



## DEVELOPMENT OF AN INFECTION CONTROL PROGRAM FOR LONG-TERM CARE FACILITIES

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(SPICE)

<https://spice.unc.edu/>

## OBJECTIVES

Describe

Describe unique infection prevention challenges associated with LTCFs pre and post COVID-19

List

List factors contributing to infections in the elderly

Describe

Describe regulatory factors impacting LTCFs

Describe

Describe components of a LTCF infection control program

## LTC-LANDSCAPE

- Nursing homes, skilled nursing facilities, and assisted living facilities
- Provide a variety of services both medical and personal
- Over 4 million Americans admitted to/reside in nursing and skilled facilities
- Nearly 1 million in assisted living facilities



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## LTC LANDSCAPE: RESIDENT

- Life expectancy:
  - 1970s life expectancy was 70 and today well in the '90s
  - 85% over the age of 75
- Level of care
  - Moved from "custodial care" to very complex medical care and invasive devices
- Demographics
  - Comorbid conditions and complex drug regimens
  - ~ 70% some form of cognitive deficit (48% with dementia)

[https://www.jamda.com/article/S1525-8610\(20\)30522-3/fulltext](https://www.jamda.com/article/S1525-8610(20)30522-3/fulltext)

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## CURRENT ENVIRONMENT

- Please put into the chat box how many other roles you are responsible for
- Please put in the chat box how long you have been in the role of IP

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## LTCF-UNIQUE INFECTION PREVENTION CHALLENGES

- Infection Prevention and Control (IPC) programs are inadequately staffed, as much as four-fold less than their acute care hospital counterparts
- IPs wear multiple hats
- Less than 10% have specialized training
- Difference in social environment
- Populations in LTCFs are heterogeneous

*Council of State and Territorial Epidemiologists (CSTE): Recommendations for Surveillance and Reporting of Healthcare-Associated Infections in Long Term Care Facilities*

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## LTC -INFECTION PREVENTION

### BEFORE COVID-19

- Published data on overall high employee turnover rates in LTC facilities; **2012** data from the American Health Care Association (AHCA) showed the following turnover rates:

	Work force	Turnover rate
RN	12%	50%
LPNs	22%	36.4%
CNAs	64%	51.5%

*CNAs often work in multiple LTCFs to supplement their income*

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## LTC -INFECTION PREVENTION

### BEFORE COVID-19

- Inadequate (and sometimes absent) IT infrastructure, resulting in manual data collection, analysis and feedback of information.
- Subject matter experts (i.e., pharmacist) may be consultants with limited access/input
- IP lack of authority



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## LTC -INFECTION PREVENTION

### BEFORE COVID-19

- Never been required to deal with emerging infectious diseases
- Regulatory oversight - Isolation should be the least restrictive possible (CMS)
  - PPE used much less frequently
  - Education/monitoring absent or inadequate



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## Locked in With Nowhere to Go



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## COVID-19 IMPACT ON LTC- RESIDENTS

**NO indoor** visitation from family or loved ones-isolation (*March-September*)



**NO** socialization with other residents

Difficulty with recognizing/communicating with care providers



Lack of understanding what is going on

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## COVID-19 IMPACT ON LTC - RESIDENTS

- 85% noted a decline in physical abilities.
- 87% indicated their loved one's physical appearance had declined.
- 91% of reported that their loved one's demeanor (mental status) had declined.
- 40% indicated their loved ones were missing personal belongings.
- 69% indicated the facility did not appear to have sufficient staff to care for residents.
- 10% observed facility staff not wearing or properly using personal protective equipment (PPE).



[https://theconsumervoice.org/uploads/files/issues/Devastating\\_Effect\\_of\\_Lockdowns\\_on\\_Residents\\_of\\_LTC\\_Facilities.pdf](https://theconsumervoice.org/uploads/files/issues/Devastating_Effect_of_Lockdowns_on_Residents_of_LTC_Facilities.pdf)

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2 in 5 Medicare beneficiaries in nursing homes were diagnosed with COVID-19 or likely COVID-19 in 2020.

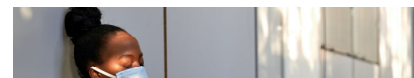


As of January 30<sup>th</sup>, 2022, > 200,000 residents and HCP died from COVID-19 or about 23% of all COVID deaths in the U.S.

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## COVID-19 IMPACT ON LTC STAFF

*Designated staff working in NHs as one of the deadliest occupations of 2020*



U.S. BUREAU OF LABOR STATISTICS



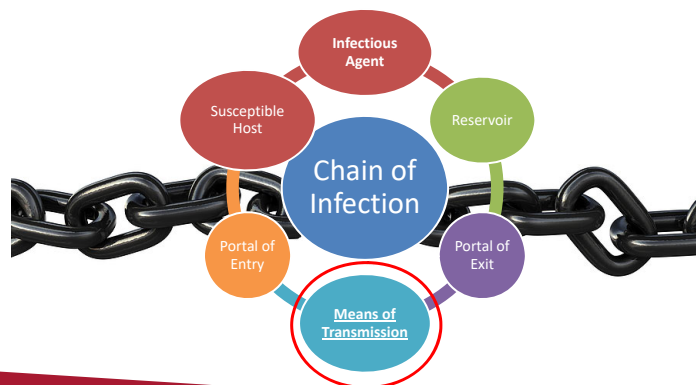
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## Objectives

Describe	Describe unique infection prevention challenges associated with LTCFs-pre and post COVID-19
List	List factors contributing to infections in the elderly
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## ELEMENTS REQUIRED FOR AN INFECTION TO OCCUR



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## HEALTHCARE- ASSOCIATED INFECTIONS (HAI)

- Limited data
- 1 – 3 million serious infections annually
- Infections include:
  - UTI, diarrheal disease, antibiotic-resistant staph infection and others
- Major cause of hospitalization
- 380,000 die of infections in LTCFs annually



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## HEALTHCARE- ASSOCIATED INFECTIONS (HAI)

- Account for 26% of all serious adverse events
- **59% deemed preventable**
- Among the most frequent causes of transfer to acute care hospitals and 30-day hospital readmissions.
- Cost of infection-related hospitalizations was estimated to be \$83 million in single month

