Objectives

1. To describe regulatory requirements for infection prevention and control programs in nursing homes.
2. To describe how applying quality assurance and performance improvement principles and tools can help you build an infection prevention and control program.
3. To identify required policies for a nursing home infection prevention and control program.
Objectives

4. Identify key resources to support implementation of evidence-based practice for infection prevention.
5. Identify key components of an infection prevention and control program.
6. To describe how to perform an infection control risk assessment.

What does it all mean?

- FDA
- OSHA
- CMS
- CDC
- SHEA
- EPA
- ASM
- TJC

Understanding the Scope

- Epidemiology
- Clinical/nursing practice
- Microbiology
- Environmental Engineering
- Environmental Services
- Quality Improvement
- Process Improvement
- Behavior Change
Chain of Infection

Break the Chain of Infection

Guiding Principle

- Infection prevention is everyone’s responsibility, not just the designated infection preventionist.
Guiding Principles

- Organizational culture will influence the success of an infection prevention and control program (IPCP).
- Senior leadership support is a must.
- Consider vision and mission and relationship to infection prevention program.
- Resident safety is a priority and this guides decision making.
- Build on and integrate quality assurance and performance improvement concepts and strategies to develop, implement, and evaluate IPCP.

Infection Prevention and QAPI

5 Elements of Effective Quality Management

- Element 1: Design and Scope
- Element 2: Governance and Leadership
- Element 3: Feedback, Data Systems, and Monitoring
- Element 4: Performance Improvement Projects
- Element 5: Systemic Analysis and Systemic Action
Element 1:
Design and Scope

- Encompasses full range of services offered by facility
- Full implementation addresses all systems of care and management practices
- Includes clinical care, quality of life, and resident choice
- Aims for safety and high quality with all clinical interventions and encourages autonomy for residents
- Utilizes best available evidence to define and measure goals

Element 2:
Governance and Leadership

- Culture that involves leadership seeking input of staff, residents, and resident families and/or representatives
- Assurance of adequate resources for QAPI
  - Designating at least one person to be accountable for QAPI
  - Facility-wide training
  - Allocating resources as needed (time, equipment, technical training)
- Prioritize QAPI by ensuring all policies support sustainment of program

Element 3:
Feedback, Data Systems, & Monitoring

- Monitor care and services with data from multiple sources
- Use Performance Indicators to monitor care processes and outcomes
- Incorporate feedback from staff, residents, and families
- Ongoing comparison of performance to established benchmarks
- Investigation of Adverse Events and action plans to prevent reoccurrence
Infection Prevention and QAPI

- Monitor care with data
  - Surveillance data
  - Performance indicators
  - Process measures and competency check off
  - Incorporate feedback from staff
  - Engage frontline staff to develop processes for care (i.e. wound care/dressing changes, catheter care)
- Ongoing comparisons
- Review and feedback of surveillance data and process measure data

Element 5: Systematic Analysis & Systemic Action

- Use of a thorough and structured approach to identify cause of problems
- Promote sustained improvement:
  - Hardwiring changes by developing policies and procedures
  - Proficiency in RCA process to sustain improvements
- Focus on continual learning and continuous improvement

Infection Prevention and QAPI

- Systematic analysis and root cause analysis
  - Example: High C. difficile rates
  - Surveillance data indicates potential for transmission
  - Evaluate current policy and adherence to policy
    - Are staff using correct cleaning and disinfection product and using it correctly? If not, why?
    - Are staff adhering to contact precautions? If not, why?
    - What corrective actions are needed?
QAPI Tools for Infection Prevention

- Gap analysis
  - Compare current practice to best practices
- Root cause analysis
  - What are the barriers?
  - What is the causal factor?
  - Example: Investigation of suspected infection transmission, outbreak investigation
- Failure Mode Effect Analysis
  - Proactive approach to find errors in process before they happen

