System

With aging comes a decline in immune function (immunosenescence), including less efficient immune response to pathogens and a decrease in the efficacy of immunizations.[8] Other factors may also influence older adults' ability to respond to infections, including:

- Malnutrition;
- Polypharmacy, especially medications that can further reduce immune responses;
- Fecal and/or urinary incontinence;
- Immobility;
- Decreased cough reflex; and
- Cognitive impairments that can decrease compliance with basic hygiene practices such as handwashing.

Having a diminished immune response is only one of factors that increase the risk of infection in older adults. Other risk factors include:

- Close quarter living;
- Reduced responsiveness to vaccinations;
- Multiple comorbid diseases such as diabetes mellitus and chronic obstructive pulmonary disease; an
- Degenerative diseases that require the use of prosthetic devices (e.g., joint prostheses, implantable cardiac devices).

More frequent use of invasive devices in nursing facility residents (such as central venous lines, mechanical ventilators, urinary catheters, and enteral feeding tubes), along with higher resident acuity can increase the likelihood of HAIs.

Common Infections in Nursing Facilities

Among the infections experienced by NF residents, the most common are:

- Pneumonia
- Urinary tract infections
- Diarrheal illnesses (i.e., norovirus, *C. difficile*)
- Skin and soft tissue infections

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[8] Immunology. Immunosenescence: emerging challenges for an ageing population, 2007. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2265901/

Pneumonia[9]

Pneumococcal infections are caused by a bacterium, *Streptococcus pneumoniae*. *S. pneumoniae* can lead to a number of illnesses, ranging from ear infections to meningitis. Adults aged 65 years and older have a higher risk for pneumococcal disease, including pneumococcal pneumonia – an infection of the lungs.

An estimated 900,000 Americans are diagnosed with pneumococcal pneumonia each year, with as many as 400,000 hospitalizations due to pneumonia. Approximately 5-7 percent of those who require hospitalization due to pneumococcal pneumonia will die from the illness.

Urinary Tract Infections

Urinary tract infections (UTIs) are among the most common infections reported in nursing facilities. UTIs are bacterial infections of the upper or lower urinary tract; common pathogens include:
- *E. coli*
- *Klebsiella pneumoniae*
- *Proteus mirabilis*
- *Pseudomonas aeruginosa*
- *Staphylococcus aureus*
- *Enterococcus*

UTI is the most common indication for antibiotics, leading to between 32 to 66 percent of prescriptions in NFs.[10]

Diarrheal Illnesses

The most common diarrheal illnesses in NFs are viral and bacterial gastroenteritis. Older adults are at higher risk for these infections, due to a decrease in the production of gastric acid. In healthy adults, these illnesses may be self-limiting, but in older adults can increase the risk of complications, including death – usually related to dehydration. Viruses and bacteria that commonly lead to diarrheal illnesses include:
- Norovirus
- *Clostridium difficile*
- *Escherichia coli (E. coli)*
- Salmonella

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[9] Centers for Disease Control and Prevention. Pneumococcal Disease.
https://www.cdc.gov/pneumococcal/about/facts.html
[10] University of Rochester Medical Center. Managing Common Infections in Older Adults.
http://www.rochesterpatientsafety.com/Images_Content/Site1/Files/Pages/Nursing%20Homes/Managing%20Common%20Infections%20in%20Older%20Adults.pdf

Skin and Soft Tissue Infections

A number of changes occur in the skin and soft tissues with aging, including dry skin, a loss of elasticity, and a decrease in fat deposits in the subcutaneous tissues. These changes (in addition to immunosenescence) can increase the risk of developing skin and soft tissue infections.

Acute bacterial infections can include surgical wound infections, cellulitis or necrotizing fasciitis. Chronic wound infections are more common, and can include:
- Infected pressure injuries
- Diabetic wound infections
- Infected vascular ulcers

Common viral wound infections include herpes zoster (shingles) and herpes simplex (cold sores, fever blisters). In addition, scabies infestations can occur, and may lead to secondary bacterial infections.

Section 3: Operational and Administrative Functions

The operational and administrative functions below help lay the foundation for the facility's IPCP.

Infection Control Committee

The Infection Control Committee (ICC) provides oversight on facility wide infection prevention and control policies and procedures, surveillance processes and evaluation of the data acquired through surveillance. At a minimum, the committee should include:

- IP;
- Medical Director;
- Nursing and administrative staff members;
- Representatives of ancillary departments as needed, such as physical therapy, dietary, housekeeping and maintenance; and
- Pharmacy consultant as needed.

The ICC should meet on a regular basis, at least quarterly or more frequently as necessary. Note: under the Texas Administrative Code (TAC) Title 40, Part 1, Chapter 19, §19.1601 Infection Control, the facility's Quality Assessment and Assurance (QAA) Committee is responsible for monitoring the infection prevention and control program.

An annual evaluation of the facility's infection prevention and control program will ensure all necessary elements are included in the IPCP, and guide revisions to the plan and/or policies and procedures as needed.

Facility Infection Risk Assessment

An infection risk assessment is a building block for a facility's Infection Prevention and Control program. The assessment should be based not only on issues identified within the facility, but also characteristics of the wider community. The infection risk assessment should be reviewed at least annually, or with any significant occurrences (outbreaks, natural disasters, etc.), and revised as necessary. This could be completed in conjunction with the facility assessment required by F838 - §483.70(e).

Components of an effective infection risk assessment include:

- Characteristics of the resident population, including their healthcare needs;
- Infection risks in the community, such as communicable diseases that could have an effect on the facility, its staff, and the residents;

- Any invasive medical devices used in the facility (such as endotracheal tubes, intravenous lines, indwelling catheters, enteral feeding tubes), how often they are used;
- Baseline infection rates for the facility, including those related to invasive medical devices;
- Immunization activities in the facility (including immunization promotion campaigns), and immunization rates (residents and staff) for recommended immunizations;
- Hand hygiene policies and procedures, and compliance with hand hygiene requirements (staff, visitors and residents);
- Implementation of transmission-based precautions, including the frequency of use, any barriers to effective implementation that have been identified;
- Antimicrobial stewardship program;
- Processes for cleaning and disinfection both hard and soft surfaces throughout the facility; and
- Emergency preparedness plans – outbreaks, natural or man-made disasters, etc.

There is no single required method or tool for conducting the infection risk assessment, but standardized tools are available and can assist in the process:
- CDC Infection Prevention and Control Assessment Tool for Long-term Care Facilities. https://www.cdc.gov/infectioncontrol/pdf/icar/ltcf.pdf.
- APIC Long Term Care Risk Assessment (included with the Infection Preventionist's Guide to Long-Term Care) available for purchase at https://rise.apic.org/WEB/ItemDetail?iProductCode=SLS6008&Category=BOOKS
- Statewide Program for Infection Control and Epidemiology (SPICE) Risk Assessment for LTC Template https://spice.unc.edu/resources/template-risk-assessment-for-ltc/.

Although developed for the acute care setting, this presentation from the Texas Society of Infection Control and Prevention (TSICP) contains relevant information that can assist in conducting a facility infection risk assessment: http://www.tsicp.org/web_documents/tsicp_risk_assess_dev_surveillance_plan_2014.pdf.

Infection Preventionist

An Infection Preventionist (IP) is responsible for coordinating all IPCP activities. The IP should have basic knowledge of:
- Resident care practices;
- Infectious diseases and epidemiology;
- Surveillance and data collection;
- Current immunization guidelines;
- Disinfection and sterilization processes; and
- Adult education and communication methods.

If at the time of employment, the IP does not have the formal training necessary to effectively manage the facility's infection prevention and control program, obtaining that training should be a priority upon hire. The facility should maintain documentation of the IP's relevant education and competency to manage the program.

The IP should complete a basic infection control training course and have access to continuing education programs to advance his/her knowledge and skills. A variety of resources can be utilized for expanding the IP's knowledge base, including:
- Peer networking, meetings of professional societies such as APIC or TSICP;
- Review of published literature (reputable peer-reviewed journals, guidelines and standards); or
- Formal education programs.

The CDC and CMS recently developed an online "Nursing Home Infection Preventionist Training" program. Consisting of 15 modules, the training provides training for individuals responsible for the IPCP in nursing facilities. The training can be accessed at https://www.train.org/cdctrain/training_plan/3814.

The Association for Professionals in Infection Control and Epidemiology (APIC) has developed an Infection Preventionist Competency Model, outlining the skills needed by an IP to progress from novice to expert in the field of infection prevention and control. Core competencies are divided into four domains:
- Leadership and Program Management: Collaboration, Followership, Program Management, Critical Thinking Skills, Communication.
- Infection Prevention and Control: Epidemiology and Surveillance, Risk Assessment, Risk Reduction and Infection Prevention, Use and Interpretation of Diagnostic Tests, Antimicrobial Stewardship, Education, Research.
- Technology: Information Technology Support, Surveillance Technology, Electronic Medical Records (EMR)/Electronic Data Warehouse (EDW).
- Performance Improvement (PI) and Implementation Science: Identification of Need for PI, Assembly of PI Team, Tools and Methods, Implementation, Measuring Success.

For more information about the APIC IP Competency Model, visit https://apic.org/Professional-Practice/Infection_preventionist_IP_competency_model.

While not required, certification in infection prevention and control demonstrates expertise. Per APIC, "Certification represents the bridging point between novice and proficient." The Certification in Infection Control (CIC) is the most recognized form of certification for professionals in infection prevention and control. More

information about the CIC is available at https://apic.org/Education-and-Events/Certification and http://www.cbic.org/.