OIG. Adverse Events in Skilled Nursing Facilities: National Incidence Among Medicare Beneficiaries, OEI-06-11-00370, February 2014

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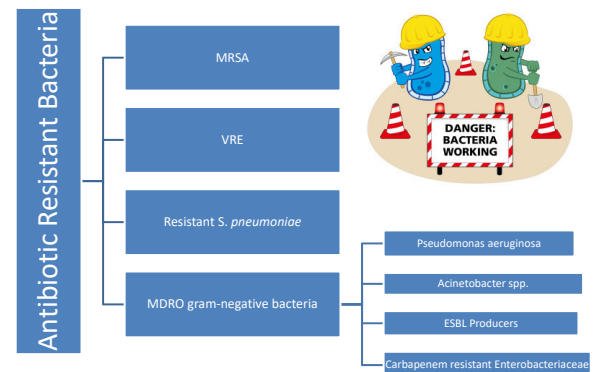
## SPECIFIC INFECTIONS IN LTCFS

- Urinary Tract Infections
  - 30% of hospital readmissions in 30 days
- Respiratory Track Infections
  - Pneumonia 5<sup>th</sup> lead cause of death >65
- Skin and Soft Tissue
- Gastroenteritis
  - *C difficile* most common
- Conjunctivitis
- Bacteremia(s)
  - 50% related to UTI



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## SPECIFIC INFECTIONS IN LTCFS



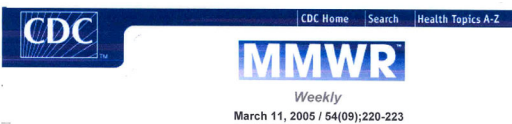
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## RESIDENT FACTORS (NON-MODIFIABLE) CONTRIBUTING TO INFECTIONS

- Medications affecting resistance to infection Limited physiologic reserve
- Compromised host defenses (↓ cough reflex, thinning skin, decreased tear production and immune dysfunction)
- Coexisting chronic diseases
- Impaired responses to infection
- Increase frequency of therapeutic toxicity



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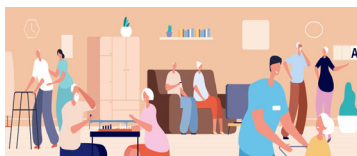
### Transmission of Hepatitis B Virus Among Persons Undergoing Blood Glucose Monitoring in Long-Term--Care Facilities --- Mississippi, North Carolina, and Los Angeles County, California, 2003--2004

Regular monitoring of blood glucose levels is an important component of routine diabetes care (1). Capillary blood is typically sampled with the use of a fingerstick device and tested with a portable glucometer. Because of outbreaks of hepatitis B virus (HBV) infections associated with glucose monitoring, CDC and the Food and Drug Administration (FDA) have recommended since 1990 that fingerstick devices be restricted to individual use (2,3). This report describes three recent outbreaks of HBV infection among residents in long-term--care (LTC) facilities that were attributed to shared devices and other breaks in infection-control practices related to blood glucose monitoring. Findings from these investigations and previous reports suggest that recommendations concerning standard precautions and the reuse of fingerstick devices have not been adhered to or enforced consistently in LTC settings (2--5). The findings underscore the need for education, training, adherence to standard precautions, and specific infection-control recommendations targeting diabetes-care procedures in LTC settings (4--6) (Box 1).

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## MODIFIABLE FACTORS CONTRIBUTING TO INFECTION TRANSMISSION

- Lack of a staff member dedicated to the function of infection prevention and control
  - Staff education, **monitoring** and competency
- Semi-private rooms
- Inadequate ventilation systems and/or systems maintenance
- Residents sharing space, air, food in a crowded institutional setting
- Multiple visitors



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## MODIFIABLE FACTORS CONTRIBUTING TO INFECTION TRANSMISSION

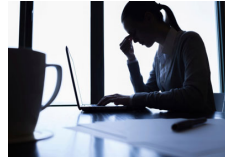
- Lack dedicated in room-sinks
- Lack in room storage for linen, supplies
- Lack of alcohol-based hand rubs in rooms
- Staffing shortages-turnover
- Staff working in multiple facilities
- Staffing training
- Staff compliance with immunizations



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## STAFFING FACTORS

- While many people join the field with a desire to provide compassionate, hands-on care for residents, physical and emotional demands and **low wages drive high rates** of turnover among direct care workers
- Workers providing health services have always faced challenges—or stress—as part of their jobs. This stress can come from difficult working conditions including heavy workloads, unpredictable schedules, engagement in emotionally charged situations, risk for hazardous personal exposures and harm, and other challenges at work. The pandemic has exacerbated these challenges.



<https://www.cdc.gov/niosh/topics/healthcare/workstress.html>



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## REGULATORY AND/OR ACCREDITING AGENCIES

- OSHA (Occupational Safety and Health Administration)
- OBRA (Omnibus Budget Reconciliation Act)
- CMS
- TJC (The Joint Commission)



## ADDITIONAL NC STATE REGULATIONS

- Rules Governing the Sanitation of Hospitals, Nursing and Rest Homes, Sanitariums, Sanatoriums and Other Institutions - 15A NCAC 18A .1300
- NC Communicable Disease Rule 10A NCAC 41A .0206.
- NC Rules for the Licensing of Nursing Homes and Beds in Homes for the Aged Licensed as Part of a Nursing Home



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## SHEA/APIC GUIDELINE:

*infection prevention and control in the long-term care facility*

- *In this document, as in several published HICPAC, SHEA, and APIC guidelines, each recommendation is categorized based on existing scientific evidence, theoretical rationale, applicability, and national or state regulations*

\*Healthcare Infection Control Practices Advisory Committee (HICPAC)

\*Society Healthcare Epidemiology of America (SHEA)

\*Association for Professionals in Infection Control and Epidemiology (APIC)

Smith et al; AJIC September 2008





## CATEGORIZATION OF RECOMMENDATIONS

- Category IA: Strongly recommended and strongly supported
- Category IB: Strongly recommended with some support
- **Category IC: Required by law/regulation**
- Category II: Recommended for implementation
- No Recommendation: Unresolved issues