QAPI Tools for Infection Prevention

- Plan, Do, Study Act
- DMAIC
  - Measure: Develop data collection plan and collect data
  - Analyze: Identify gaps between expectation and outcomes
  - Improve: design solutions and develop and deploy implementation plan
  - Control: Hardwire the process and continue to monitor

QAPI Tools for Infection Prevention

- Team STEPPs
  - Consists of the following tools and strategies:
    - Communication – SBAR, handoff, check back
    - Leading Teams – Brief, huddle, debrief
    - Situation Monitoring – current conditions affecting one’s work
    - Mutual Support – task assistance, real-time feedback, advocacy
Quality Assessment and Assurance

- Survey team is looking for documentation on:
  - Evidence that the facility’s infection control practices, concerns, and surveillance data have been reviewed by quality assessment and assurance committee
  - Evidence the facility takes action based on QAA review
  - Any root cause analysis of breaches in infection prevention practices
  - Evidence that facility performs data driven-decision making and take action accordingly

Infection Prevention and Control Program

Infection Control § 483.80

- 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.
Let’s Get Started

- Identify an infection preventionist
- Identify a multi-disciplinary team

Multi-disciplinary Team

- Define the role of the team
  - Guide the program
  - Program planning, implementation, and evaluation
  - Data driven decision making
  - Quality assurance and performance improvement
- Who should be on the team?
  - Front line staff
  - Senior leaders
  - Representation from various service areas

Infection Preventionist Skills and Abilities

- Facilitator
  - Facilitate meetings and multi-disciplinary workgroups
- Partner
  - Builds partnerships and fosters an environment of working together to attain desired outcomes
- Learner
  - Aptitude to keep learning
- Analytical
- Knowledge of key area (epidemiology, nursing practice, microbiology)
### Infection Control § 483.80

- Designate an infection preventionist who is responsible for the program (one or more individuals)
  - 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
  - Have completed specialized training in infection prevention
  - Be a member of QAPI committee

### Competency Domains for Infection Preventionist

- Association for Professionals in Infection Control (APIC) and Certification Board for Infection Control (CBIC)
  - Identification of infectious disease processes
  - Surveillance and epidemiologic investigation
  - Preventing and controlling the transmission of infectious agents
  - Leadership and program management
  - Performance improvement and implementation science
  - Employee/occupational health
  - Environment of care
  - Cleaning, disinfection, sterilization, asepsis

### Infection Preventionist Job Description

- Sets standards
- Establish and maintain policies and procedures
- Educate staff
- Conduct surveillance
- Analyze surveillance and process measure data
- Writing and disseminating reports and other communications to share data and outcomes to drive decision making
- Active member of QAPI
Infection Control § 483.80

- Infection prevention and control program (IPCP) includes 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, following accepted national standards.
  - State Operations Manual

Policies and Procedures

- Based on evidence based guidelines
  - Centers for Disease Control and Prevention
  - Association for Professionals in Infection Control
  - Society for Healthcare Epidemiology of America (SHEA)
- Ensure compliance with regulatory and accreditation standards
  - Centers for Medicare & Medicaid Services
  - Joint Commission

Guidelines

- CDC Guidelines
  - Hand hygiene
  - Isolation precautions
  - Disinfection and sterilization
  - Environmental infection control
  - Multi-drug resistant organisms
  - Catheter-associated UTI
  - Intravascular catheter-related infection

www.cdc.gov/hai and click on “library of infection control guidelines”
Guidelines

- CDC Guidelines
  - Carbapenem-resistant Enterobacteriaceae (CRE) Prevention Toolkit
  - Pneumonia prevention
  - Infection control in healthcare workers
  - Management of occupational exposures to HBV, HCV, and HIV and recommendations for post-exposure prophylaxis
  - Preventing the transmission of Mycobacterium tuberculosis in health-care settings

Guidelines

- American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
  - Water management plan