Other options for IP certification include:
• American Health Care Association (AHCA) Infection Preventionist Specialized Training - https://educate.ahcancal.org/p/ipco.
• National Association of Directors of Nursing – https://www.nadona.org/product/infection-prev-ip-bc-certification/

The IP's role should be outlined in a job description; the facility's risk assessment and infection prevention and control plan will inform the specific responsibilities of the IP. Specific job duties could include:
• Collecting and reporting data related to the facility's IPCP and activities;
• Developing and implementing surveillance processes using standard methodologies and current definitions/case criteria (such as McGeer, Constitutional Criteria, NHSN);
• Investigating and managing outbreaks of infectious illnesses;
• Implementing appropriate infection prevention and control measures;
• Reporting notifiable conditions (including outbreaks) to the appropriate local/state authorities;
• In consultation with the Infection Control Committee, developing, reviewing and revising the facility's infection prevention and control plan, and policies and procedures;
• Monitoring staff adherence to policies and procedures;
• Involvement in decision-making regarding disinfection and cleaning agents for the facility; and
• Planning, developing and presenting educational programs.

Note: F882 Infection Preventionist Qualifications/Training will be implemented November 2019 (Phase III). Currently, interpretive guidance is not available for F882.

Policies and Procedures

A successful IPCP requires written policies and procedures that provide guidance for all facility staff. Policies and procedures should be facility specific and evidence-based, addressing the needs of the facility, the resident population served, and the risks associated with the wider community. Policies and procedures must be reviewed and revised at least annually to ensure adherence with current infection control and prevention standards and guidelines.

Policies and procedures should include, but are not limited to:
• Roles and responsibilities of facility staff, including the IP;
• Identification and management of outbreaks of infectious diseases, including reporting to state or local authorities as required by statute;

- Implementation of standard precautions;
- When and how to implement and discontinue transmission-based precautions, and the appropriate use of personal protective equipment;
- Environmental cleaning and disinfection, including terminal cleaning procedures of isolation rooms;
- Handling and disposal of biohazard waste and single use equipment;
- Sanitizing multiple use equipment and supplies - blood glucose monitors, stethoscopes, pulse oximetry, etc.;
- Laundry – handling soiled linen;
- Hand hygiene procedures, including appropriate use of hand sanitizer;
- Immunization programs and tracking for staff and residents;
- Collection and handling of laboratory specimens;
- Management of exposure to blood-borne infections – needlestick, spills, etc.;
- Kitchen sanitation and safe food handling; and
- Planning for internal and external disaster situations.

Section 4: Surveillance Processes

Essential elements of a surveillance system include the use of standardized definitions and listings of the symptoms of infections, use of surveillance tools such as infection surveys and data collection templates, walking rounds throughout the facility, identification of segments of the resident populations at risk for infection, identification of the processes or outcomes selected for surveillance, statistical analysis of data that can uncover an outbreak, and feedback of results to the primary caregivers so that they can assess the residents for signs of infection.

To be effective, a facility's surveillance program must collect data that is accurate, timely and useful for identifying trends and selecting appropriate interventions to prevent and control infections. Several methods are available for conducting surveillance; the facility should choose the appropriate methods that meet the needs of the facility and its staff, residents and community. When selecting the types of surveillance activities that will be conducted, the facility should consider time and available resources, targeting specific issues identified in the infection risk assessment and program goals.

Surveillance can be performed both prospectively and retrospectively. Prospective surveillance, when data is collected in real time, is preferred over retrospective surveillance, when data is reviewed after the fact.

Types of Surveillance Activities[11, 12]

- Electronic surveillance processes, such as the CDC NHSN LTC Component.
- Comprehensive (or house-wide) Surveillance: Looks at all infections, antimicrobial usage and all lab reports.
- Outbreak Surveillance: Depending on the infection/pathogen, a single case can represent an outbreak. Outbreak surveillance allows for rapid detection of an outbreak, and implementation of interventions to contain the outbreak and prevent the spread of an illness.
- Process Surveillance: Reviews facility practices related to resident care to determine whether they comply with established policies and procedures and recognized guidelines. Examples of this type of surveillance include: monitoring compliance with standard precautions, transmission-based precautions, proper insertion of urinary catheters, immunization requirements, safe injection practices, and cleaning and disinfection of environment and resident care equipment.

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[11] CMS. State Operations Manual, Appendix PP. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf
[12] CDC. National Healthcare Safety Network (NHSN). https://www.cdc.gov/nhsn/about-nhsn/index.html

- Outcome Surveillance: Collecting and documenting data on individual infection occurrences and comparing the collected data to standard written definitions (criteria) of infections. The IP or other designated staff reviews data (including residents with fever or purulent drainage, and cultures or other diagnostic test results consistent with potential infections) to determine incidence/prevalence rates and detect clusters and trends.

Surveillance Definitions[13]

Surveillance definitions identify conditions that qualify as infections for the purpose of data collection; surveillance definitions are not intended for real-time diagnosis of infections or for making a decision about initiation of antibiotics. Using surveillance definitions consistently and accurately impacts data analysis and calculating infection rates. Inaccuracies or changes in surveillance definitions used can alter surveillance results and make it difficult to compare current and historical data (identifying trends).

In 2012, the Society for Healthcare Epidemiology in America (SHEA) and the CDC release updated surveillance definitions for long-term care facilities (formerly known as the McGeer Criteria). More information is available at http://www.jstor.org/stable/pdf/10.1086/667743.pdf?refreqid=excelsior%3A0cf413 3b334b0cd7692b2c3643874547.

For example:
Surveillance Definitions for Urinary Tract Infections (UTIs):
A. For residents without an indwelling catheter (both criteria 1 & 2 must be present)
　1. At least 1 of the following sign or symptom subcriteria
　　a. Acute dysuria or acute pain, swelling or tenderness of the testes, epididymis, or prostate
　　b. Fever or leukocytosis and at least 1 of the following localizing urinary tract subcriteria
　　　- Acute costovertebral angle pain or tenderness
　　　- Suprapubic pain
　　　- Gross hematuria
　　　- New or marked increase in incontinence
　　　- New or marked increase in urgency
　　　- New or marked increase in frequency
　　c. In the absence of fever or leukocytosis, then 2 or more of the following localizing urinary tract subcriteria
　　　- Suprapubic pain

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[13] SHEA. Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria. https://www.jstor.org/stable/pdf/10.1086/667743.pdf?refreqid=excelsior%3A0cf4133b334b0cd7692b2c36438745 47

- Gross hematuria
- New or marked increase in incontinence
- New or marked increase in urgency
- New or marked increase in frequency

2. One of the following microbiologic subcriteria
   a. At least 10^5 cfu/mL if no more than 2 species of microorganisms in a voided urine sample
   b. At least 10^2 cfu/mL of any number of organisms in a specimen collected by in-and-out catheter

B. For residents with an indwelling catheter (both criteria 1 & 2 must be present)
   1. At least 1 of the following sign or symptom subcriteria
      a. Fever, rigors, or new-onset hypotension, with no alternate site of infection
      b. Either acute change in mental status or acute functional decline, with no alternate diagnosis and leukocytosis
      c. New-onset suprapubic pain or costovertebral angle pain or tenderness
      d. Purulent drainage from around the catheter or acute pain, swelling, or tenderness of the testes, epididymis, or prostate
   2. Urinary catheter specimen culture with at least 10^5 cfu/mL of any organism(s)

Nursing facilities may opt to participate in the CDC's National Healthcare Safety Network (NHSN). NHSN provides facilities with a customized system to track infections; on a national level, the data entered into the system will help gauge progress towards national goals for preventing healthcare-associated infections. NHSN includes surveillance for:
- *C. difficile*, MRSA, and other drug-resistant organisms;
- Urinary tract infections;
- Prevention process measures, such as hand hygiene and use of gloves/gowns;
- Healthcare personnel exposure; and
- Healthcare personnel immunizations.

More information, including instructions for completing the enrollment process, is available on the CDC NHSN webpage: https://www.cdc.gov/nhsn/ltc/index.html.

Section 5: Antibiotic Stewardship

While penicillin was first discovered in 1928, it was not widely distributed until the 1940s. It was first used extensively during World War II to treat surgical and wound infections in Allied troops, and at the time it was considered a "miracle drug." However, in his Nobel Lecture in 1945, Alexander Fleming warned the scientific community about the potential for resistance: "It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them, and the same thing has occasionally happened in the body."

Antibiotic resistance is a serious public health threat. In 2013, CDC published a report outlining the top drug-resistant threats to the United States, and categorized those threats based on the level of concern:[14]

- Urgent: C. difficle, Carbapenem-Resistant Enterobacteriaceae (CRE), Neisseria gonorrhoeae
- Serious: Multidrug-Resistant Acinetobacter, Drug-Resistant Campylobacter, Fluconazole-Resistant Candida, Extended Spectrum Enterobacteriaceae (ESBL), Vancomycin-Resistant Enterococcus (VRE), Multidrug-Resistant Pseudomonas Aeruginosa, Drug-Resistant Non-Typhoidal Salmonella, Drug-Resistant Salmonella typhi, Drug-Resistant Shigella, Methicillin-Resistant Staphylococcus aureus (MRSA), Drug-Resistant Streptococcus pneumoniae, Drug-Resistant Tuberculosis
- Concerning: Vancomycin-Resistant Staphylococcus aureus, Erythromycin-Resistant Group A Streptococcus, Clindamycin-Resistant Group B Streptococcus

Antibiotics are among the most commonly prescribed medications in NFs. Up to 70 percent of nursing home residents have received at least one course of a systemic antibiotic in a year, and some studies have shown that between 40–75 percent of the antibiotics prescribed may be unnecessary or inappropriate.

Antibiotic-related complications, such as diarrhea from *C. difficile*, can be more severe, difficult to treat, and lead to more hospitalizations and deaths among people over 65 years, and nursing home residents are particularly at risk for these complications. Antibiotic stewardship interventions have been proven to improve individual patient outcomes, reduce the overall burden of antibiotic resistance, and save healthcare dollars.

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[14] CDC. Antibiotic/Antimicrobial Resistance. https://www.cdc.gov/drugresistance/biggest_threats.html

Core Elements

The CDC adapted the "Core Elements of Hospital Antibiotic Stewardship" to meet the unique needs of nursing facilities. Implementation of each element will vary from facility to facility, based on available staffing and resources. The CDC encourages nursing homes to start gradually; implementing one or two activities in the beginning, then expanding the program by adding new elements over time.