## LTCF INFECTION PREVENTION PROGRAM

- An active, effective, facility-wide infection prevention program should be established in the LTCF (Cat 1C).
  - The Purpose of the program is to reduce the risk of development and spread of infectious disease
- The IP Program must comply with federal, state and local regulations (Cat 1C)



## INFECTION PREVENTION AND CONTROL PROGRAM (IPCP)

- **§483.80 Infection 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** disease and infection



## INFECTION PREVENTION AND CONTROL PROGRAM (IPCP)

- Requires system for preventing, identifying, reporting, investigating and controlling infections and communicable diseases that:
  - Covers all residents, staff, visitors, volunteers and other service providers
  - Is based on the individual facility assessment
  - Follows accepted national standards

Source: Federal Register *Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities Final Rule: 10/4/16*. <https://www.federalregister.gov/documents/2016/10/04/2016-23503/medicare-and-medicare-programs-reform-of-requirements-for-long-term-care-facilities>



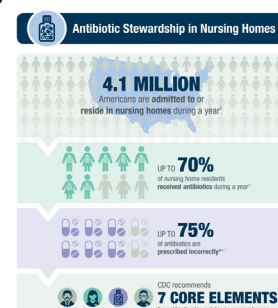
## INFECTION PREVENTION AND CONTROL PROGRAM (IPCP)

- Must include, at a minimum policies and procedures that address:
  - Surveillance
  - Reporting
  - Standard and Transmission-based Precautions
  - Emphasis that isolation should be the least restrictive
- Ensure staff are aware of policies
- Annual review of the IPCP and update as needed



## INFECTION PREVENTION AND CONTROL PROGRAM (IPCP)

- An antibiotic stewardship program that includes antibiotic use protocols and a system to monitor use
- A system for recording incidents identified and the corrective actions taken



## CORE PRACTICE: LEADERSHIP SUPPORT

Core Practices Table

Core Practice Category	Core Practices	Comments
1. Leadership Support References and resources: 1-12	<p>1. Ensure that the governing body of the healthcare facility or organization is accountable for the success of infection prevention activities.</p> <p>2. Allocate sufficient human and material resources to infection prevention to ensure consistent and prompt action to remove or mitigate infection risks and stop transmission of infections. Ensure that staffing and resources do not prevent nurses, environmental staff, et. al., from consistently adhering to infection prevention and control practices.</p> <p>3. Assign one or more qualified individuals with training in infection prevention and control to manage the facility's infection prevention program.</p> <p>4. Empower and support the authority of those managing the infection prevention program to ensure effectiveness of the program.</p>	To be successful, infection prevention programs require visible and tangible support from all levels of the healthcare facility's leadership.



## INFECTION PREVENTIONIST

- Collection and analysis of infection data
- Evaluation of products and procedures
- Development of policies
- Consultation
- Education



- Implementation of mandated changes
- Application of epidemiologic principles-**outbreak management**
- Antimicrobial management
- Research
- High quality services in a cost-efficient manner



## INFECTION PREVENTIONIST(IP)

- 483.80(b) Infection Preventionist: all subparts implemented beginning 11/28/19
  - The facility must designate one or more individual(s) as the infection Preventionist(s) (IP)(s) who is responsible for the facility's IPCP. The IP must:
    - (1) Have primary professional training in nursing, medical technology, microbiology, epidemiology, or another related field;
    - (2) Is qualified by education, training, experience or certification;
    - (3) **Works at least part-time at the facility;** and
    - (4) Has completed specialized training in infection prevention and control.



## INFECTION CONTROL HOURS

- Is the time given to the IP adequate for the size of the facility, acuity of the residents, and types of procedures and treatment?
- No specific amount of time has been researched to be ideal; the following guideline has been developed based on experience

No of beds week for IC	Hours per
1-50	8
51-100	16
101-150	24
151-200	32
more than 200	40

Ref: Mark JF, APIC LTCF Newsletter, 1995, vol 6, no 1

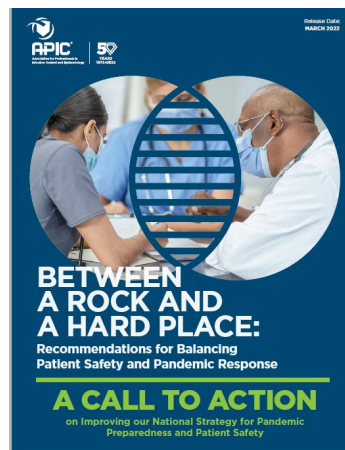


## INFECTION PREVENTIONIST

CDC Guidance: "Preparing for COVID-19 in Nursing Homes"

- Facilities should assign at least **one individual with training in IPC to provide on-site management of their COVID-19 prevention and response activities**
- This should be a **full-time role for** at least one person in facilities that have more than 100 residents or that provide on-site ventilator or hemodialysis services.
- Smaller facilities should consider staffing the IPC program based on the resident population and facility service needs identified in the facility risk assessment.

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/long-term-care.html>



**Put Properly Trained Personnel in Long-Term Care, Nursing Homes, and Other High-Risk Settings:**

- CMS should require that each NH have at least one full-time dedicated infection preventionist on-site; be certified when feasible and have ongoing education
- CMS require that routine mandatory surveillance for healthcare associated infections be expanded to nursing homes



## ADMINISTRATIVE STRUCTURE

### (Committee)

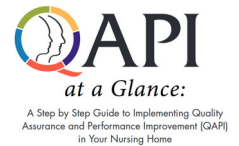
- Oversight of the IP program should be defined and should include participation of the IP, administration, nursing staff, and physician staff (Category II)
  - Meet on regular basis
  - Written minutes with action plans and recommendations
  - Evaluate effectiveness
  - Review of IP data
  - Approve policies and procedures



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## INFECTION PREVENTIONIST (IP)

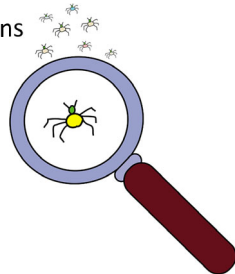
- The individual designated as the IP (or at least one if there is more than one) must be:
  - A member of the facilities quality assessment and assurance committee
  - Report on the IPCP on a regular basis