Evidence-based Practice

- American Journal of Infection Control
- Infection Control & Hospital Epidemiology
- Journal of American Medical Association
- American Journal of Public Health
- Journal of Clinical Microbiology
- Clinical Infectious Disease
- New England Journal of Medicine
- Lancet
Infection Control § 483.80

- Policies and procedures
  - A system of surveillance designed to identify possible communicable disease or infections before it can spread to other persons in the facility
  - When and to whom possible incidents of communicable disease or infections should be reported
  - Standard and transmission-based precautions to be followed to prevent spread of infections

Infection Control § 483.80

- Policies and procedures
  - When and how isolation should be used for a resident
    - Type and duration of isolation
    - Isolation should be the least restrictive possible for the resident under the circumstances
  - 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 the contact is likely to transmit the disease
  - Hand hygiene procedures to be followed by staff involved in direct resident contact

Resident’s Rights

- Resident’s rights and isolation
  - Resident does not have the right to infringe on the rights of another resident
  - “Standard and transmission-based precautions are to be followed to prevent the spread of infections.”
Infection Control § 483.80

- A system for recording incidents identified under the facility's IPCP and the corrective actions taken by the facility
- Require facility to review its IPCP annually and update the program as necessary
- Personnel must handle, store, process, and transport linens so as to prevent the spread of infection.
- The facility will conduct an annual review of its IPCP and update their program as necessary.

Infection Control § 483.80

- Pneumococcal and influenza immunizations policies and procedures
  - Each resident/resident representative is educated regarding benefits of and potential side effects of influenza and pneumococcal immunization
  - Each resident is offered an influenza immunization October 1 – March 31
  - Each resident is offered pneumococcal immunization, unless resident is medically contraindicated or already immunized

Infection Control § 483.80

- Pneumococcal and influenza immunizations policies and procedures cont’d
  - Resident/resident representative has opportunity to refuse influenza and pneumococcal immunization
  - Resident medical record includes documentation of the following:
    - Education (as described above)
    - Whether or not the resident received influenza and or pneumococcal immunization and if not, why (i.e. contraindication, refusal)
Antibiotic Stewardship

Intent is for facility to:
- Develop and implement protocols to optimize the treatment of infections by ensuring that residents who require an antibiotic, are prescribed the appropriate antibiotic;
- Reduce the risk of adverse events, including the development of antibiotic-resistant organisms, from unnecessary or inappropriate antibiotic use; and
- Develop, promote, and implement a facility-wide system to monitor the use of antibiotics.

IPCP Umbrella

- Programs, systems, and plans within the IPCP
  - Antibiotic stewardship program
  - Employee/occupational health
  - Education and training program
  - Infection prevention and control plan
  - Surveillance System
  - Tuberculosis assessment and screening
  - Water management program
Infection Prevention & Control Plan

- Goals and objectives
- Priority focus areas
- Based on surveillance data
- Based on facility assessment results
- Updated at least annually
- Program evaluation

System for Recording Incidents

- Identify, record, and investigate incidents under the infection prevention and control program
  - Incidents may equal failures in infection prevention and control practices
- Develop and implement corrective action
- Failures reported and reviewed by QAPI
- Monitor effectiveness of implemented changes
- Methods for feedback to appropriate individuals involved in the failed practices

Infection Control Risk Assessment (ICRA) - Annual Risk Assessment
ICRA

- Process to evaluate potential risk for acquiring and transmitting infection
- Identify opportunities for improvement
- Identify threats to resident health
- Foundation for infection prevention and control plan
  - Identify focus areas for surveillance
  - Prioritize focus areas
  - Use to establish goals and objective

How?