Below is a summary of the CDC Core Elements; the complete document is available for download at https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship.pdf.

- Leadership Commitment: Includes owners, administrators, corporate leadership; demonstrating their support and commitment to safe and appropriate antibiotic use in the facility.
  - o Written statements of support for improving antibiotic use, to be shared with staff, residents and family members;
  - o Include antibiotic stewardship-related duties in the job/position descriptions for the facility's medical director, consultant pharmacist and clinical nursing leads;
  - o Communicate with nursing staff and prescribers the expectations for the use of antibiotics and any monitoring/enforcement of stewardship policies; and
  - o Create a culture that promotes antibiotic stewardship – messaging, education and celebrating improvements.
- Accountability: Identify physician, nursing and pharmacy leads to promote and oversee antimicrobial stewardship activities in the facility.
  - o Empower the Medical Director to set standards for antibiotic prescribing practices for all prescribers, and to be accountable for overseeing adherence to those practices.
  - o Empower the Director of Nursing to set practice standards for assessing, monitoring and communicating changes in condition by direct-care staff; the information shared, and how it is communicated can influence decision-making by the prescriber.
  - o Engage the Consultant Pharmacist in supporting antibiotic stewardship oversight; for example, through medication regimen review and reporting of antibiotic use data.
  - o Utilize existing resources to support antibiotic stewardship activities, including:
    - ✓ Infection Preventionist;
    - ✓ Consultant laboratory; and
    - ✓ State and local health departments.
- Drug Expertise: Establish access to individuals with expertise or training in antimicrobial stewardship (consultant pharmacists, physicians, etc.).
  - o Work with a consultant pharmacist with specialized training in infectious diseases or antibiotic stewardship.
  - o Partner with antibiotic stewardship program leads at hospitals in the area.

- o Develop relationships with infectious disease consultants in the community.
- Action: Implement at least one policy or practice to improve antibiotic use in the facility. Prioritize interventions based on the facility's needs and share outcomes of those interventions with nursing staff and prescribers (including the successes achieved).
  - o Develop policies and procedures that support optimal antibiotic use.
  - o Implement broad interventions to improve antibiotic use. Standardize practices that should be applied when an infection is suspected or when antibiotics are being started.
  - o Pharmacy interventions to improve antibiotic use. Integrate the consultant pharmacist (and dispensing pharmacist is different) into the clinical care team; they can provide assistance in ensuring antibiotics are ordered appropriately, in reviewing culture data and in monitoring antibiotic usage.
  - o Implement infection and syndrome specific interventions to improve antibiotic use. Identify those clinical situations that may be driving inappropriate antibiotic use, such as asymptomatic bacteriuria or UTI prophylaxis.
- Tracking: Monitor at least one process measure of antibiotic use and at least one outcome from antibiotic use in your facility.
  - o Tracking how and why antibiotics are prescribed. Review of clinical records to determine if the use of an antibiotic was in accordance with the facility's antibiotic use policies and procedures.
  - o Tracking how often and how many antibiotics are prescribed. Review patterns of use and determine the impact of antibiotic stewardship activities. Some measures include nursing facility initiated antibiotic starts, days of therapy.
  - o Tracking adverse outcomes related to antibiotic use. This would include rates of *C. difficile* infections, antibiotic-resistant organisms, or other adverse drug effects.
- Reporting: Providing regular feedback to prescribing clinicians, nursing staff and others regarding antibiotic use and resistance in the facility.
- Education: Providing resources to clinicians, nursing staff, residents/family members about antibiotic resistance and opportunities for improving antibiotic use practices.
  - o For staff, this could include flyers, pocket guides, and newsletters; however, interactive workshops have the strongest evidence for improving antibiotic prescribing practices.
  - o Link education to feedback to physicians on prescribing practices.
  - o Engage residents and their family members in the process as well.

Companion documents to the CDC Core Elements include:
- Appendix A: Contains more detailed information on policy and practice actions that nursing homes can take as they implement antibiotic stewardship programs: https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-a.pdf.

- Appendix B: Provides additional information of process and outcomes measures that facilities can use to track and monitor the impact of antibiotic stewardship activities: https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-b.pdf.
- Core Elements Checklist: Can use as a baseline assessment, and to evaluate progress as stewardship interventions are implemented: https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-checklist.pdf.

Policies and Procedures[15]

The facility must have clear policies and practices to ensure that residents are not started on antibiotics unless clinically indicated.
- Antibiotic prescribing and use policies:
    - Establish minimum criteria for prescribing antibiotics and review of antibiotic appropriateness and resistance patterns.
    - Treatment with antibiotics is only appropriate when the practitioner determines, on the basis of an evaluation, that the most likely cause of the residents' symptoms is a bacterial infection.
    - Documentation of dose, duration and indication.
    - Use antibiotics only for as long as needed to treat infections, minimize the risk of relapse, or control active risk to others. Antibiotics are generally not indicated to treat colonization.
        - ✓ Reduce antibiotic use for UTI prevention (prophylaxis).
    - Avoid use of antibiotics to treat viral illnesses such as colds, influenza, and viral gastroenteritis.
    - Establish best-practices for use of microbiology testing.
        - ✓ Avoid use of antibiotics in asymptomatic bacteriuria.
        - ✓ Optimize use of superficial cultures when managing chronic wounds.
    - Develop facility-specific treatment recommendations.
    - Review antibiotic agents available in the facility.
- Develop and implement algorithms for assessment of residents suspected of having an infection.
    - Utilize a communication tool for residents suspected of having an infections (such as SBAR for UTIs).
    - Implement nursing protocols for monitoring residents' status for an evolving condition if there is no specific indication for antibiotics.
- Residents and their family members engagement:
    - Talking points to educate residents and their family members about antibiotic stewardship, appropriate use of antibiotics, and drug-resistant organisms.
- Prescriber engagement:

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[15] CDC. Core Elements of Antibiotic Stewardship for Nursing Homes, Appendix A: Policy and Practice Actions to Improve Antibiotic Use. https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-a.pdf

- o Information related to the facility's antibiotic stewardship program.
- o Information related to the prescriber's specific pattern of antibiotic prescribing.

Antibiograms[16]

An antibiogram is a report that identifies the organisms present in cultures submitted for testing by a nursing facility. The information includes the organisms present, and the susceptibility of each organism to a number of different antibiotics. The antibiogram will provide information on susceptibility patterns for the facility, allowing prescribers to select the appropriate therapies for residents with potential infections.

The best source of data for an antibiogram is the facility's primary laboratory. It will have a record of the susceptibility tests for each culture submitted. The laboratory can provide a copy of the susceptibility data for a specific period of time (usually a year to 18 months). The facility should request data specific to its residents. The following data elements should be included in the report:
- Culture ID number;
- Resident/Patient ID number;
- Patient name;
- Culture date;
- Culture source/site;
- Culture results – organisms identified; and
- Antibiotic susceptibilities.

Once the data is received, the facility may want to add elements, such as the specific unit, room number or other facility/resident characteristics to the report.

Interpreting an antibiogram:
This example from AHRQ depicts an antibiogram created for a NF. The first column lists the organisms that were included, separated by gram-positive and gram-negative results. The second column shows the number of residents in the NF who had the organism and were included in the antibiogram. The remaining columns of the antibiogram are the antibiotics tested and the organisms' susceptibilities. Yellow highlighting in any row indicates an insufficient number of residents were included in the set of cultures; those results are less reliable than those for 30 cultures or more.

The tool only includes the first isolate per person, regardless of culture source within the selected timeframe. This ensures that each person contributes equally to

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[16] AHRQ. Nursing Home Antimicrobial Stewardship Guide, Toolkit 2: Using Nursing Home Antibiograms to Choose the Right Antibiotic. https://www.ahrq.gov/nhguide/toolkits/help-clinicians-choose-the-right-antibiotic/toolkit2-concise-antibiogram-toolkit.html

the antibiogram. For example, a resident is cultured multiple times in a year and the results consistently reveal *Staphylococcus aureus*. Only that person's first *Staphylococcus aureus* culture will be counted.

Figure 1: Antibiogram

Gram (-) *Highlighted rows include less than 30 isolates; interpret these results with caution*	# patients	Aminoglycosides			B-Lactams			Cephalosporins				Quinolones	Others	
		Amikacin	Gentamicin	Tobramycin	Ampicillin	Imipenem	Piperacillin-Tazobactam	Cefazolin	Cefoxitin	Ceftriaxone	Ceftazidime	Ciprofloxacin	Nitrofurantoin	TMP/SMX
Escherichia coli	37	100	100	100		100					100	75		
Klebsiella sp*	33*	100	84.6	92.3	38.5	100	92.3	84.6	100	100	100	38.5	92.3	38.5
Proteus sp	31	71.4	57.1	71.4		85.7	85.7			57.1	57.1		28.6	71.4
Pseudomonas aeruginosa	23	100	83.3	92.3	91.7		100		81.8	100	100	30.8		69.2

Gram (+) *Highlighted rows include less than 30 isolates; interpret these results with caution*	# patients	Penicillins				Cephalosporins		Quinolones		Others						
		Penicillins	Ampicillin	Oxacillin	Nafcillin	Cephalothin	Ceftriaxone	Ciprofloxacin	Moxifloxacin	Gentamicin	Linezolid	Rifampin	Tetracycline	TMP/SMX	Vancomycin	Nitrofurantoin
Staph aureus (all)	17+	0	0	0	0			0	0	87.5	100	100	100	100	100	100
Methicillin resistant (MRSA)	34	0	0	0	0			0	0	87.5	100	100	100	100	100	100
Methicillin susceptible (MSSA)	0															
Enterococcus sp*	30*	100	100					50		75			25		100	100

*This antibiogram uses two years of culture data for these organisms.
+Results based on fewer than 20 isolates are less reliable and should be interpreted with caution.