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## SURVEILLANCE IN LTCF

- The LTCF should have a system for ongoing collection of data on infections in the institution (Cat IC)
  - Process and/or Outcome Surveillance
  - Standardized Definitions
  - Surveillance tools
  - Analyzing those healthcare associated (facility-acquired) infections



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## FACILITY-WIDE ASSESSMENT

- “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
  - At least annually
  - Whenever there is, or facility plans for, any change that would require a substantial modification to any part of this assessment”



Source: Federal Register *Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities Final Rule: 10/4/16.*

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## RESIDENTS

- The facility’s resident population
- The care required for resident population:
  - Types of diseases, conditions, physical and cognitive disabilities
  - Overall acuity
  - Other pertinent facts that are present within that population
- Ethnic, cultural or religious factors

Source: Federal Register *Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities Final Rule: 10/4/16.* <https://www.federalregister.gov/documents/2016/10/04/2016-23503/medicare-and-medicaid-programs-reform-of-requirements-for-long-term-care-facilities>

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## INFECTION PREVENTION RISK ASSESSMENT



<https://spice.unc.edu/resources/template-risk-assessment-for-ltc/>

[https://www.cdc.gov/longtermcare/training.html#anchor\\_1557254909](https://www.cdc.gov/longtermcare/training.html#anchor_1557254909)

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# INFECTION CONTROL RISK ASSESSMENT

Infection Control  
Risk Assessment

Priorities

Goals

Infection Control Plan



## Infection Prevention and Control Assessment Tool for Long-term Care Facilities

This tool is intended to assist in the assessment of infection control programs and practices in nursing homes and other long-term care facilities. If feasible, direct observations of infection control practices are encouraged. To facilitate the assessment, health departments are encouraged to share this tool with facilities in advance of their visit.

### Overview

#### Section 1: Facility Demographics

#### Section 2: Infection Control Program and Infrastructure

#### Section 3: Direct Observation of Facility Practices (optional)

#### Section 4: Infection Control Guidelines and Other Resources

#### Infection Control Domains for Gap Assessment

- Infection Control Program and Infrastructure
- Healthcare Personnel and Resident Safety
- Surveillance and Disease Reporting
- Hand Hygiene
- Personal Protective Equipment (PPE)
- Respiratory/ Cough Etiquette
- Antibiotic Stewardship
- Injection safety and Point of Care Testing
- Environmental Cleaning

<https://www.cdc.gov/infectioncontrol/pdf/icar/ltcf.pdf>



## Section 2: Infection Control Program and Infrastructure

I. Infection Control Program and Infrastructure		
Elements to be assessed	Assessment	Notes/Areas for Improvement
A. The facility has specified a person (e.g., staff, consultant) who is responsible for coordinating the IC program.	<input type="radio"/> Yes <input type="radio"/> No	Click here to enter text.
B. The person responsible for coordinating the infection prevention program has received training in IC  <i>Examples of training may include: Successful completion of initial and/or recertification exams developed by the Certification Board for Infection Control &amp; Epidemiology; Participation in infection control courses organized by the state or recognized professional societies (e.g., APIC, SHEA).</i>	<input type="radio"/> Yes <input type="radio"/> No	Click here to enter text.
C. The facility has a process for reviewing infection surveillance data and infection prevention activities (e.g., presentation at QA committee).	<input type="radio"/> Yes <input type="radio"/> No	Click here to enter text.
D. Written infection control policies and procedures are available and based on evidence-based guidelines (e.g., CDC/HICPAC), regulations (F-441), or standards.  <i>Note: Policies and procedures should be tailored to the facility and extend beyond OSHA bloodborne pathogen training or the CMS State Operations Manual</i>	<input type="radio"/> Yes <input type="radio"/> No	Click here to enter text.
E. Written infection control policies and procedures are reviewed at least annually or according to state or federal requirements, and updated if appropriate.	<input type="radio"/> Yes <input type="radio"/> No	Click here to enter text.
F. The facility has a written plan for emergency preparedness (e.g., pandemic influenza or natural disaster).	<input type="radio"/> Yes <input type="radio"/> No	Click here to enter text.



## Section 1. Facility Demographics and Critical Infrastructure

(facility should complete this section prior to consultation, provided as separate PDF:  
<https://www.cdc.gov/coronavirus/2019-ncov/downloads/hcp/nursing-home-icar-section1-demographics.pdf>)

- Facility name: \_\_\_\_\_
- County in which the facility is located: \_\_\_\_\_
- Type of care provided by the facility (please select all that apply):
 

<input type="checkbox"/> Skilled nursing	<input type="checkbox"/> Ventilator care	<input type="checkbox"/> Psychiatric care
<input type="checkbox"/> Subacute rehabilitation	<input type="checkbox"/> Tracheostomy care	<input type="checkbox"/> In-facility dialysis
<input type="checkbox"/> Long-term care	<input type="checkbox"/> Dementia/memory care	<input type="checkbox"/> Other, please specify: _____
- Total number of licensed beds in the facility: \_\_\_\_\_
- Total number of residents currently in the facility: \_\_\_\_\_
- Total number of units in the facility: \_\_\_\_\_
- Total number of each resident room type in the facility:
 

- Singles/Privates: _____
- Doubles/Semi-Private: _____
- Triples: _____
- Quads: _____
- Other, please specify: _____
- Current number of healthcare personnel (HCP) working in the facility:
 

8a. Total number of HCP: _____
8b. Number of nurses (RNs, LVNs, etc.): _____
8c. Number of nursing aides: _____
8d. Number of environmental service staff (i.e., housekeeping): _____

<https://www.cdc.gov/coronavirus/2019-ncov/downloads/hcp/nursing-home-icar-non-facilitator-guide.pdf>



