Developing a Sustainable Water Management Plan in Nursing Homes

Welcome!

- All lines are muted, please ask your questions in Q&A
- For technical issues, chat to the 'Technical Support' Panelist
- Please actively participate in polling questions that will pop up on the lower righthand side of your screen

We will get started shortly!

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Amy Ward, MS, BSN, RN, CIC

INFECTION PREVENTION SPECIALIST

Amy is a registered nurse with a diverse background in acute care nursing, microbiology, epidemiology and infection control. She is passionate about leading and mentoring new and future infection preventionists in their career paths.

Amy enjoys spending time with family. She loves all the time she can get outdoors camping, cycling, and running.

Contact:
Amy.Ward@AlliantHealth.org

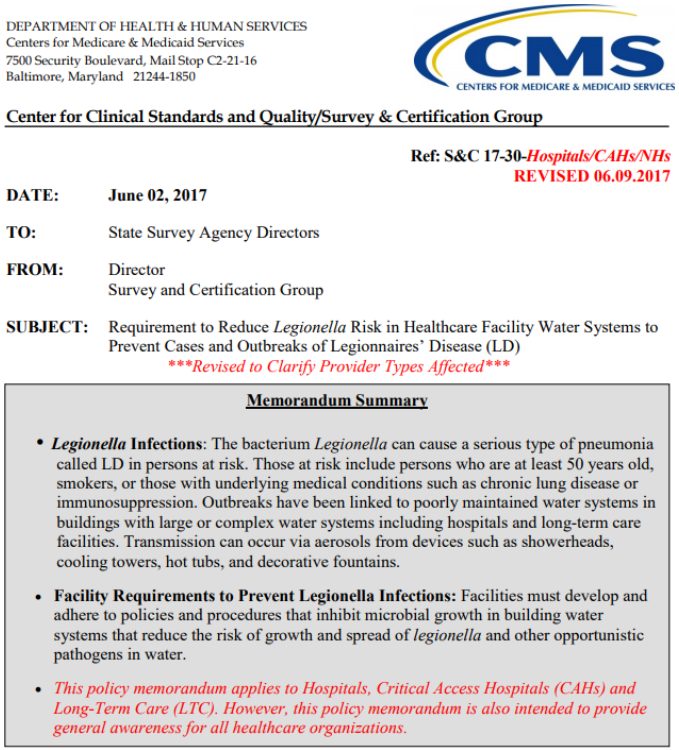
Objectives

- Learn Today:
  - Verbalize the risks of waterborne illness, such as legionella, to nursing home residents
  - Perform a risk assessment to identify and mitigate water pathogen threats within the facility
- Use Tomorrow:
  - Assemble a multidisciplinary team who will be responsible for the early identification, surveillance, monitoring, and mitigation of waterborne illness risks

CMS Memo and Survey Process

Surveyors will review policies, procedures, and reports documenting water management implementation results to verify that facilities:

- Conduct a facility risk assessment to identify where Legionella and other opportunistic waterborne pathogens (e.g. *Pseudomonas, Acinetobacter, Burkholderia, Stenotrophomonas*, nontuberculous mycobacteria, and fungi) could grow and spread in the facility water system.
- Implement a water management program that considers the ASHRAE industry standard and the CDC toolkit, and includes control measures such as physical controls, temperature management, disinfectant level control, visual inspections, and environmental testing for pathogens.
- Specify testing protocols and acceptable ranges for control measures and document the results of testing and corrective actions taken when control limits are not maintained.



DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S&C 17-30-*Hospitals/CAHs/NHs*
REVISED 06.09.2017

DATE: **June 02, 2017**

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Requirement to Reduce *Legionella* Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD)
******Revised to Clarify Provider Types Affected******

Memorandum Summary

- ***Legionella* Infections**: The bacterium *Legionella* can cause a serious type of pneumonia called LD in persons at risk. Those at risk include persons who are at least 50 years old, smokers, or those with underlying medical conditions such as chronic lung disease or immunosuppression. Outbreaks have been linked to poorly maintained water systems in buildings with large or complex water systems including hospitals and long-term care facilities. Transmission can occur via aerosols from devices such as showerheads, cooling towers, hot tubs, and decorative fountains.
- **Facility Requirements to Prevent Legionella Infections:** Facilities must develop and adhere to policies and procedures that inhibit microbial growth in building water systems that reduce the risk of growth and spread of *legionella* and other opportunistic pathogens in water.
- *This policy memorandum applies to Hospitals, Critical Access Hospitals (CAHs) and Long-Term Care (LTC). However, this policy memorandum is also intended to provide general awareness for all healthcare organizations.*

History of Legionnaire's Disease

- July 1976 American Legion Convention in Philadelphia hosted more than 2000 attendees
- First death of attendee was in late July of 1976 – respiratory illness was cause
- Overall, there were 221 cases and 24 deaths
- *Legionella* was found in the hotel cooling towers

Legionella – Natural History

- Clinical Features:
  - Legionnaire's Disease is severe with 10-25% fatality rate
  - Pontiac Fever is mild, self-limited febrile illness
- Causative agent - predominantly *Legionella pneumophila*
  - Over 48 species of *Legionella*
- Occurrence higher in warmer months
- Reservoir – contaminated water
- Transmission route – inhalation or aspiration of contaminated water

Legionella Risk Factors

- People over 50 years old
- Smokers
- Chronic lung disease
- Weakened immune system
- Cancer
- Underlying illnesses such as diabetes, renal disease, liver failure

Diagnosis

- Urinary antigen test
  - If negative could be infected with species other than *pneumophila*
- Culture of lower respiratory secretions on selective media
- CDC advises that patients with healthcare associated (HA) pneumonia be tested for Legionnaire's disease especially those with severe pneumonia or if any of the following have been identified in the facility:
  - Other cases of HA Legionnaire's disease in previous 12 months
  - Positive environmental tests for *Legionella* in previous 2 months
  - Current water quality changes that could lead to *Legionella* growth

Legionella in the News

1 dead, 4 hospitalized following Legionnaires' disease outbreak at N Portland senior home

FOX 12 STAFF

POSTED JAN 5, 2021 2

Ads by Google

Send feedback

Why this ad?

Community Corner

Legionnaire's Disease Found In Plainfield Senior Home

Two health-care associated cases have been confirmed at Lakewood Nursing Home & Rehab Center

Dave Byrnes, Patch Staff

Posted Mon, Jan 27, 2020 at 4:45 pm CT

Like 658 Share

Replies (4)

Legionnaires' Disease Outbreak at Illinois Veterans' Home-Quincy Update

1st Sep, 2015

Quincy, IL - The Illinois Department of Veterans' Affairs (IDVA) and the Illinois Department of Public Health (IDPH) today announced the deaths of a total of seven residents at the Illinois Veterans' Home-Quincy. The seven residents, all of whom had underlying medical conditions, were among the 39 individuals who had been diagnosed with Legionnaires' disease to date. Test results are currently pending for other residents.

Common Sources of Infection

- Outbreaks are often associated with large or complex water systems such as (hotel, hospital, cruise ship)
  - Water for showering
  - Cooling towers
  - Decorative Fountains
  - Hot tubs

How to Prevent *Legionella*

- CDC outbreak investigations have shown that effective water management programs can prevent problems that can lead to Legionnaire's Disease
- Health care facility leaders should be aware that Legionnaire’s Disease is a risk and should take action to prevent infections