The remaining columns of the antibiogram are the antibiotics that were tested and the organisms' susceptibilities. For example, *E coli* was isolated in 37 people. It was tested against ciprofloxacin. Of the *E coli* cultures tested against ciprofloxacin, 75 percent were susceptible to the antibiotic.

The antibiogram can be used to guide treatment decisions, and to monitor antibiotic susceptibility trends within the nursing facility. Selection of therapy for a specific resident should not be based solely on an antibiogram. That individual's infection history, including past antibiotic use, must also be considered.

Facilities who have a low volume of clinical cultures may want to consider alternatives, such as requesting a copy of the nearest hospital's antibiogram. Although patients might not visit both facilities, the antibiogram from the hospital should represent the community's resistance patterns. Another alternative could be using a larger range of data, up to 24 months.

Additional Resources for Antibiotic Stewardship

This checklist from the National Nursing Home Quality Improvement Campaign is another tool that can assist facilities in evaluating their Antimicrobial Stewardship Programs:
https://www.nhqualitycampaign.org/files/AntibioticStewardship_Assessment.pdf.

Additional resources for developing antibiotic stewardship programs include:

- Agency for Healthcare Research and Quality (AHRQ) Nursing Home Antimicrobial Stewardship Guide. This resource includes toolkits that help nursing homes develop programs for optimizing antibiotic use: https://www.ahrq.gov/nhguide/index.html.
- Statewide Program for Infection Control and Epidemiology (SPICE) Infection Management and Antibiotic Stewardship: https://spice.unc.edu/resources/infection-management-antibiotic-stewardship/.

The facility must develop and implement policies and procedures that address both Standard Precautions and Transmission-Based Precautions that will be taken to prevent the spread of infection. Those policies should include instructions that guide staff in determining when isolation (transmission-based) precautions are needed, the type of precautions to be used (based on the organism/infection) and the duration of isolation. The facility should ensure that precautions implemented are the least restrictive possible, while still taking the appropriate measures to prevent the spread of infection to other residents and staff.

Hand Hygiene[17]

Standard Precautions are measures that are recommended for use with all residents regardless of their diagnoses and are the minimum level of precautions necessary to decrease the risk of transmitting bloodborne or other pathogens. This includes practices based on the principle that all blood, body fluids, secretions, excretions, non-intact skin and mucus membranes may contain transmissible infectious agents, regardless of whether they contain visible blood.

Hand hygiene is one component of Standard Precautions, and applies to handwashing, antiseptic handwash, use of an alcohol-based hand rub, or surgical hand antisepsis.
- Antiseptic handwash: Washing hands with water and soap or other detergents containing an antiseptic agent.
- Antiseptic hand rub: Applying an antiseptic hand-rub product (such as an alcohol-based hand rub) to all surfaces of the hands to reduce the number of microorganisms present.
- Handwashing: Washing hands with plain (non-antimicrobial) soap and water.
- Surgical Hand Antisepsis: Antiseptic handwash or antiseptic hand rub performed preoperatively by surgical personnel to eliminate transient organisms and reduce hand flora. Antiseptic detergent preparations often have persistent antimicrobial activity.

Hand hygiene is the most important measure that can be taken to prevent the spread of infections in nursing facilities. A key activity for the facility's IP is to develop and implement a hand hygiene program, and then monitor for staff adherence to the requirements of that program.

There are two methods for performing hand hygiene:

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[17] CDC. Hand Hygiene in Healthcare Settings. https://www.cdc.gov/handhygiene/providers/index.html

- Use of alcohol-based hand rub; and
- Handwashing with soap and water.

Alcohol-based hand rubs (ABHRs) are very effective at reducing the number of pathogens on the hands and are the preferred method for hand hygiene in most situations. When selecting an ABHR, the facility should ensure it contains at least 60 percent alcohol; sanitizers with an alcohol concentration between 60–95 percent are more effective at killing germs than those with a lower alcohol concentration. ABHRs are less damaging to the skin that soap and water. ABHRs should be used:
- Immediately before touching a resident;
- Before performing an aseptic task (such as placing a catheter), or handling invasive medical devices;
- Before moving from working on a soiled body site to a clean body site on the same resident;
- After touching a resident or his/her immediate environment;
- After contact with blood, body fluids, or contaminated surfaces; and
- Immediately after glove removal.

There is no recommendation that requires staff to handwash with soap and water after using ABHR a certain number of times (such as handwashing after using ABHR three times).

Technique for Using ABHR:
- Apply hand rub to the palm of one hand, and rub hands together covering all surfaces until dry.
- The volume of hand rub used will vary by manufacturer.

Handwashing with soap and water is necessary when the hands are visibly soiled, before eating and after using the restroom. Handwashing is also necessary after caring for a resident with known or suspected infectious diarrhea (such as norovirus) or known/suspected exposure to spores (such as *B. anthracis* or *C. difficile* outbreaks).

Technique for Handwashing:
- Wet hands first with water.
- Apply the amount of soap recommended by the manufacturer.
- Rub hands together for at least 15 seconds, covering all surfaces of the hands and fingers.
- Rinse hands with water.
- Dry hands thoroughly with a disposable towel and use the towel to turn off the faucet.
- Avoid the use of hot water, since repeated exposure to hot water can increase the risk of dermatitis.
- Multiple use towels are not recommended for use in healthcare settings.

Other Considerations for Hand Hygiene:
Nail length is important because even after careful handwashing, healthcare workers often harbor large numbers of potential pathogens under their nails (subungual areas). Studies have shown that subungual areas of the hand harbor high concentrations of bacteria, including coagulase-negative staphylococci, gram-negative rods (including *Pseudomonas* species), corynebacteria, as well as yeasts.

Natural nail tips should be kept to ¼ inch in length. Evidence suggests that wearing artificial nails may contribute to transmission of certain healthcare associated pathogens. Healthcare workers who wear artificial nails are more likely to harbor gram-negative pathogens on their fingertips than are those who have natural nails, both before and after handwashing.

Easy access to hand hygiene supplies is essential for acceptance and use of products. Dispenser systems should function adequately and deliver an appropriate volume of product. Soap should not be added to a partially empty soap dispenser because of potential bacterial contamination of the soap.

Providing hand lotions or creams for use by healthcare workers can minimize the occurrence of contact dermatitis associated with hand hygiene.

The CDC's Guideline for Hand Hygiene in Health-Care Settings is available here: https://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf.

Appropriate Use of PPE[18]

PPE is specialized clothing or equipment, worn by an employee for protection against infectious materials, including:
- Gloves;
- Gowns/Aprons;
- Masks/Respirators;
- Goggles; and
- Face Shields.

PPE should be worn when there is an expectation of possible exposure to infectious material, such as blood or body fluids (Standard Precautions).

Gloves:
Gloves should be worn when there is the potential for contact with blood or other potentially infectious materials (such as body fluids), mucus membranes, non-intact skin, or potentially contaminated intact skin could occur.

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[18] CDC. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, 2007. https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html

Gloves should fit properly and be appropriate to the task being performed. Disposable examination gloves should be worn when providing direct patient care. Disposable examination gloves or reusable utility gloves should be worn when cleaning the environment or medical equipment.

Gloves should be removed after contact with the resident and/or the surrounding environment using proper technique to prevent hand contamination. Gloves must be changed between residents; never wear the same pair of gloves for the care of more than one resident.

Change gloves during resident care when hands move from a contaminated body site (such as the perineal area) to a clean body site (such as the face).

Gowns:
A gown should be worn to protect the skin and prevent soiling or contamination of clothing during procedures and resident care activities when contact with blood, body fluids, secretions, or excretions can be anticipated. The type of gown should be appropriate for the task being performed.

A gown should be worn for direct resident contact if that resident has secretions or excretions that are not contained.

Gowns must never be reused, even during repeated contacts with the same resident. Gowns must be removed and disposed of appropriately before leaving the resident's room. Hand hygiene must be completed before leaving the resident's room.

Mouth, Nose and Eye Protection:
Use appropriate PPE to protect the mucus membranes of the eyes, nose, and mouth during procedures and resident care activities that are likely to generate splashes/sprays of blood, body fluid, secretions or excretions. The healthcare worker should select the appropriate mask, goggles, face shield or combination of each according to the task being performed.

Transmission-Based Precautions:
Transmission-Based Precautions are the actions or precautions implemented in addition to Standard Precautions, based on the means of transmission (airborne, contact and droplet) to prevent or control infections.
- Airborne Precautions: Actions taken to prevent or minimize the transmission of infectious agents or organisms that remains infectious over long distances when suspended in the air (for example measles, chickenpox, *M. tuberculosis*). These particles can remain suspended in the air for prolonged periods of time and can

be carried on normal air currents in a room or beyond, to adjacent spaces or areas receiving exhaust air.

- o Source control, including placing a mask on the resident during transportation.
- o Appropriate Placement, such as placing the resident in an airborne infection isolation room (AIIR) if available. If not, masking the resident and placing him/her in a private room with the door closed will reduce the potential for transmission until the resident can be transferred to a facility with an AIIR.
- o Restrict susceptible staff from entering the room if the resident is known/suspected of having measles, chickenpox, disseminated zoster or smallpox (if other immune staff are available).
- o Use PPE appropriately (may include a fit-tested N95 or higher respirator).
- o Limit the transport and movement of residents outside the room to medically necessary purposes. If necessary, the resident must wear a surgical mask and observe respiratory hygiene and cough etiquette procedures. If the resident is wearing a mask, and any infectious lesions are covered, staff will not need to wear a mask or respirator during transport.
- o Immunize any susceptible individuals as soon as possible after unprotected contact with the residents (measles, varicella, smallpox).
- Contact Precautions: Measures intended to prevent the transmission of infectious agents which are spread by direct or indirect contact with the resident or the resident's environment (for example *C. difficile*, VRE, norovirus, RSV).
  - o Ensure appropriate placement in a private room (if available); room placement decisions (including placement in a semi-private room) should be based on the risks to other residents.
  - o Use PPE appropriately, including gloves and gowns when contact with the resident or his/her environment is involved. PPE should be donned before entering the room and discarded before exiting.
  - o Limit transport and movement of residents to medically necessary purposes; in LTC settings, the resident's need for social interaction is balanced with the risk of transmission. During transport or when the resident is otherwise out of his/her room, ensure the infected or colonized area is covered or otherwise contained.
  - o Use disposable or dedicated resident care equipment if possible. If multi-use equipment is necessary (multiple residents), the equipment must be cleaned and disinfected before use on another resident.
  - o Prioritize cleaning and disinfection of the rooms of residents on contact precautions. The rooms should be cleaned and disinfected frequently (at least daily) and prior to use by another resident. Focus on frequently touched surfaces and equipment in the immediate vicinity of the resident.
- Droplet Precautions: Actions designed to reduce or prevent the transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions (for example influenza, pertussis, *N. meningitides*).