EVENT	PROBABILITY OF OCCURRENCE <i>(How likely is this to occur)<sup>1</sup></i>				RISK LEVEL OF FAILURE <i>(What would be the most likely)<sup>2</sup></i>				POTENTIAL CHANGE IN CARE <i>(Will treatment/care be needed for residents/staff)<sup>3</sup></i>				PREPAREDNESS <i>(Are processes in place and can they work)<sup>4</sup></i>			YEAR: _____	RISK LEVEL  Add rankings (score of 8 or + are considered highest priority for improvement efforts)
	High	Med	Low	None	Life Threatening	Permanent Harm	Temp Harm	None	High	Med	Low	None	Poor	Fair	Good		
Score	3	2	1	0	3	2	1	0	3	2	1	0	3	2	1		
Example: Lack of Communication with Transferring Facility	2						1		2						1	6	
External Factors (Community, Demographics)																	
Identify other risk factors in the community based on geographic location (coast, mountains etc.)																	
Risk of TB in the community																	
Risk of emerging infectious disease in the community																	
Internal Factors (Facility Related)																	
Facility Associated Infection(s)																	
Symptomatic urinary tract infection (SUTI)																	
Influenza like illness																	
Pneumonia																	

<https://spice.unc.edu/tools-for-success/>



## RISK ASSESSMENT TIPS

- Proactive and prioritize risk or events
- Annually review/revision or as processes change
- Team effort and approval by QAPI/QI
- Very subjective-no specific tool required
- Use historical data, staff feedback and regulatory requirements to begin
- Should be integrated into your overall facility wide risk assessment required by CMS (483.70)(e)



Living, breathing document



## 2 TYPES OF EVENTS/RISKS



### Community/External

- TB risk (HCP & residents)
- **COVID transmission in community**
- Geographical area & environmental issues such as flooding, mudslides, hurricane, tornado, legionella, etc.
- Population served & socioeconomic status such as retirement community, rural, low income, drug abuse, etc.
- Regulatory - DHSR - OSHA

### Facility specific/Internal

- Healthcare associated infections
- Antibiotic stewardship/ MDROs
- Exposure related events
- HCP compliance
- Resident/family
- New services/construction
- Procedures/devices



## FOUR FACTORS TO CONSIDER: RANKING THE RISK

Probability of Occurrence (Likelihood)	Risk Level of Failure	Potential Change in Care	Preparedness
<ul style="list-style-type: none"> <li>• High: If there were more events than baseline numbers or more than experienced historically</li> <li>• Medium: If there were a similar number of events experienced historically</li> <li>• Low: If there were fewer events than expected or experienced historically</li> <li>• None: No events occurred</li> </ul>	<ul style="list-style-type: none"> <li>• Life-Threatening: Event associated with high rates of mortality</li> <li>• Permanent Harm: Event associated with loss of limb or permanent change in status</li> <li>• Temporary Harm: Event associated with a temporary change in ambulation</li> </ul>	<ul style="list-style-type: none"> <li>• High: Event resulted in transfer to higher level of care (hospital)</li> <li>• Medium: Event resulted in major change to resident's care plan (acquisition of <i>C. difficile</i> for example)</li> <li>• Low: Event resulted in minor/short term modification to treatment (change in VS routine for example)</li> <li>• None: No change in treatment or care plan</li> </ul>	<ul style="list-style-type: none"> <li>• Poor: No policies or procedures or process in place</li> <li>• Fair: Policies/procedures in place but no monitoring to ensure compliance</li> <li>• Good: Policies/procedures in place and compliance being monitored with staff feedback</li> </ul>



	PROBABILITY OF OCCURRENCE (How likely is this to occur)				RISK LEVEL OF FAILURE (What would be the most likely)				POTENTIAL CHANGE IN CARE (Will treatment/care be needed for residents/staff)				PREPAREDNESS (Are processes in place and can they work)			YEAR: _____	RISK LEVEL Add ratings (score of 8 or + are considered highest priority for improvement efforts)
EVENT					Life Threatening	Permanent Harm	Temp Harm	None	High	Med	Low	None	Poor	Fair	Good		
Score	High	Med	Low	None													
	3	2	1	0	3			1	0	3	2	1	0	3	2	1	
Facility Associated Infection(s) (Symptomatic Urinary Tract Infection (UTI))	2				3				3				2			10	

**Important:**  
**Review year-end data from previous year!**

- 6 UTIs in 2021 per McGeer Criteria compared to 12 in 2020
- 1 healthcare acquired *C. difficile* in 2021 compared to 2 in 2020
- 2 needle stick exposures in 2021 compared to 5 in 2020



NCDHHS		Epidemiology	
Communicable Disease Control & Prevention	Local Health Units	Technical Resources	Policy & Procedure
Diseases & Topics			
Tuberculosis			
North Carolina Tuberculosis Policy Manual			
Chapter	Title	File	Pages
Chapter 1	Introduction	1-10	10
Chapter 2	History of Tuberculosis	11-15	5
Chapter 3	Transmission	16-24	9
Chapter 4	Diagnosis and Treatment of Latent Tuberculosis Infection (LTBI)	25-30	6
Chapter 5	Diagnosis and Treatment of Active Tuberculosis Infection	31-45	15
Chapter 6	Prevention	46-50	5
Chapter 7	Control	51-55	5
Chapter 8	Investigation	56-60	5
Chapter 9	Surveillance	61-65	5
Chapter 10	Research	66-70	5
Chapter 11	Appendix	71-75	5
Chapter 12	Hand Hygiene	76-80	5
Chapter 13	Isolation	81-85	5

## TB RISK ASSESSMENT

<http://epi.publichealth.nc.gov/cd/lhds/manuals/tb/toc.html>



## NORTH CAROLINA SPECIFIC RULES

### S. Quick Reference for Tuberculin Skin Testing Requirements:

1. Tuberculin Skin Testing (TST) or IGRA (Interferon Gamma Release Assays) testing is required by communicable disease/TB rules for:

- household and other close contacts of active cases of pulmonary and laryngeal tuberculosis  
By: 10A NCAC 41A .0205  
Frequency: at the time of exposure and 3 months post exposure
- persons reasonably suspected of having tuberculosis disease  
By: 10A NCAC 41A .0205  
Frequency: when suspected
- inmates in the custody of the Department of Corrections  
By: 10A NCAC 41A .0205, DOC policy  
Frequency: upon incarceration and annually
- Department of Correction employees with direct inmate contact  
By: 10A NCAC 41A .0205, OSHA, DOC policy  
Frequency: upon employment
- patients in long term care facilities  
By: 10A NCAC 41A .0205, 10A NCAC 130 .2202 & 2209  
Frequency: upon admission (two-step for TST or IGRA) & by risk assessment (DFS regulations require an annual screening which can be accomplished by a verbal elicitation of symptoms)
- long term care facility employees  
By: 10A NCAC 41A .0205, 10A NCAC 130 .2202 & 2209, OSHA  
Frequency: upon employment (two-step for TST or IGRA) & by risk assessment (DFS regulations require an annual screening which can be accomplished by a verbal elicitation of symptoms)
- employees of adult day care centers providing care for persons with HIV infection or AIDS



## NORTH CAROLINA SPECIFIC RULES

### 10A NCAC 41A.0205

- A 2-step TST or IGRA must be performed on all new residents.