Developing a Water Management Plan

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

Water Management Team

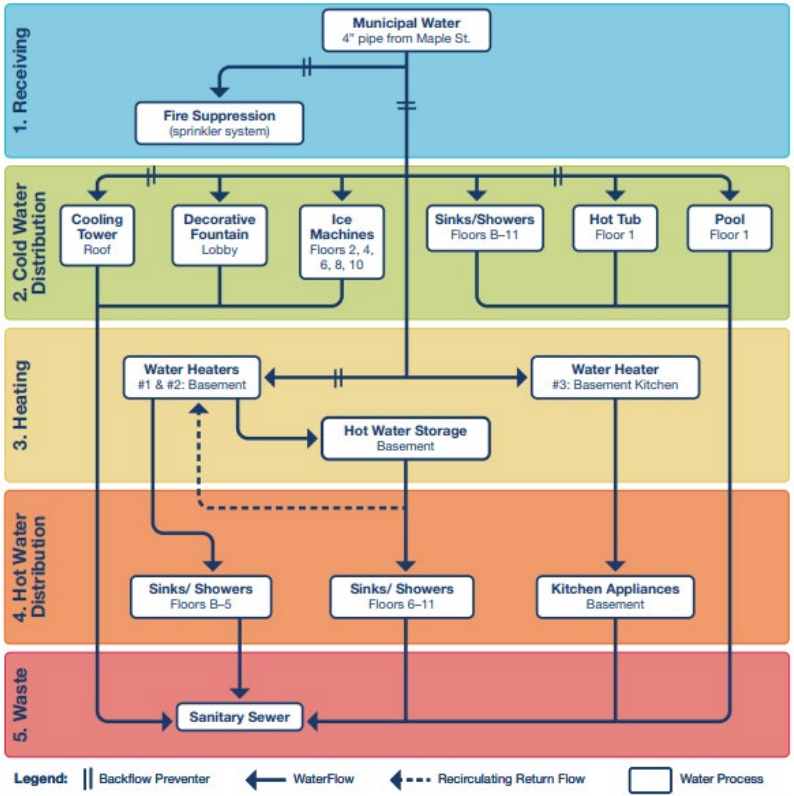
- Building owner/manager
- Administrator
- Maintenance or engineering
- Safety officer
- Equipment/chemical supplier
- Water treatment consultant
- Microbiologist
- Certified industrial hygienist
- State or local health officials

Also include:

- Accreditation specialist
- Infection prevention specialist
- Infectious disease specialist
- Risk or quality management staff

Describing the Water Systems

- Text – write out a simple description of how water comes into and flows through the building
- Flow diagram – example provided from CDC Legionella Toolkit is for illustration only and is not relevant to all buildings