- o Source control, including placing a mask on the resident during transportation.
- o The resident should be placed in a private room if possible. Decisions about placement in semi-private rooms should be made on a case-by-case basis, considering the potential of transmission to other residents and the alternatives available.
- o Use PPE appropriately, including donning a mask on entering the room.
- o Limit resident transport and movement outside the room to medically necessary purposes. The resident must wear a mask when outside the room and follow the principles of respiratory hygiene and cough etiquette.

Complete details on Transmission-Based Precautions can be found here: https://www.cdc.gov/infectioncontrol/pdf/guidelines/isolation-guidelines.pdf.

Sequence for Donning PPE:
1. Gown
   - Fully cover the torso from neck to knees, arms to the end of the wrists, and wrap around the back.
   - Fasten in the back of neck and waist.
2. Mask or Respirator
   - Secure ties or elastic bands at the middle of the head and neck.
   - Fit the flexible band to the bridge of the nose.
   - Fit snugly to the face, and below the chin.
   - Fit-check respirator.
3. Goggles or Face Shield
   - Place over the face and eyes.
   - Adjust to fit.
4. Gloves
   - Extend to cover the wrist of the gown.

There is more than one way to safely remove PPE without contaminating clothing, skin or mucus membranes. This is just one method:
1. Gown and Gloves
   - Remember that the front and sleeves of the gown are contaminated, as is the outside of the gloves.
   - Grasp the gown in the front and pull away from the body so that the ties break. Touch the outside of the gown only with gloved hands.
   - Remove the gown, folding or rolling the gown inside-out into a bundle.
   - While removing the gown, peel off gloves at the same time touching only the inside of the gloves and gown with bare hands.
2. Goggles or Face Shield
   - Remember the outside of the goggles/face shield is contaminated.
   - If hands are contaminated during removal, perform hand hygiene.

- Remove goggles/face shield from the back, by lifting the head band and without touching the front.
- If the item is reusable, place in the designated receptacle for cleaning and disinfection.
- If the item is disposable, discard in a waste container.
3. Mask or Respirator
    - Do not touch the front of the mask or respirator – it is contaminated.
    - If hands are contaminated during removal, perform hand hygiene.
    - Grasp bottom ties or elastics of the mask/respirator, and then the ones at the top.
    - Remove without touching the front.
    - Discard in a waste container.

Hand hygiene should be completed immediately after removing all PPE. Perform hand hygiene between steps if hands become contaminated. More information about donning and removing PPE is available here: https://www.cdc.gov/HAI/prevent/ppe.html.

Policies and Procedures:
The facility must develop and implement policies and procedures that address both Standard Precautions and Transmission-Based Precautions that will be taken to prevent the spread of infection. Those policies should include instructions that guide staff in determining when isolation (transmission-based) precautions are needed, the type of precautions to be used (based on the organism/infection) and the duration of isolation. The facility should ensure that precautions implemented are the least restrictive possible, while still taking the appropriate measures to prevent the spread of infection to other residents and staff.

Monitoring Adherence to Hand Hygiene and PPE Use

Infection prevention and control training is necessary for all facility staff, regardless of position or discipline. The facility should commit openly to staff education, dedicating the time and resources to the training process.

Developing and conducting infection prevention and control-related training is often the responsibility of the Infection Preventionist; regardless, whoever the facility determines should be responsible for the training program must have expertise in the principles of infection prevention and control.

New Employee Orientation:
This includes required training content, such as:
- Hand Hygiene – Use of ABHR, handwashing and when to use each method.
    o Nails must be kept clean and well-trimmed.

- o Artificial nails should be discouraged (healthcare workers who wear artificial nails are more likely to harbor gram-negative bacteria on their fingertips both before and after hand hygiene).
- o Jewelry kept to a minimum (i.e. a plain, flat wedding band), and must not interfere with hand hygiene.
  - ✓ Skin under rings is more heavily colonized than comparable areas of skin on fingers without rings.
- Use of PPE, including when to use gloves, gowns, masks; proper practices in donning and doffing PPE.
- Proper disposal of sharps.
- Handling of clean and soiled lined to prevent cross-contamination.
- Proper cleaning of multi-resident use equipment (BP machines, etc).

Additional core content should include:
- OSHA Bloodborne pathogen standards and safe injection practices;
- Standard and Transmission-based Precautions;
- Chain of Infection, transmission;
- Respiratory hygiene and cough etiquette;
- Healthcare–associated infections (HAIs);
- Multi-drug resistant organisms; and
- Employee health issues and concerns.

Once the initial training is complete, the trainer should follow-up with the new employees to monitor their compliance with facility policies and procedures, to provide timely coaching and correction, and to encourage questions related to infection control practices.

On-going Training:
New employee orientation is just the beginning of employee training on infection prevention and control. On-going training is necessary to ensure all staff are familiar with the facility's infection prevention and control policies and procedures. Formal education (such as in-services) should be provided at least annually. Face-to-face mentoring should occur continually, based on direct observations, staff self-assessments, facility infection control risk assessments and surveillance findings.

Tools that can be used to determine educational needs include:
- Self-assessments conducted by staff members;
- Small group discussions – focus groups;
- Checklists or questionnaires distributed to staff;
- Testing based on educational content and objectives;
- Direct observations of staff practices, walking rounds;
- Incident reports – injury, illness; and
- QAPI processes.

Evaluation and Competency Assessments:
Evaluations are essential to determine if the learning objectives were met. Methods for evaluating the effectiveness of training could include:
- Pre/post-tests;
- Observation of staff performance (return demonstration); and
- Supervisor observations.

Facilities should also have processes in place to monitor adherence to infection prevention and control policies and procedures, and to test competency on a periodic basis.

Compliance Monitoring for Hand Hygiene and PPE Use:
Conducting routine monitoring for compliance with hand hygiene and PPE policies should be a key infection prevention activity. Methods used to monitor compliance will vary, but could include:
- Walking rounds and direct observations:
  - The "gold standard" for monitoring compliance;
  - Labor intensive, and can influence behavior of those who know they are being observed; and
  - The facility must determine who will be observed, who will make the observations, when and where the observations will be conducted, and how often.
    - ✓ In-and-out monitoring when healthcare workers enter or exit a resident's room.
    - ✓ Moments monitoring (hand hygiene) based on the risk of hands transmitting organisms during the delivery of care (WHO "5 Moments for Hand Hygiene").
    - ✓ Resident observers - "Have you washed your hands?", "Should you be wearing gloves?".
- Measuring product use, such as liquid soap, alcohol-based hand rub and paper towels for hand hygiene, gloves and other PPE items:
  - Measuring product does not confirm hand hygiene is being performed correctly, that it is being conducted when indicated, or that PPE is being used properly.
- Conducting surveys:
  - Can be in person, by telephone, computer-based or through focus groups.
  - Can provide information about perceptions, beliefs and attitudes toward hand hygiene and PPE use.
  - Can be unreliable; healthcare workers tend to over-estimate their compliance.

Section 7: Resident Immunization Practices

Best Practices for Immunization Programs

An effective immunization program should include:

- A person(s) designated to coordinate immunization activities for the facility;
- Written policies and procedures regarding immunizations (residents and staff);
- A standing order for immunizations, including medical management of adverse vaccine reactions;
- A centralized system for tracking immunizations (residents and staff);
- A vaccination record in the resident's clinical record that does not get thinned (or is maintained in the active electronic health record);
- Complete documentation of the immunizations given to the resident;
- A process to determine the resident's immunization status on admission, according to current immunization guidelines;
- A process for providing Vaccine Information Statements (VIS) to residents and/or their legally authorized representative (LAR) prior to administering immunizations;
- Signed declinations on refusal of immunizations, and a process for periodically re-approaching those who previously declined; and
- A plan for providing immunizations (Immunization Campaigns).

Documentation of Resident Vaccinations:
Vaccinations should be documented in the resident's active clinical record, and a copy of the vaccination record should accompany the resident with any transfers. Documentation should include the name of the resident, the type of vaccine, date of vaccination, site of administration, route, manufacturer, lot number, Vaccine Information Sheet (VIS) publication date, the date the VIS was provided and the name/signature of the person who administered the vaccine. All vaccination records should be readily available, and up to date.

ImmTrac2, the Texas immunization registry now covers adults. Individuals who provide written consent can have their vaccine information stored electronically in a secure, confidential registry. Doctors or other health care providers who are registered ImmTrac2 users can enroll individuals and confirm consent necessary to have records stored in the system. Consent can be withdrawn at any time. ImmTrac2 allows individuals to request a copy of their record at any time. Additional information is available at
http://www.dshs.texas.gov/immunize/immtrac/default.shtm.