- Multi-disciplinary team
- Generate risk score for each event evaluated
  - Probability of occurrence
  - Severity rating
  - Current capacity
  - Probability for return to hospital
- Generate consensus

Risk Score

- Probability of occurrence
  - Has this happened in the past?
  - Is this likely to occur in the future?
  - How well do staff adhere to policy and/or practice?
  - How often does event occur or is it likely to occur?
Risk Score

- Probability of occurrence
  - (1) Rarely
  - (2) Sometimes
  - (3) Frequently
  - (4) Almost always or ongoing event

Risk Score

- Severity Rating
  - What is the impact to the patient/resident? Loss of life or loss of function?
  - Will event lead to significant morbidity? Loss of quality of life?
  - To what extent will the patient/resident experience harm?
  - What is the impact to the facility?
  - Are there financial, legal, or regulatory issues associated with the event?
  - What does the literature tell us about the event?

Risk Score

- Severity rating
  - (1) Minimal harm
  - (2) Some harm
  - (3) Major harm
  - (4) Catastrophic harm
Risk Score

- Current capacity
  - Do you have policies/procedures in place to address event?
  - Are the necessary resources (i.e. supplies, technology, etc.) available to address event?
  - Has staff been properly trained to prevent or respond to event?

Risk Score

- Current capacity and performance
  - (1) Have policies and sufficient resources
  - (2) Have policies and some resources
  - (3) Gaps in policies and some resources
  - (4) No or major gaps in policies and lack resources

Risk Score

Return to hospital

- What is the likelihood this will result in return to hospital?
  - (1) Rarely
  - (2) Sometimes
  - (3) Frequently
  - (4) Almost always
Process
- Present tool to multi-disciplinary team
- Provide instructions on how tool will be used
- Solicit feedback and update tool
  - Modify events as needed
  - Add events as needed
- Score events

Option A
- Use performance improvement team members
- Ask each member to complete tool on own and then average scores for each event
- Rank events from highest to lowest
- Higher score = higher priority
- Present findings back to group and discuss results

Option B
- Use performance improvement committee or establish multi-disciplinary team
- As a team, determine score for each event (i.e. generate consensus on each score for probability, severity, and current capacity and performance)
- Rank events from highest score to lowest score
- Higher score = higher priority
Process

- Review and discuss findings
- Identify action steps for priority events
- Identify needed resources
- Develop action plan
- Incorporate results into surveillance plan and infection prevention and control plan

Activity

Complete Risk Assessment

- Work in small groups of 3-5 people
- Review tool and how to complete tool
- Decide how your group will complete tool (i.e. which process, consensus or averaging individual scores)
- Share experience
Share Experience

- How did your group complete the tool?
  - Average scores of each group member
  - Consensus
- Did you add events to the tool?
- What are your top two priorities?
- Do you have insights or lessons learned on the process?

Policies and Procedures

Standard Precautions

Applies to all resident care regardless of infection status

- Includes
  - Blood
  - All body fluid secretions and excretions, except sweat, regardless of whether or not blood is visible
  - Non-intact skin
  - Mucous membranes
**Hand Hygiene**

- Hand hygiene policy is to reflect:
  - When to perform hand hygiene; and
  - When to use soap and water vs when alcohol based hand rub (ABHR) is acceptable.

- Soap and Water
  - Visibly soiled
  - Potential contact with body fluids
  - Potential contact with spore-forming bacteria (i.e. C. difficile)
  - Potential contact with infectious diarrhea (e.g. during norovirus outbreak)

**Hand Hygiene**

- Perform hand hygiene
  - Before and after contact with resident
  - Before performing an aseptic task
  - After contact with blood, body fluids, visibly contaminated surfaces or after contact with objects in the residents room
  - After removing PPE
  - After using the restroom
  - Before meals

**Personal Protective Equipment**

- Standard precautions and use of PPE
  - Gloves worn before and after (potential) contact with blood, body fluid, mucous membranes, or non-intact skin
  - Gloves changed and hand hygiene performed before moving from a contaminated body site to clean body site
  - Gown worn for direct resident contact when resident has uncontained secretions or excretions or with potentially contaminated items
Personal Protective Equipment