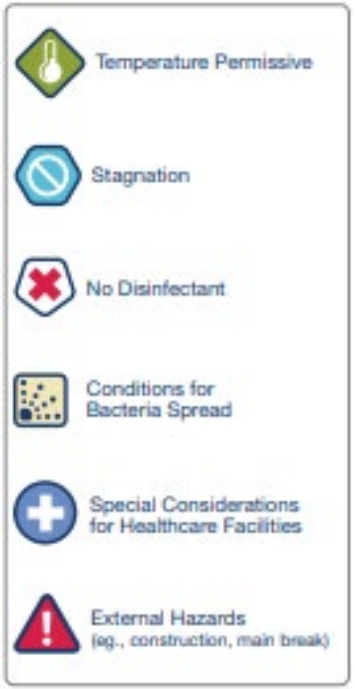


https://www.cdc.gov/legionella/downloads/toolkit.pdf

Identify Areas Where *Legionella* Could Grow

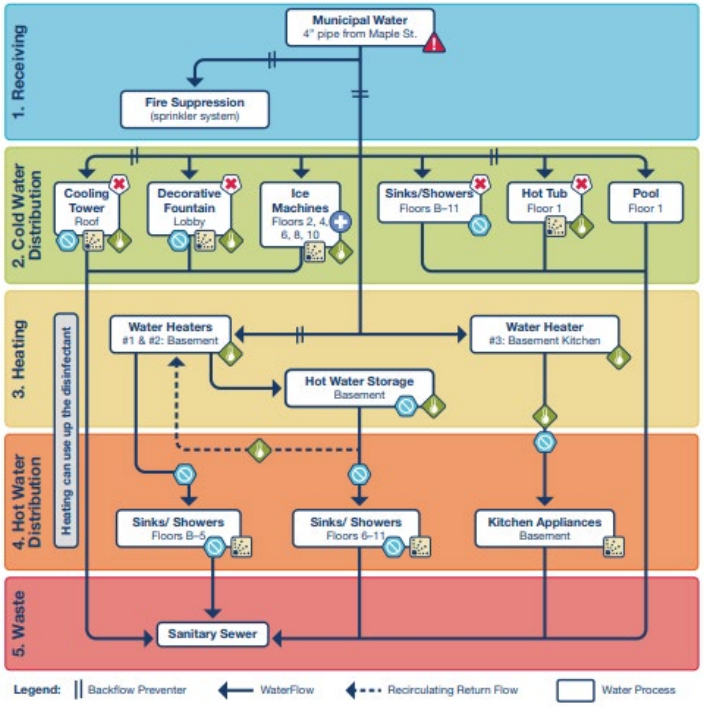
Identify areas of:

- Stagnation
- Low or no disinfectant
- External hazard
- Temperature permits growth (77°F-108°F)
- Conditions of bacterial spread



Identify Areas Where *Legionella* Could Spread

- Medical devices – CPAP, Hydrotherapy, bronchoscopes
- Decorative Fountains
- Hot tubs
- Ice Machines
- Eye wash stations
- Humidifiers
- Centrally installed misters, atomizers
- Faucet flow restrictors or aerators
- Showerheads and hoses
- Electronic and manual faucets



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Prevention Strategies from Aerosolized Water

- Perform routine preventative maintenance on all air conditioning systems
- Develop water flushing protocols for rooms and areas that are not in use
- Remove dead legs
- Avoid decorative fountains and fish tanks
- Clean and disinfect aerators monthly with chlorine
- Avoid outdoor misting systems

Apply Control Measures

- Identify control points
  - Water heaters
  - Decorative fountains
  - Cooling towers or hot tubs
- Identify situations where building water system has major changes
  - Start up/shut down
  - Scheduled maintenance
  - Renovations, construction (vibrations, tying in new water lines, installation of new equipment)
  - Equipment failure
  - Water main break or interruption of service

Describe Control Limits and Corrective Actions

- Control limits
  - Acceptable temperature range(s)
  - Disinfectant levels or water quality
  - Visible debris and biofilm
- Corrective actions
  - Adjust thermostat
  - Add disinfectant
  - Clean and disinfect to remove debris and biofilms

Any time there is a suspected case of Legionnaire's disease in the building you should

1. Notify Public Health
2. Decontaminate systems
3. Notify anyone who could be affected (per Public Health advice)

Example Data Log with Control Limits

Temperature Log for Refrigerator and Freezer — Fahrenheit

Month/Year:_____ **Days 1–15**

Completing this temperature log: Check the temperatures in both the freezer and the refrigerator compartments of your vaccine storage units at least twice each working day. Place an "X" in the box that corresponds with the temperature and record the ambient (room) temperature, the time of the temperature readings, and your initials. Once the month has ended, save each month's completed form for 3 years, unless state or local jurisdictions require a longer time period.

If the recorded temperature is in the shaded zone: This represents an unacceptable temperature range. Follow these steps:

1. **Store the vaccine** under proper conditions as quickly as possible.
2. **Temporarily mark exposed vaccine "do not use"** until you have verified whether or not the vaccine may be used.
3. **Call the immunization program** at your state or local health department and/or the vaccine manufacturer to determine whether the vaccine is still usable: (_____) _____.
4. **Document the action taken** on the reverse side of this log.

Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Staff Initials															
Room Temp.															
Exact Time															
°F Temp	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm	am pm
Too warm ≥49°															
48°			Take immediate corrective action if temperature is in shaded section*												
47°															
Refrigerator temperature 46°															
45°															
44°															
43°															
42°															
41°															
Aim for 40° 40°															
39°															
38°															
37°															
36°															
35°															
34°															
Too cold 33°			Take immediate corrective action if temperature is in shaded section*												
≤32°															

Too warm ≥8°																
7°			Take immediate corrective action if temperature is in shaded section*													
Freezer temp 6°																
5°																
4°																
≤3°†																

†Some frozen vaccines must not be stored colder than -58°F. Check the Prescribing Information on the vaccine manufacturer's website for specific storage temperature instructions.

Adapted by the Immunization Action Coalition courtesy of the Michigan Department of Community Health and the California Department of Health Services.

Technical content reviewed by the Centers for Disease Control and Prevention, August 2011.

www.immunize.org/catg.d/p3039f.pdf • Item #P3039F (8/11)

Distributed by the Immunization Action Coalition • (651) 647-9009 • www.immunize.org • www.vaccineinformation.org • admin@immunize.org

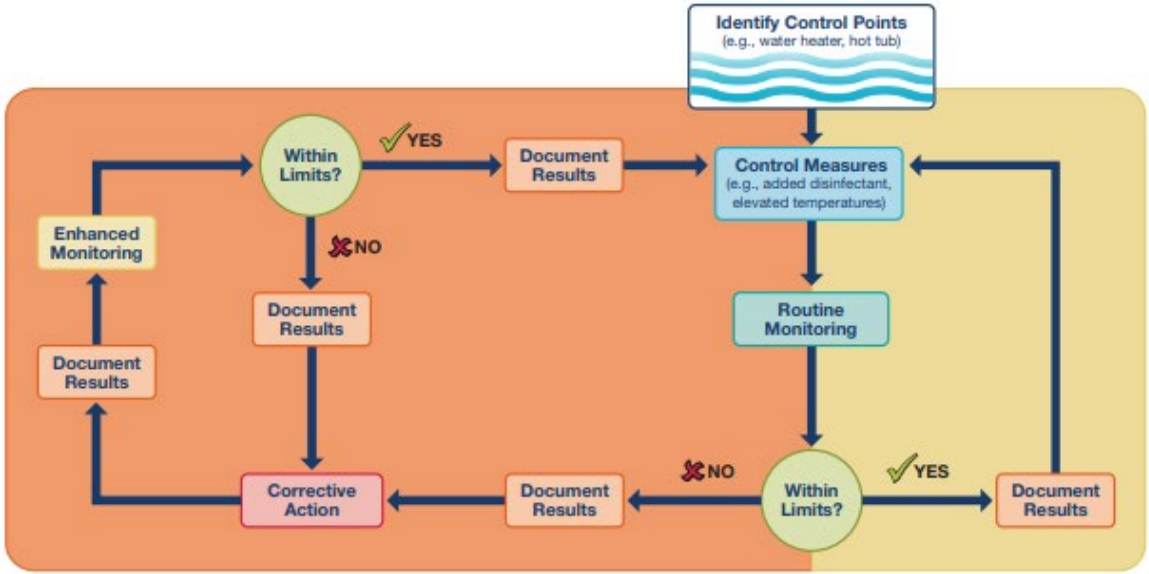
Use this page to record the details of the vaccine storage incident, including the date and time of the last known temperature within the appropriate vaccine storage range.