Facilities should also implement a centralized system for tracking resident immunizations. Centralized immunization records/systems provide an efficient way to respond to an outbreak within the facility, to rapidly identify residents who need
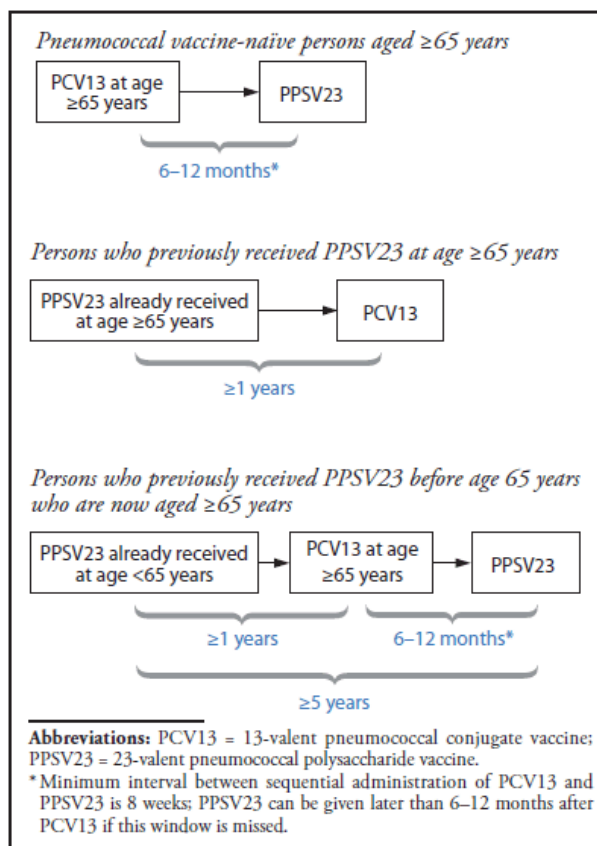
prophylaxis, or who still need to be vaccinated. In addition, a centralized tracking system will allow staff to easily identify vaccine lot numbers in the event of a recall.

CDC Recommendations for Pneumococcal Vaccination

Individuals aged 65 and older, people with certain medical conditions, and those who smoke cigarettes should receive the pneumococcal vaccine. The CDC recommends pneumococcal vaccination (PCV13 or Prevnar13®, and PPSV23 or Pneumovax23®) for all adults 65 years or older:

- Adults 65 years or older who have not previously received PCV13, should receive a dose of PCV13 first, followed 1 year later by a dose of PPSV23.
- If the individual has already received one or more doses of PPSV23, the dose of PCV13 should be given at least 1 year after they received the most recent dose of PPSV23.
- For those for whom an additional dose of PPSV23 is indicated, it should be given 6–12 months after PCV13 and ≥5 years after the most recent dose of PPSV23.

Figure 2: Pneumococcal Vaccinations for Adults Aged 65 and Older[19]

Pneumococcal vaccine-naïve persons aged ≥65 years

PCV13 at age ≥65 years → PPSV23

6–12 months*

Persons who previously received PPSV23 at age ≥65 years

PPSV23 already received at age ≥65 years → PCV13

≥1 years

Persons who previously received PPSV23 before age 65 years who are now aged ≥65 years

PPSV23 already received at age <65 years → PCV13 at age ≥65 years → PPSV23

≥1 years   6–12 months*

≥5 years

Abbreviations: PCV13 = 13-valent pneumococcal conjugate vaccine; PPSV23 = 23-valent pneumococcal polysaccharide vaccine.
*Minimum interval between sequential administration of PCV13 and PPSV23 is 8 weeks; PPSV23 can be given later than 6–12 months after PCV13 if this window is missed.

PCV13 should not be administered to:

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[19] CDC. Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine Among Adults Aged ≥65 Years: Recommendations of the Advisory Committee on Immunization Practices (ACIP). https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6337a4.htm#box

- Anyone who has ever had a severe allergic reaction (e.g., anaphylaxis) after a previous dose of PCV7 or PCV13 or to any vaccine containing diphtheria toxoid, or
- Anyone with a severe allergy to any component of this vaccine.

PPSV23 should not be administered to:
- Anyone who has ever had a severe allergic reaction (e.g., anaphylaxis) after a previous dose; or
- Anyone with a severe allergy to any component of this vaccine.

Additional information about the indications for and timing of pneumococcal vaccination is available here:
https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.

The complete text of the ACIP Recommendations for Pneumococcal Vaccination is available at https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/pneumo.html.

Section 8: Notifiable Conditions and Reporting[20]

TAC Chapter 97 requires providers (including nursing homes) report to state or local health authorities when a resident is suspected of having a notifiable condition. Note: any outbreak, exotic disease, or unusual group expression of disease that may be of public health concern should be reported. The current list of notifiable conditions (with required timeframes for reporting) is available on the Department of State Health Services (DSHS) website at
http://dshs.texas.gov/idcu/investigation/conditions/.

The notifiable conditions list also indicates when to report each condition. In some situations, notification must be made immediately, while others require reporting within one working day or within one week. For example:
* Measles (Rubeola) – Call immediately;
* Carbapenem-Resistant *Enterobacteriaceae* (CRE) – Within one working day; and
* Chickenpox (varicella) – Within one week.

To find your facility's contact for reporting a notifiable condition, visit
https://dshs.texas.gov/idcu/investigation/conditions/contacts/ and select the county in which your facility is located.

Nursing facility requirements (TAC 40, Part 1, Chapter 19, §19.1601) mandate reporting; "The name of any resident with a reportable disease as specified in Title 25, Chapter 97, Subchapter A (relating to Control of Communicable Diseases) must be reported immediately to the city health officer, county health officer, or health unit director having jurisdiction, and appropriate infection control procedures must be implemented as directed by the local health authority."
http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=40&pt=1&ch=19&rl=1601.

Outbreaks of communicable diseases are also considered events that should be self-reported to HHS LTC Regulatory. Provider Letter (PL) 17-18 provides guidance for reporting incidents:
https://apps.hhs.texas.gov/providers/communications/2017/letters/PL2017-18.pdf.

Best Practice Recommendations:
* Have a copy of the current Notifiable Conditions List available to staff.
    o Note: The list is updated in January of each year.
* Identify and post the point of contact for the appropriate public health entity for notifications.

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[20] Texas Department of State Health Services. Notifiable Conditions List, 2019.
https://dshs.texas.gov/idcu/investigation/conditions/

- Develop a policy and procedure for notifying the appropriate state or local public health department when an outbreak occurs, or a notifiable condition is identified.

Section 9: Preventing UTIs[21],[22]

According to researchers, UTI is the most common HAI in nursing facilities, accounting for up to 20 percent of infections and are a frequent reason for hospital admission/readmission. There are multiple factors that can increase the risk for developing a UTI, including:[23],[24]

- Gender (women are more likely to develop a UTI than men);
- Physiological changes to the genitourinary tract associated with aging;
- Neurogenic bladder, incomplete bladder emptying;
- Incontinence of urine and feces;
- Chronic medical conditions, such as diabetes mellitus and constipation;
- Dehydration;
- Medications; and
- Mobility impairments.

While some of these risk factors cannot be modified, others can be managed by the resident and facility staff.

Best Practice Recommendations for Preventing UTIs

The comprehensive assessment should include:
- An evaluation of the resident's usual fluid intake, including amount, type, and time of daily fluid intake (with particular attention to intake of caffeine and alcohol).
- The resident's usual voiding patterns. When did he/she normally use the bathroom? How often?
- If the resident is cognitively impaired and unable to communicate the need to use the bathroom, what "signals" should the staff be aware of that would indicate he/she needs the toilet?
- The resident's usual bowel habits; frequency, nature, and consistency of bowel movements. Is there a history of constipation?
- Any relevant medical or surgical history related to the genitourinary system, such as urinary retention, recurrent UTIs, use of indwelling bladder catheters, or previous bladder surgery.
- An evaluation of the resident's medication regimen and identify any medications that could impact his/her urinary function.

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[21] SHEA/APIC Guideline: Infection prevention and control in the long-term care facility. https://apic.org/Resource_/TinyMceFileManager/Practice_Guidance/id_APIC-SHEA_GuidelineforICinLTCFs.pdf
[22] Aging Health. Urinary tract infection in older adults, 2013. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878051/pdf/nihms537914.pdf
[23] Journal of Hospital Medicine. Systematic Review of Interventions to Reduce Urinary Tract Infection in Nursing Home Residents, 2017. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5557395/pdf/nihms876198.pdf
[24] National Institute on Aging. Bladder Health for Older Adults. https://www.nia.nih.gov/health/bladder-health-older-adults

Provision of perineal and incontinent care by staff:
- Use clean gloves when providing perineal/incontinent care; perform hand hygiene before and after care.
- Cleanse promptly after each incontinent episode, using soap and water, wipes or other products as directed by facility policy.
- Cleanse the perineal area from front to back, drying the area in the same manner.
- Avoid the use of feminine hygiene products such as douches, sprays, and powders; these can lead to urethral irritation.
- If the resident wears disposable briefs/pads, ensure they are changed regularly.
- Ensure the resident's underwear and clothing are clean and dry.

Continence promotion:
- Assist the resident to the restroom promptly when he/she requests to use the toilet.
- Determine the appropriate type of continence promotion plan (bladder retraining, prompted voiding, scheduled voiding) and schedule for the resident based on his/her normal voiding patterns.
- Provide instructions for direct care staff related to the resident's continence promotion plan (type of plan, schedule, etc.).
- When assisting the resident with toileting, provide him/her with sufficient time to empty the bladder.
- After the resident uses the toilet, assist with perineal cleansing as needed. If the resident can do his/her own cleansing, emphasize the importance of cleansing from the front to the back of the perineum.
- Assist the resident with hand hygiene after toileting.
- Ensure staff document the effectiveness of the continence promotion plan, as well as frequency of incontinent episodes.
- Ensure that constipation is addressed, if present.
- If the resident is sexually active, he/she should be encouraged to urinate before and after intercourse.

Hydration Practices:
- Identify the resident's fluid preferences (including type of fluid, temperature, type of container used).
- Provide liquids before and with meals.
- Provide fluids between meals and with medications, as well.
- Encourage residents to drink with every contact, especially those with cognitive impairment.
- Offer fluid dense foods, such as gelatins, soup, juice, watermelon, and berries.
- Consider offering cranberry juice (unless there is a history of kidney stones).
  - Evidence for the use of cranberry juice in preventing UTI is mixed.