- Standard Precautions and use of PPE
  - Appropriate mouth, nose, and eye protection for procedures that are likely to generate splashes or spray of blood or body fluids
  - PPE appropriately discarded after resident care prior to leaving room followed by hand hygiene
  - Gloves are not a substitute for hand hygiene
  - Ensure supplies readily available at point of use

Respiratory Hygiene and Cough Etiquette

- Respiratory Hygiene and Cough Etiquette
  - Applies to all persons with respiratory symptoms
  - Residents
  - Family members
  - Caregivers
  - Visitors
  - Cough, congestion, runny nose, increased production of respiratory secretions

- Cover mouth and nose with tissue when coughing or sneezing
- Use of alcohol hand gel after contact with respiratory secretions
- Use of masks
- Ensure availability of supplies
Policies and Procedures

- Safe injection practices and point of care testing
  - Single use vials and or proper handling of multi-dose vials
  - Proper handling of fingerstick devices and blood glucose monitoring supplies
  - Proper cleaning and disinfection of glucometers
  - Safe medication administration

Policies and Procedures

- Accessing vascular devices
- Insertion and maintenance of indwelling urinary catheters
- Wound care and dressing changes

Policies and Procedures

- Cleaning and disinfection
  - Frequency of cleaning
  - Specify who is responsible for cleaning what
    - Equipment and various areas of the facility
  - Type of product(s) that will be used (low vs intermediate level disinfectant) and on what surfaces
Policies and Procedures

- Transmission based precautions
  - In addition to standard precautions
  - Identify type and duration or precautions (i.e. contact, droplet)
  - Criteria for private room, cohorting, and or when resident may share room based on risk factors
  - Identify type of precautions and PPE required
  - Signage/communication of precautions

Transmission-based Precautions

- Availability of PPE
- Use of disposable or dedicated equipment
- Frequency of cleaning and disinfection of room surfaces (i.e. daily and when visibly soiled)
- Education of resident and visitors
- Criteria for discontinuing precautions

**Applied Presumptively!**
Discontinuing Isolation

- Consider the following:
  - Are all body fluids contained?
  - Does the resident have symptoms?
  - Has treatment been completed?
  - Does the resident have the ability to maintain good hand hygiene or can the staff ensure hand hygiene is performed?
  - What does your surveillance data tell you?
  - Has a terminal room clean been completed?

Policies and Procedures

- Proper handling of linens - Handle all laundry as potentially contaminated = Standard Precautions or alternatively:
  - Contaminated laundry is bagged or contained at the point of collection;
  - Leak-resistant containers or bags are used for linens contaminated with blood or body substances;
  - Do not sort or rinse contaminated laundry in open spaces; and
  - Handle soiled linen with minimum agitation to avoid contamination of air, surfaces, and persons.

Proper Handling of Linens

- **No** special precautions or categorizing for linens from transmission-based precautions room is required.
- Carts used to transport dirty linens are to be cleaned when visibly soiled and according to a schedule.
- Double bagging of linen is not required unless outside bag is contaminated.
- Do not squeeze or hold close to the body bags of contaminated linens.
Proper Handling of Linens

- Must use separate carts to transport clean and dirty linens.
- Clean linens must be transported, loaded, and unloaded in a way that protects the linen from dust and soil.
- Ensure availability to PPE to adhere to standard precautions.
  - Gowns and gloves when sorting and handling contaminated laundry

Surveillance System

- Surveillance data to be well-organized, well documented, and performed consistently using data collection tools and standardized case definitions;
- System designed to identify possible communicable diseases before they can spread to other persons in the facility;
- Identifies which communicable diseases are reportable to public health;
- Surveillance priorities per facility assessment; and
- Last quarter surveillance data.
What Is Surveillance?

“The ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know.” Ehrenkranz, NJ Am J Med 1981

Why Do Surveillance?