### Exceptions

- If the resident is being admitted directly from another hospital, licensed nursing home/adult care home in NC **AND** there is documentation of a 2-step skin test or single IGRA test  
→ **NO need to re-test**
- A single TST or IGRA in the following situations
  - Person has ever had a 2-step skin test
  - Person has had a single skin test within the last twelve months



## TB Screening, Testing and Treatment of U.S. Health Care Personnel

(CDC Recommendations 2019)

- Since 1991 U.S. TB rates declined
- Serial TB testing has limitations in populations at low risk
- Recommendations for HCP screening, testing, treatment and education updated
- Other recommendations, i.e., facility risk assessments for guiding IC policies and procedures unchanged.

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BOX. Indicators of risk\* for tuberculosis (TB) at baseline health care personnel assessment<sup>†</sup>

Health care personnel should be considered to be at increased risk for TB if they answer "yes" to any of the following statements.

1. Temporary or permanent residence (for ≥1 month) in a country with a high TB rate (i.e., any country other than Australia, Canada, New Zealand, the United States, and those in western or northern Europe)

Or

2. Current or planned immunosuppression, including human immunodeficiency virus infection, receipt of an organ transplant, treatment with a TNF-alpha antagonist (e.g., infliximab, etanercept, or other), chronic steroids (equivalent of prednisone ≥15 mg/day for ≥1 month), or other immunosuppressive medication

Or

3. Close contact with someone who has had infectious TB disease since the last TB test

Abbreviation: TNF = tumor necrosis factor.

\* Individual risk assessment information can be useful in interpreting TB test results. (Lewinsohn DM, Leonard MK, LoBue PA, et al. Official American Thoracic Society/Infectious Diseases Society of America/Centers for Disease Control and Prevention clinical practice guidelines: diagnosis of tuberculosis in adults and children. Clin Infect Dis 2017;64:1111-5). <https://academic.oup.com/cid/article/64/2/111/2811357>

<sup>†</sup> Adapted from a tuberculosis risk assessment form developed by the California Department of Public Health.

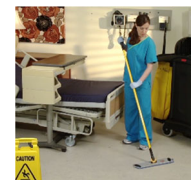
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Category	2005 Recommendation	2019 Recommendation
Baseline (preplacement) screening and testing	TB screening of all HCP, including a symptom evaluation and test (IGRA or TST) for those without documented prior TB disease or LTBI.	TB screening of all HCP, including a symptom evaluation and test (IGRA or TST) for those without documented prior TB disease or LTBI ( <b>unchanged</b> ); individual TB risk assessment ( <b>new</b> ).
Postexposure screening and testing	Symptom evaluation for all HCP when an exposure is recognized. For HCP with a baseline negative TB test and no prior TB disease or LTBI, perform a test (IGRA or TST) when the exposure is identified. If that test is negative, do another test 8–10 weeks after the last exposure.	Symptom evaluation for all HCP when an exposure is recognized. For HCP with a baseline negative TB test and no prior TB disease or LTBI, perform a test (IGRA or TST) when the exposure is identified. If that test is negative, do another test 8–10 weeks after the last exposure ( <b>unchanged</b> ).
Serial screening and testing for HCP without LTBI	According to health care facility and setting risk assessment. Not recommended for HCP working in low-risk health care settings. Recommended for HCP working in medium-risk health care settings and settings with potential ongoing transmission.	Not routinely recommended ( <b>new</b> ); can consider for selected HCP groups ( <b>unchanged</b> ); recommend annual TB education for all HCP ( <b>unchanged</b> ), including information about TB exposure risks for all HCP ( <b>new emphasis</b> ).
Evaluation and treatment of positive test	Referral to determine whether LTBI treatment is indicated.	Treatment is encouraged for all HCP with untreated LTBI, unless medically contraindicated ( <b>new</b> ).

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## WRITTEN POLICIES AND PROCEDURES

- Approved by the infection prevention committee (QAPI)
- Reviewed and/or revised on a regular basis (*don't forget about contract services*)
  - CMS annual review
- Facility wide policies
  - Hand hygiene
  - Transmission-based precautions
  - High level disinfection
- Department specific policies
  - Based on unique characteristics of the department (pharmacy, environmental services etc.,)



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Oklahoma State Dept. of Health

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## OUTBREAK DEFINITIONS: COVID-19 SPECIFIC

- CMS
  - An outbreak is defined as **a new** COVID-19 infection in HCP **or nursing home-onset** COVID-19 infection in a resident
- CDC
  - A new SARS-CoV-2 infection in any HCP or any **nursing home-onset** SARS-CoV-2 infection in a resident).
- NCDHHS
  - Two or more laboratory confirmed cases within two incubation periods (28 days)

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## RESIDENT CARE

- Rooms should have accessible sink with soap, water towels and toilet facilities
  - *Put alcohol-based hand sanitizer with 60-95% alcohol in every resident room (ideally both inside and outside of the room) and other resident care and common areas (e.g., outside dining hall, in therapy gym).*
- Skin care program
- Program to prevent UTIs
  - Routine UA/culture to screen not recommended
- Program to minimize the risk of pneumonia and LRTI (oral hygiene and pneumonia guidelines)



## RESIDENT HEALTH

- A resident health program should be implemented
  - H&P on admission with immunization status
  - TB screening (2 step and CXR if positive)
  - Vaccine for tetanus, diphtheria, influenza, pertussis, pneumococcal pneumonia
  - Policies and procedures addressing visitors (when to limit)