- Encourage residents to avoid or limit caffeine intake (these can irritate the bladder).

Asymptomatic Bacteriuria[25]

The Infectious Diseases Society of America (IDSA) defines asymptomatic bacteriuria (ASB) as "the presence of 1 or more species of bacteria growing in the urine at specified quantitative counts (≥ 105 colony-forming units [CFU]/mL or ≥ 108 CFU/L), irrespective of the presence of pyuria, in the absence of signs or symptoms attributable to urinary tract infection (UTI)."

IDSA recommends against routine screening for or treating ASB in residents of long-term care facilities. In an older adult with functional or cognitive impairments:
- With bacteriuria and delirium, but no localized genitourinary symptoms or other systemic signs of infection (such as fever), the IDSA recommends assessment for other causes, and close monitoring instead of treatment with antibiotics.
- With bacteriuria, and has experienced a fall, but with no localized genitourinary symptoms or other systemic signs of infection (such as fever), the IDSA recommends assessment for other causes, and close monitoring instead of treatment with antibiotics.

Catheter Associated Urinary Tract Infections (CAUTI)

Indwelling bladder catheters (IBC) are associated with a significant increase in the risk for developing UTIs; therefore, catheters should only be used when medically appropriate, and for the shortest amount of time possible.

Appropriate indications for the use of an IBC include:
- Acute urinary retention or bladder outlet obstruction;
- An acute medical issue that requires accurate measurement of urinary output (in an incontinent resident);
- Timed urine collections as part of a diagnostic study (in an incontinent resident);
- Open sacral or perineal pressure injuries in incontinent residents;
- Individuals requiring prolonged immobilization (e.g. potentially unstable thoracic or lumbar spine, multiple traumatic injuries such as pelvic fractures); and
- As part of a palliative plan of care at end of life.

Inappropriate uses of an IBC include:
- As a substitute for nursing care of a resident with incontinence;
- To obtain urine for culture or other diagnostic tests when the individual can voluntarily void; and
- For prolonged duration without appropriate indications.

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[25] IDSA. Asymptomatic Bacteriuria, 2019. https://www.idsociety.org/practice-guideline/asymptomatic-bacteriuria/

Measures to Prevent CAUTI:[26,27]

- Use appropriate hand hygiene and standard precautions when handling the catheter system to prevent transmission of pathogens.
- Properly secure the catheter after insertion to prevent movement and urethral traction.
- Position the catheter to prevent kinking and urine reflux; avoid having tubing and or collection bag becoming tangled in equipment or touching the floor.
- Catheters and drainage bags should be changed based on clinical indications such as infection, obstruction or when the closed system is compromised. Catheters that are so encrusted that urinary outflow is blocked should be changed immediately.
- Changing the catheter or drainage bag at routine, fixed intervals is not recommended.
- Disconnection of the catheter and drainage bag is the leading cause of bacterial contamination. Connecting the catheter to an aseptic, closed system (catheter, bag and tubing form a continuous unit) and maintaining the closed system assists in reducing infection.
- Use catheter sizes of 14FR or 16FR, as larger diameter catheters have higher UTI rates, greater leakage, and are more likely to obstruct normal urethral secretions.
- Use a small balloon size (10 cc); larger balloons (30 cc) will increase the volume of urine that pools below the level of the catheter lumen, increasing the risk of infection.
- Perineal hygiene must be performed consistently, with proper technique, to remove fecal soiling in accordance with accepted practices and catheter care.
- Maintain a uniform and adequate daily fluid intake (30 ml/kg body weight/day) to continuously flush the system can decrease catheter blockage and subsequent infection.

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[26] AHRQ. Toolkit to Reduce CAUTI and Other HAIs in Long-Term Care Facilities.
https://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/cauti-ltc/index.html
[27] CDC. Guideline for Prevention of Catheter-associated Urinary Tract Infections. (CAUTI) 2009.
https://www.cdc.gov/infectioncontrol/pdf/guidelines/cauti-guidelines.pdf

Section 10: Federal Regulations[11]

F838 Facility Assessment

The facility must conduct and document a facility-wide assessment to determine what resources are necessary to care for its residents competently during both day-to-day operations and emergencies. The facility must review and update that assessment, as necessary, and at least annually. The facility must also review and update this assessment whenever there is, or the facility plans for, any change that would require a substantial modification to any part of this assessment. The facility assessment must address or include:

- The facility's resident population, including but not limited to:
    - Both the number of residents and the facility's resident capacity;
    - The care required by the resident population considering the types of diseases, conditions, physical and cognitive disabilities, overall acuity, and other pertinent facts that are present within that population;
    - Staff competencies necessary to provide the level and types of care needed for the resident population;
    - The physical environment, equipment, services, and other physical plant considerations that are necessary to care for this population;
    - Any ethnic, cultural, or religious factors that may potentially affect the care provided by the facility, including but not limited to activities and food and nutrition services.
- The facility's resources, including but not limited to:
    - All buildings and/or other physical structures and vehicles;
    - Equipment (medical and non-medical);
    - Services provided, such as physical therapy, pharmacy, and specific rehabilitation therapies;
    - All personnel, including managers, staff (employees and those who provide services under contract), and volunteers, as well as their education and/or training and any competencies related to resident care;
    - Contracts, memorandums of understanding, or other agreements with third parties to provide services or equipment to the facility during both normal operations and emergencies; and
    - Health information technology resources, such as systems for electronically managing patient records and electronically sharing information with other organizations.
- A facility-based and community-based risk assessment, utilizing an all-hazards approach.

F880 Infection Prevention and Control

The facility must establish and maintain an infection prevention and control program designed to provide a safe, sanitary and comfortable environment and to

help prevent the development and transmission of communicable diseases and infections.

The facility must establish an infection prevention and control program (IPCP) that must include, at a minimum, the following elements:

- A system for preventing, identifying, reporting, investigating, and controlling infections and communicable diseases for all residents, staff, volunteers, visitors, and other individuals providing services under a contractual arrangement based upon the facility assessment conducted according to §483.70(e) and following accepted national standards;
- Written standards, policies, and procedures for the program, which must include, but are not limited to:
  - o A system of surveillance designed to identify possible communicable diseases or infections before they can spread to other persons in the facility;
  - o When and to whom possible incidents of communicable disease or infections should be reported;
  - o Standard and transmission-based precautions to be followed to prevent spread of infections;
  - o When and how isolation should be used for a resident; including but not limited to:
    - ✓ The type and duration of the isolation, depending upon the infectious agent or organism involved, and
    - ✓ A requirement that the isolation should be the least restrictive possible for the resident under the circumstances.
  - o The circumstances under which the facility must prohibit employees with a communicable disease or infected skin lesions from direct contact with residents or their food, if direct contact will transmit the disease; and
  - o The hand hygiene procedures to be followed by staff involved in direct resident contact.
- A system for recording incidents identified under the facility's IPCP and the corrective actions taken by the facility.
- Linens. Personnel must handle, store, process, and transport linens so as to prevent the spread of infection.
- Annual review. The facility will conduct an annual review of its IPCP and update their program, as necessary.

F881 Antibiotic Stewardship Program

The facility must establish an infection prevention and control program (IPCP) that must include, at a minimum, the following elements:

- An antibiotic stewardship program that includes antibiotic use protocols and a system to monitor antibiotic use.

F882 Infection Preventionist

The facility must designate one or more individual(s) as the infection preventionist(s) (IP)(s) who are responsible for the facility's IPCP. The IP must:

- Have primary professional training in nursing, medical technology, microbiology, epidemiology, or other related field;
- Be qualified by education, training, experience or certification;
- Work at least part-time at the facility; and
- Have completed specialized training in infection prevention and control.

IP participation on quality assessment and assurance committee.
The individual designated as the IP, or at least one of the individuals if there is more than one IP, must be a member of the facility's quality assessment and assurance committee and report to the committee on the IPCP on a regular basis. F882 will be implemented beginning November 28, 2019.

F883 Influenza and Pneumococcal Immunizations

Influenza.
The facility must develop policies and procedures to ensure that:

- Before offering the influenza immunization, each resident or the resident's representative receives education regarding the benefits and potential side effects of the immunization;
- Each resident is offered an influenza immunization October 1 through March 31 annually, unless the immunization is medically contraindicated, or the resident has already been immunized during this time period;
- The resident or the resident's representative has the opportunity to refuse immunization; and
- The resident's medical record includes documentation that indicates, at a minimum, the following:
  - That the resident or resident's representative was provided education regarding the benefits and potential side effects of influenza immunization; and
  - That the resident either received the influenza immunization or did not receive the influenza immunization due to medical contraindications or refusal.

Pneumococcal disease.
The facility must develop policies and procedures to ensure that:

- Before offering the pneumococcal immunization, each resident or the resident's representative receives education regarding the benefits and potential side effects of the immunization;
- Each resident is offered a pneumococcal immunization, unless the immunization is medically contraindicated, or the resident has already been immunized;

- The resident or the resident's representative has the opportunity to refuse immunization; and
- The resident's medical record includes documentation that indicates, at a minimum, the following:
  o That the resident or resident's representative was provided education regarding the benefits and potential side effects of pneumococcal immunization; and
  o That the resident either received the pneumococcal immunization or did not receive the pneumococcal immunization due to medical contraindication or refusal.

F945 Infection Control

A facility must include as part of its infection prevention and control program mandatory training that includes the written standards, policies, and procedures for the program as described at §483.80(a)(2).

F945 will be implemented beginning November 28, 2019.