- Identify risk factors for infection and adverse events
- Identify clustering of disease/outbreaks
- Identify who, when, where, and what
- Detect emerging disease
- Evaluate impact of interventions
- Meet regulatory requirements
  - Detect public health reportable diseases

Using Surveillance Data

- Determine baseline and endemic rates of infections
- Track trends over time
- Drive down endemic rates
- Target performance improvement activities
  - Measure patient/resident outcomes
  - Evaluate performance improvement initiatives
- Provide data for infection control risk assessment
- Guide decision-making for intervention/prevention strategies
Audits/Process Measures

- Survey team is looking for documentation of audits & competency data on compliance with infection control practices related to:
  - Hand hygiene
  - Blood glucose monitoring
  - Cleaning and disinfection
  - Injection safety
  - Urinary catheter insertion

Surveillance Plan

- Is your surveillance plan included in your infection prevention plan or a stand-alone plan?
- Who is the population served and what services are provided?
- What are the goals and objectives?
- What are the mandatory reporting requirements for your facility?
- What is the desired outcome for resident care?

Surveillance Plan

- What time period(s) will be used?
- What events and/or types of infections will be tracked?
- What case definitions will be used to define events?
  - Case definition ≠ clinical diagnosis and vice versa
- Will your system identify drug-resistant organisms?
- What reports will be generated and how often?
- Who will receive and review reports?
Surveillance Plan

- Why will you track these events?
  - Is there a linkage to performance improvement program (PIP)?
  - Are these events associated with significant morbidity and/or mortality?
  - Do these events happen often and are they preventable?
  - Are these costly events?

Surveillance Plan

- How will you collect the data?
- How will you analyze and stratify the data?
  - Will surveillance be house-wide or by location?
- How will reports be used?
- How will you validate the data?
- How will surveillance system be evaluated and how often?

Data Collection

- What data needs to be collected?
- What data sources are available?
- How will data be documented, analyzed and managed?
- How will data be stratified?
- What data collection forms are available or need to be developed?
## What To Collect

- Information to determine if there is an infection according to nationally recognized criteria for surveillance
- Case definitions
  - McGeer Criteria
  - National Healthcare Safety Network (NHSN)
- Must be consistent

### Case definition 🗝 Diagnosis

## Surveillance Report

- Objectives, time period, who and what measured
- Rates/ratios
  - Number of events
  - Graph trends
  - Comparisons over time periods (i.e. percent change over time)
- Interpret data
- Recommendations
- Monthly, quarterly, annually, seasonally

## Interpretation

- Must have point of reference!
  - Progress toward objective/goal
  - Percent change
    - Improvement since last month, quarter, or year
    - No change since last month, quarter, or year
  - How differ from benchmark
  - Trend – monthly, quarterly, annually
    - Increasing or decreasing
- Process measure data
  - Relationship between process measure data and infection data
Dissemination & Taking Action

- Report that interprets the data
- QAPI or infection prevention and control committee
  - Must be multi-disciplinary
  - Other key stakeholders (i.e. What about front line staff?)
- Data-driven decision making
  - Celebrate success
  - Action plans to address opportunities for improvement
- Record of incidents identified under the facility's IPCP and the corrective actions taken by the facility

Outbreak Investigation

- Notify public health
- Identify/confirm outbreak
- Notify key partners of investigation
- Perform literature review
- Define case definition
- Identify case finding strategy and find cases
- Generate line list

Outbreak Investigation

- (Potential) additional data for line list
  - Services provided/received
  - Devices
  - Caregivers and physicians
  - Presence of known risk factor
  - Antibiotic therapy received
  - Transfers to/from other health care facilities

Consider epidemiology of organism
Outbreak Investigation

- Analyze data (i.e. epi curve)
- Observe potentially impacted patient/resident care activities for adherence to policy/best-practice procedures
- Summarize case information in line list and formulate hypothesis for transmission
- Designate and implement control measures
- Evaluate control measures
- Communicate findings and results