## §483.80(d) INFLUENZA AND PNEUMOCOCCAL IMMUNIZATIONS

- Influenza: Facility must develop policies and procedures to ensure that:
  - Before offering, education provided
  - Offered between October 1-March 31 annually
  - Right to refuse
  - Documentation
- Pneumococcal disease: Facility must develop policies and procedures to ensure that:
  - Before offering, education provided
  - Offered unless already immunized or medically contraindicated
  - Right to refuse
  - Documentation



## 2005 North Carolina Code - General Statutes § 131E-113. Immunization of employees and residents.

- Except as provided in subsection (e) of this section, a nursing home licensed under this Part shall require residents and employees to be immunized against influenza virus and shall require residents to also be immunized against pneumococcal disease.
  - No individual shall be required to receive vaccine under this section if the vaccine is medically contraindicated, or if the vaccine is against the individual's religious beliefs, or if the individual refuses the vaccine after being fully informed of the health risks of not being immunized.



## KEY ELEMENTS – EMPLOYEE HEALTH

Immunize	Establish	Adhere
Immunize against vaccine-preventable diseases <ul style="list-style-type: none"> <li>• Hepatitis B</li> <li>• Influenza</li> <li>• MMR</li> <li>• Varicella</li> <li>• Tetanus, diphtheria, pertussis</li> <li>• <u>COVID-19</u></li> </ul>	Establish sick leave policies that encourage: <ul style="list-style-type: none"> <li>• Healthcare personnel to stay home when they are ill</li> <li>• Reporting of signs, symptoms, and diagnosed illnesses that may represent a risk to their patients and coworkers</li> </ul>	Adhere to federal and state standards and directives applicable to protecting healthcare workers against transmission of infectious agents



## EDUCATION AND TRAINING OF HEALTHCARE PERSONNEL ON INFECTION PREVENTION

- Training should be:
  - Job-specific and adapted to the individual healthcare personnel
  - Performed before duties can be assigned and at least annually
  - Additional training to recognized lapses in adherence
  - Require HCP to demonstrate competency following each training
  - System of documentation of competency for each healthcare personnel





## HEALTHCARE WORKER EDUCATION

➤ Topics should include, but are not limited to:

- Routes of disease transmission
- Hand Hygiene
- Sanitation procedures
- MDROs
- Transmission-based precautions
- OSHA required education



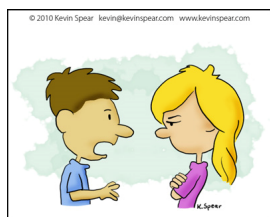
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## MONITORING PERFORMANCE: AUDITS

- Quality audits are performed to verify conformance to standards through objective review.
- Should be an opportunity for improvement and not punitive
- Audits can assist the facility in:
  - Establishing a baseline of performance for each activity
  - Identifying what needs to be improved, and
  - Targeting educational needs



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- **Timely**
- **Based on data that is valid**
- **Comparisons between peers may be helpful**
- **Sustained**

**Feedback of Data:  
Does it Work?**



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## PATIENT, FAMILY AND CAREGIVER INFECTION PREVENTION EDUCATION

- Include information about . . .
  - How infections spread
  - How they can be prevented
  - What signs or symptoms should prompt reevaluation and notification of the patient's healthcare provider
- Instructional materials and delivery should address varied levels of education, language comprehension, and cultural diversity
- Provide education to patients, family members, visitors, and their caregivers



[https://www.cdc.gov/drugresistance/pdf/HAI-Patient-Empowerment\\_DPK.PDF](https://www.cdc.gov/drugresistance/pdf/HAI-Patient-Empowerment_DPK.PDF)

[https://apic.org/Resource/TinyMceFileManager/IP\\_and\\_You/IPandYou\\_infographicPoster\\_2013.pdf](https://apic.org/Resource/TinyMceFileManager/IP_and_You/IPandYou_infographicPoster_2013.pdf)

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## COMMUNICABLE DISEASE REPORTING

- State health departments provide a list of reportable diseases (Communicable Disease Report Cards)
- NC the attending physician is responsible for reporting communicable diseases
- NC law provides for a designee to do the reporting (i.e., IP or laboratory)

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## IN CONCLUSION

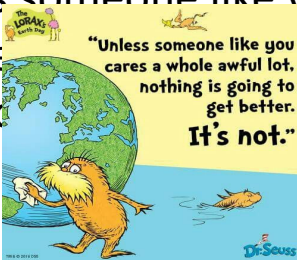
- ✓ One person, the IP, should be assigned the responsibility of directing, infection control activities in LTCF
- ✓ The IP should have a written job description of infection control activities
- ✓ The IP requires the support of administration in order to function effectively
- ✓ The IP needs to be guaranteed sufficient time to direct the infection control program
- ✓ The IP should have written authority to institute infection control measures.

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## Quote by a Famous Doctor

"Unless someone like you cares  
a whole awful lot, nothing is  
going to get better. It's not"



Dr. Seuss The Lorax

## QUESTIONS

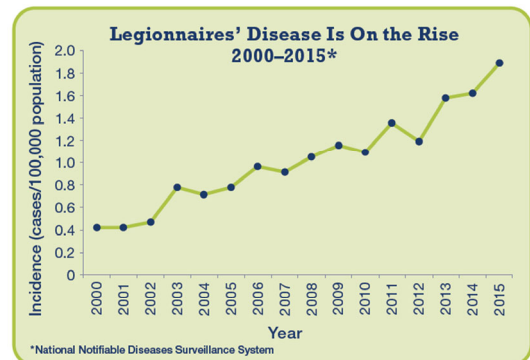


## Developing a Water Management Program to Reduce *Legionella* Growth & Spread in Buildings

A PRACTICAL GUIDE TO IMPLEMENTING  
INDUSTRY STANDARDS



<https://www.cdc.gov/legionella/downloads/toolkit.pdf>



In the United States, reported cases of Legionnaires' disease have increased by nearly four and a half times since 2000. More illness occurs in the summer and early fall but can happen any time of year.