IPCP: Risk Assessment, Plan, Policies and Procedures

CDC: Infection Prevention and Control Assessment Tool for Long-term Care Facilities (ICAR). https://www.cdc.gov/infectioncontrol/pdf/icar/ltcf.pdf

Long Term Care Baseline Prevention Practices Assessment Tool. http://www.cdc.gov/HAI/toolkits/LTC_Assessment_tool_final.pdf

APIC: Long Term Care Risk Assessment Sample (included with the Infection Preventionist's Guide to Long-Term Care, 2013). Available for purchase at https://apic.org/APICStore/Products/Product?id=SLS6008

SPICE: Risk Assessment for LTC Template. https://spice.unc.edu/resources/template-risk-assessment-for-ltc/

SPICE: Long Term Care Program/Policy Sample. https://spice.unc.edu/resources/607/

DSHS: A Primer for the Lone Ranger Epidemiologist. http://www.dshs.texas.gov/IDCU/investigation/Guidance-Manuals/

U.S. HHS: Partnering to Heal-Teaming Up Against Health Care-Associated Infections (Interactive Dramatization). https://health.gov/hcq/training-partnering-to-heal.asp

Antibiotic Stewardship

AHRQ: Nursing Home Antimicrobial Stewardship Guide. https://www.ahrq.gov/nhguide/index.html

AHRQ: Determine Whether to Treat. https://www.ahrq.gov/nhguide/toolkits/determine-whether-to-treat/index.html

AHRQ: Choose the Right Antibiotics. https://www.ahrq.gov/nhguide/toolkits/help-clinicians-choose-the-right-antibiotic/index.html

AHRQ: Engage Residents and Families. https://www.ahrq.gov/nhguide/toolkits/educate-and-engage/index.html

CDC: Core Elements of Antibiotic Stewardship for Nursing Homes. https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship.pdf

CDC: Core Elements of Antibiotic Stewardship for Nursing Homes, Appendix A.
https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-a.pdf

CDC: Core Elements of Antibiotic Stewardship for Nursing Homes, Appendix B.
https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-b.pdf

CDC: Core Elements of Antibiotic Stewardship for Nursing Homes Checklist.
https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-checklist.pdf

CDC: Policy and Practice to Improve Antibiotic Use.
https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-a.pdf

CDC: Measures of Antibiotic Prescribing, Use and Outcomes.
https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-b.pdf

CDC: Antibiotic Stewardship in Nursing Homes Infographic.
https://www.cdc.gov/longtermcare/pdfs/Infographic-Antibiotic-Stewardship-Nursing-Homes.pdf

CDC: Creating a Culture to Improve Antibiotic Use in Nursing Homes.
https://www.cdc.gov/longtermcare/pdfs/Factsheet-Core-Elements-Creating-Culture-Improve-Use.pdf

CDC: Fact Sheet for Residents and Families.
https://www.cdc.gov/longtermcare/pdfs/factsheet-core-elements-what-you-need-to-know.pdf

CDC/ANA: Redefining the Antibiotic Stewardship Team- Recommendations from the American Nurses Association/Centers for Disease Control and Prevention Workgroup on the Role of Registered Nurses in Hospital Antibiotic Stewardship Practices.
https://www.cdc.gov/antibiotic-use/healthcare/pdfs/ANA-CDC-whitepaper.pdf

SPICE: Infection Management and Antibiotic Stewardship.
https://spice.unc.edu/resources/infection-management-antibiotic-stewardship/

Minnesota Department of Health: 2017 Antibiotic Stewardship Conference Presentations (Handouts). https://www.lsqin.org/event/event-2017-mn-antibiotic-stewardship-conference/

National Nursing Home Quality Improvement Campaign: Antimicrobial Stewardship Assessment. https://www.nhqualitycampaign.org/files/AntibioticStewardship_Assessment.pdf

Quality Improvement Organizations (QIO) Nursing Home Training Sessions. http://www.qioprogram.org/nursing-home-training-sessions

SHEA: Antimicrobial Stewardship. https://www.shea-online.org/index.php/antimicrobial-stewardship

TMF Quality Improvement Network (QIN): Resources – Antibiotic Stewardship, Healthcare Associated Infections, Immunizations and Sepsis. https://www.tmfqin.org/Resource-Center

TMF Quality Improvement Network (QIN): Antibiotics: Too Much of a Good Thing (Patient/Family Resource – English). https://www.tmfqin.org/Portals/0/Resource%20Center/Antibiotic%20Stewardship/Sepsis_ABS%20Flyer_508.pdf

TMF Quality Improvement Network (QIN): Antibiotics: Too Much of a Good Thing (Patient/Family Resource – Spanish). https://www.tmfqin.org/Portals/0/Resource%20Center/Antibiotic%20Stewardship/Sepsis_ABS%20Flyer_Spa_508.pdf

TMF Quality Improvement Network (QIN): Viruses or Bacteria-What's Got You Sick? https://www.tmfqin.org/Portals/0/Resource%20Center/Antibiotic%20Stewardship/Common%20Conditions%20Tool_508.pdf

TMF Quality Improvement Network (QIN): A Commitment to Our Patients about Antibiotics (English). http://files.constantcontact.com/fa163e2a001/b3571e21-9493-4c12-aa34-6958ee0f52df.pdf?ver=1510590569000

TMF Quality Improvement Network (QIN): A Commitment to Our Patients about Antibiotics (Spanish). http://files.constantcontact.com/fa163e2a001/52c43db4-a9cb-439f-a983-66673c376001.pdf?ver=1510590569000

TMF Quality Improvement Network (QIN): Antibiotic Stewardship Mobile Application and Podcast Series. https://www.tmfqin.org/abs

Catheter Associated Urinary Tract Infection (CAUTI)

APIC Implementation Guide: Guide to Preventing Catheter-Associated Urinary Tract Infections, 2014. https://apic.org/wp-content/uploads/2019/02/APIC_CAUTI_IG_FIN_REVD0815.pdf

CDC. Guideline for Prevention of Catheter-associated Urinary Tract Infections, 2009. https://www.cdc.gov/infectioncontrol/guidelines/CAUTI/index.html

Hand Hygiene

CDC: Guideline for Hand Hygiene in Health-Care Settings.
https://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf

CDC: Hand Hygiene in Healthcare Settings.
http://www.cdc.gov/handhygiene/index.html

CDC: Hand Hygiene for Healthcare Providers.
https://www.cdc.gov/handhygiene/providers/training/index.html

CDC: Clean Hands Count Campaign.
https://www.cdc.gov/handhygiene/campaign/index.html

National Nursing Home Quality Improvement Campaign: Hand Hygiene Activities Survey Checklist.
https://www.nhqualitycampaign.org/files/HandHygiene_Assessment.pdf

WHO: Guidelines on Hand Hygiene in Health Care, 2009.
http://www.who.int/gpsc/5may/tools/9789241597906/en/

WHO: Five Moments for Hand Hygiene.
http://who.int/gpsc/tools/Five_moments/en/

WHO: Five Moments for Hand Hygiene CAUTI. http://www.who.int/gpsc/5may/hh-urinary-catheter_poster.pdf

APIC: Guide to Hand Hygiene Programs for Infection Prevention.
https://apic.org/Resources/Topic-specific-infection-prevention/hand-hygiene

The Joint Commission: Measuring Hand Hygiene Adherence: Overcoming the Challenges. https://www.jointcommission.org/assets/1/18/hh_monograph.pdf

Infection Control Today: Hand Hygiene Compliance Monitoring Guidebook (requires registration to access). https://www.infectioncontroltoday.com/hand-hygiene/hand-hygiene-compliance-monitoring-guidebook

Personal Protective Equipment (PPE)

APIC: Do's and Don'ts for Gloves.
http://professionals.site.apic.org/files/2017/09/APIC_DosDonts_GOWNS.pdf

APIC: Do's and Don'ts for Wearing Gowns.
http://professionals.site.apic.org/files/2017/09/APIC_DosDonts_GOWNS.pdf

APIC: Do's and Don'ts for Masks.
http://www.apic.org/Resource_/TinyMceFileManager/consumers_professionals/APIC_DosDontsofMasks_hiq.pdf

APIC: Do's and Don'ts for N95 Respirators.
http://www.apic.org/Resource_/TinyMceFileManager/consumers_professionals/APIC_DosDonts_Respirators_hiq.pdf

Surveillance

CDC: National Healthcare Safety Network (NHSN).
https://www.cdc.gov/nhsn/ltc/index.html

SHEA: Revisiting the McGeer Criteria.
http://www.jstor.org/stable/pdf/10.1086/667743.pdf?refreqid=excelsior%3A0cf4133b334b0cd7692b2c3643874547

UM Regents: Infection Definition Pocket Cards.
http://infectionpreventioninaging.org/wp-content/uploads/2013/09/Infection-Definition-Pocket-Cards.pdf

APIC: Definitions and Surveillance.
https://apic.org/professional-practice/definitions-surveillance/

Urinary Tract Infection (UTI)

AHRQ: Suspected UTI SBAR Toolkit.
https://www.ahrq.gov/nhguide/toolkits/determine-whether-to-treat/toolkit1-suspected-uti-sbar.html

Audits, Checklists and Competencies

APIC. Reducing C. difficile Infections Toolkit, Appendix E: Environmental Cleaning Data Tool.
https://apic.org/Resource_/TinyMceFileManager/Practice_Guidance/cdiff/C.Diff_Digital_Toolkit_GNYHA.pdf

California Department of Public Health - Indwelling Urinary Catheter Maintenance Practices.
https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/AdherenceMonitoringIndwellingUrinaryCatheterApproved102816.pdf

Immunization Action Coalition (IAC) – Vaccine Competency Checklist
http://www.immunize.org/catg.d/p7010.pdf

SPICE - Hand Hygiene Competency Validation. https://spice.unc.edu/wp-content/uploads/2017/03/Hand-Hygiene-Competency-SPICE.pdf

SPICE – Injection Safety Competency Validation. https://spice.unc.edu/wp-content/uploads/2017/03/Injection-Safety-Competency-SPICE.pdf

SPICE - PPE Competency Evaluations. https://spice.unc.edu/wp-content/uploads/2017/03/PPE-Competency-SPICE.pdf