Outbreak Control

- Reinforce core prevention strategies and monitor adherence
  - Hand hygiene
  - Standard and transmission based precautions
  - Environmental cleaning and disinfection
- Implement supplemental strategies
  - Chlorhexidine bathing
- Point prevalence surveys

Outbreak Control

- Incorporate performance improvement strategies
  - Re-visit case definition
  - Refine case finding and surveillance strategies
  - Observe practices and review control measures
  - Review and evaluate policies
  - Evaluate need for environmental sampling
  - Consider analytic study
  - Consider sharing lessons learned (i.e. poster presentation at conferences, articles, etc.)
Environmental Cleaning and Disinfection

Role of the Environment

- Depends on:
  - Ability of organism to survive and remain virulent on inanimate surfaces
    - How long can it survive?
  - How hard is it to kill? Are certain cleaning and disinfection products required?
    - Example: *C. difficile* can survive for up to 5 months and bleach or sporidial required

Role of the Environment (cont’d)

- Ability to colonize residents
- Small inoculating dose
- Ability to transiently colonize the hand of healthcare workers
- How contaminated the environment can become from colonized and or infected residents
Role of the Environment

- The environment has been established as an independent risk factor for acquiring an infection. If the room was previously occupied by a resident with a certain infection then the next resident risk of acquiring an infection due to that organism increases by 40% - 300% depending on the organism.

Role of the Environment

<table>
<thead>
<tr>
<th>菌株</th>
<th>持续时间（日或月）</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acinetobacter spp.</td>
<td>3-5 days</td>
</tr>
<tr>
<td>Bordetella pertussis</td>
<td>3 days</td>
</tr>
<tr>
<td>Campylobacter jejuni</td>
<td>up to 6 days</td>
</tr>
<tr>
<td>Clostridium difficile (spores)</td>
<td>5 months</td>
</tr>
<tr>
<td>Chlamydia pneumoniae</td>
<td>20 hours</td>
</tr>
<tr>
<td>Chlamydia psittaci</td>
<td>15 days</td>
</tr>
<tr>
<td>Corynebacterium diphtheriae</td>
<td>7 days (1-6 months)</td>
</tr>
<tr>
<td>Corynebacterium pseudotuberculosis</td>
<td>10 days</td>
</tr>
<tr>
<td>Escherichia coli</td>
<td>1.5 hours - 16 months</td>
</tr>
<tr>
<td>Enterococcus spp., including VSE and VSE</td>
<td>5 days - 4 months</td>
</tr>
<tr>
<td>Haemophilus influenzae</td>
<td>12 days</td>
</tr>
<tr>
<td>Klebsiella pyogenes</td>
<td>10 days - 2 months</td>
</tr>
<tr>
<td>Listeria spp.</td>
<td>2 hours to &gt; 30 months</td>
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</tbody>
</table>

Role of the Environment (cont’d)

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<tr>
<td>Helicobacter pylori</td>
<td>1-5 years</td>
</tr>
<tr>
<td>Helicobacter pylori</td>
<td>1-2 months</td>
</tr>
<tr>
<td>Helicobacter pylori</td>
<td>1-2 months</td>
</tr>
<tr>
<td>Helicobacter pylori</td>
<td>2-5 months</td>
</tr>
<tr>
<td>Staphylococcus aureus, including MRSA</td>
<td>7 days - 2 months</td>
</tr>
<tr>
<td>Staphylococcus aureus, including MRSA</td>
<td>7 days - 2 months</td>
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</tbody>
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来源：Kramer et al. BMC Infectious Diseases 2008:9:320
Cleaning Bundle

- High-touch surfaces
- Shared equipment
  - Policy specific to re-usable non-critical medical equipment
- Assigning responsibility
- Product selection and use
- Quality assurance and performance improvement: monitoring performance and providing feedback to staff
- Policies that reflect practice