## LEGIONELLA PNEUMOPHILA

- *Legionella* is found naturally in freshwater environments (lakes and streams) but generally does not lead to disease
- *Legionella* can become a health problem in building water systems
- *Legionella* first must grow...THEN
- Must be aerosolized so people can breathe in small, contaminated water droplets



## WHERE CAN LEGIONELLA GROW AND SPREAD ?

- Hot and cold-water storage tanks
- Water heaters
- Water filters
- Aerators Faucet flow restrictors
- Pipes, valves and fittings
- Electronic and manual faucets\*
- Showerheads\*
- Centrally-installed misters and humidifiers\*
- Eyewash stations\*
- Ice Machines\*
- Hot tubs\*
- Decorative fountains\*
- Cooling towers\*
- Medical Devices\*
  - CPAP machines, hydrotherapy equipment, bronchoscopes

## Factors Leading to Growth

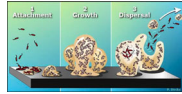
### External Factors

- Construction
- Water main breaks
- Changes in municipal water quality



### Internal

- Biofilm
- Scale and sediment
- Water temperature fluctuations
- Water pressure changes
- pH
- Inadequate disinfectant
- Water Stagnation



## Identifying Buildings at Increased Risk

Survey your building (or property) to determine if you need a water management program to reduce the risk of *Legionella* growth and spread.

If you answer **YES** to any of questions 1 through 4, you should have a water management program for *that building's* hot and cold water distribution system.

### Healthcare Facilities

Yes \_\_\_ No \_\_\_ 1. Is your building a healthcare facility where patients stay overnight or does your building house or treat people who have chronic and acute medical problems\* or weakened immune systems?

Yes \_\_\_ No \_\_\_ 2. Does your building primarily house people older than 65 years (like a retirement home or assisted-living facility)?

Yes \_\_\_ No \_\_\_ 3. Does your building have multiple housing units and a centralized hot water system (like a hotel or high-rise apartment complex)?

Yes \_\_\_ No \_\_\_ 4. Does your building have more than 10 stories (including basement levels)?



Devices in buildings that can spread contaminated water droplets should have a water management program even if the building itself does not. If you answer **NO** to all of questions 1 through 4 but **YES** to any of questions 5 through 8, you should have a water management program for *that device*.

Yes \_\_\_ No \_\_\_ 5. Does your building have a cooling tower\*?

Yes \_\_\_ No \_\_\_ 6. Does your building have a hot tub (also known as a spa) that is not drained between each use?

Yes \_\_\_ No \_\_\_ 7. Does your building have a decorative fountain?

Yes \_\_\_ No \_\_\_ 8. Does your building have a centrally-installed mister, atomizer, air washer, or humidifier?



## What Needs To Be Done?



Identify building water systems for which *Legionella* control measures are needed

Assess how much risk the hazardous conditions in those water systems pose

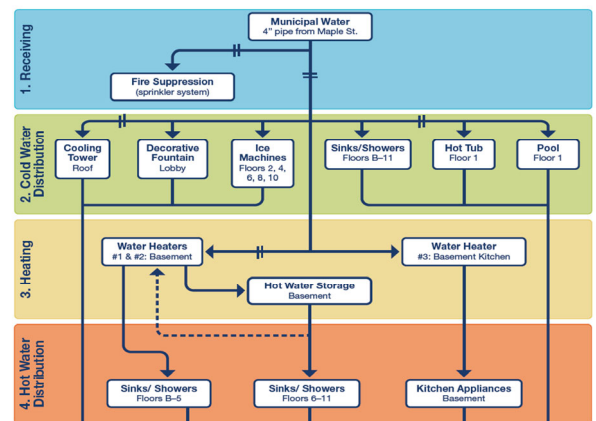
Apply control measures to reduce the hazardous conditions, whenever possible, to prevent *Legionella* growth and spread

Make sure the program is running as designed and is effective



## Water Management Team

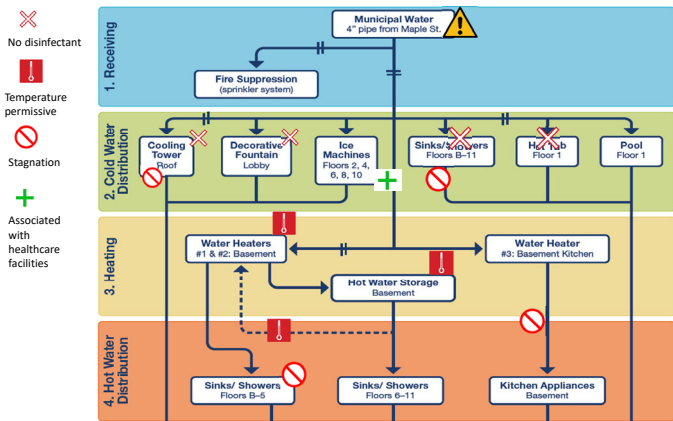
- Administrator
- Maintenance or engineering
- State/local health officials
- Infection preventionist
- Medical director
- Risk/Quality management staff



### Describe Your Building Water Systems

Develop a written description of your building water systems in addition to a process flow diagram.

Understood easily by all members of your WMT.



Areas Where *Legionella* Could Grow and Spread

## Additional Elements of a WMP

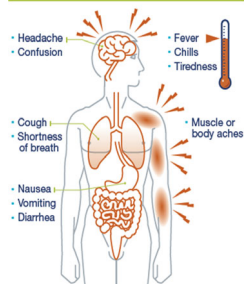
1. Describe control measures and how monitored
2. Ways to intervene when control limits not met
3. Make sure program is running as designed
4. Document and communicate

## Legionnaires' Disease

- Full investigation for source when:

- $\geq 1$  case of **definite** healthcare-associated Legionnaires' disease (resident spent the entire 10 days prior to onset of illness in the facility)
- $\geq 2$  cases of **possible** healthcare-associated Legionnaires' disease (cases in residents who spent part of the 10 days before symptoms began at the same facility) are identified within 12 months of each other

### Legionnaires' disease symptoms



Symptoms usually begin 2 to 10 days after being exposed to *Legionella*.



## QUESTIONS