Clean Resident Rooms

- Housekeeping expected to follow standard and transmission-based precautions, even when patient/resident is not in room.
  - Gloves, gowns, mask, eyewear or face shield
- Clean from top to bottom.
- Clean the dirtiest surfaces last.
  - Patient zone/high-touch surfaces
  - Bathroom

Employee/Occupational Health
Employee/Occupational Health

- Vaccine preventable diseases and immunization status
  - MMR, Varicella, Tdap
  - Influenza
    - Education, reasons for declinations, processes for tracking and analyzing data
- Policy describing reporting of signs and symptoms of illness and when and how long staff are to be excluded from work
- Blood borne pathogen exposures and post-exposure follow up procedures including prophylaxis when appropriate

Tuberculosis Screening

Conduct an annual TB risk assessment
- CDC tool available online – includes information on number of residents with or who have had TB in the last year, community prevalence, number of staff exposures, etc.
- Determine risk category – low, medium, or high
- Determine frequency of TB testing (TST or IGRA)

Staff Education and Training
Staff Education and Training

- Ensure ongoing education and training of staff on policies, procedures, and best practices.
- Evaluate staff competency using multiple methodologies such as tests and direct observation.
- Provide timely feedback to staff on performance.

Water Management Program

CMS Memo June 2, 2018

Water Management Program Elements

1. Establish water management team
   - Should include experts from facilities, infection prevention, regulatory, risk, quality, and other areas with a stake in water systems
2. Describe the building water system (text and diagrams)

Adapted from CDC Legionella Toolkit (2017).
3. Identify areas where pathogens can grow
   - Indicate high risk areas (hydrotherapy, dialysis, respiratory therapy) and devices (ice machines, heater-cooler units, etc)
4. Decide application of control measures and appropriate monitors
   - Such as controlling exposure to water mists from procedures and vulnerable populations (oncology, immunocompromised patients)

Adapted from CDC Legionella Toolkit (2017).

5. Establish interventions when control limits not met
6. Ensure program is effective
7. Communicate and document program activities
8. Review program at least once a year
9. Review data and interventions whenever an issue occurs (such as a outbreak or positive water sample)

Adapted from CDC Legionella Toolkit (2017).

Standards & Resources for Development of Water Management Program

- ASHRAE Standard 188
- ASHRAE Guideline 12
- Cooling Technology Institute Legionellosis Guide
- CDC Legionella Toolkit
- EPA Safe Drinking Water Act
- Local and State Water Laws
CMS Expectations for Control of Legionella

- Conduct risk assessment for Legionella and other waterborne pathogens
- Implement control program, taking into account ASHRAE standard and CDC Legionella toolkit
  - Physical controls
  - Temperature management
  - Disinfectant level control
  - Visual inspections and environmental testing
- Specify testing protocols and document results/corrective actions appropriately

Antibiotic Stewardship

What Is It?

- According to the CDC, antibiotic stewardship refers to a set of commitments and actions designed to optimize the treatment of infections while reducing adverse events associated with antibiotic use.
Antibiotic stewardship is....

- The right drug
- For the right bug
- For the right amount of time

The Importance of Antibiotic Stewardship

- An important patient safety and public health issue and national priority
  - 2006 CDC Guideline for Management and Prevention of MDROs in Healthcare Settings – control of MDROs "must include attention to judicious use of antibiotics."
  - 2009 CDC Get Smart for Healthcare Campaign to promote improved antibiotic usage
  - 2013 CDC – improved antibiotic use is one of four key strategies to address antibiotic resistant in the US.

CDC’s Elements for Antibiotic Stewardship In Nursing Homes

- Leadership
- Commitment
- Accountability
- Drug expertise
- Action
- Tracking
- Reporting
- Education
Q & A

Questions???

Thank you for your participation

To learn more about this topic please contact Jonathan Teter, MS, CIC, EMT Infection Prevention Advisor at jonathan@rbhealthpartners.com

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