Date	Time	Storage Unit Temp	Room Temp	Incident	Action Taken	Results	Initials

https://www.ccah-alliance.org/FReview/20121201/Clinical_Services/E_Refrigerator-Freezer%20Log%20Form.pdf

Establish a Monitoring Program

- Describe frequency of monitoring
- Develop process map for monitoring program



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

Completing the Risk Assessment

Water Infection Control Risk Assessment (WICRA) for Healthcare Settings

Facility Name: Hospital A **Assessment Location:** Burn ICU

Performed By (names): Jane Smith and John Doe **Assessment Date:** 10/01/2020

WMP Team Role(s) *(check all that apply):*

- ☑ Hospital Epidemiologist/Infection Preventionist
- ☐ Risk/Quality Management Staff
- ☐ Equipment/Chemical Acquisition/Supplier
- ☑ Facilities Manager/Engineer
- ☐ Infectious Disease Clinician
- ☐ Other *(please specify)*:
- ☐ Environmental Services
- ☐ Consultant
- ☐ Compliance/Safety Officer

Location	Water Source	Modes of Transmission	Patient Susceptibility Highest = 4 High = 3 Moderate = 2 Low = 1	Patient Exposure High = 3 Moderate = 2 Low = 1 None = 0	Current Preparedness Poor = 3 Fair = 2 Good = 1	Total Risk Score = Patient Susceptability x Patient Exposure x Preparedness	Comments
BICU Inpatient Rooms	Sink counter storage of patient care supplies	Indirect contact; splashing onto supplies	4	3	3	36	Install splash guards; QI for sink hygiene; and flushing
BICU Inpatient Rooms	Toilets without lid	Direct contact	4	3	2	24	Place lid on toilet if in patient room
BICU Soiled Utility	Hopper, no lid, behind closed door	Indirect contact	4	2	1	8	Automatic door closure; appropriate soiled equipment storage

Fillable PDF available at: https://www.cdc.gov/hai/pdfs/prevent/water-assessment-tool-508.pdf

Evaluation and Review of the Program

- Describe interval at which water management plan is reviewed and updated
  - Include Risk Assessment in this review and update process
- Communicate and document all activities of the water management committee
  - Include what was done, and by who
    - Include names/titles/credentials and role on the team
- Address and prioritize areas of highest risk (from completed risk assessment)

Water Management Resources

- CDC Environmental assessment: https://www.cdc.gov/legionella/downloads/toolkit.pdfhttps://www.cdc.gov/legionella/downloads/legionella-environmental-assessment.pdf
- CDC Legionella Toolkit: https://www.cdc.gov/legionella/wmp/toolkit/wmp-risk.html
- Risk Assessment: https://www.cdc.gov/hai/pdfs/prevent/water-assessment-tool-508.pdf
- CMS Memo: https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-17-30.pdf
- Marx, J., 2021. Water Management Program to Prevent Waterborne Diseases. In: J. Nau Franck and M. Bodily-Bartrum, ed., Infection Prevention Guide to Long-Term Care, 2nd ed. Arlington, VA: APIC, pp.153-165.
- ASHRAE Guideline 12-2020 – Managing the Risk of Legionellosis Associated with Building Water Systems
- ANSI/ASHRAE Standard I88-2018 Legionellosis: Risk Management for Building Water Systems

Questions?

Objectives Check In!

- Learn Today:
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  - Perform a risk assessment to identify and mitigate water pathogen threats within the facility
- Use Tomorrow:
  - Assemble a multidisciplinary team who will be responsible for the early identification, surveillance, monitoring, and mitigation of waterborne illness risks

How will this change what you do? Please tell us in the poll…

Closing Survey

Help Us Help You!

- Please turn your attention to the poll that has popped up in your lower right-hand side of your screen
- Completion of this survey will help us steer our topics to better cater to your needs

CMS 12th SOW Goals

Behavioral Health Outcomes & Opioid Misuse

- ✓ Promote opioid best practices
- ✓ Decrease high dose opioid prescribing and opioid adverse events in all settings
- ✓ Increase access to behavioral health services

Patient Safety

- ✓ Reduce risky medication combinations
- ✓ Reduce adverse drug events
- ✓ Reduce C. diff in all settings

Chronic Disease Self-Management

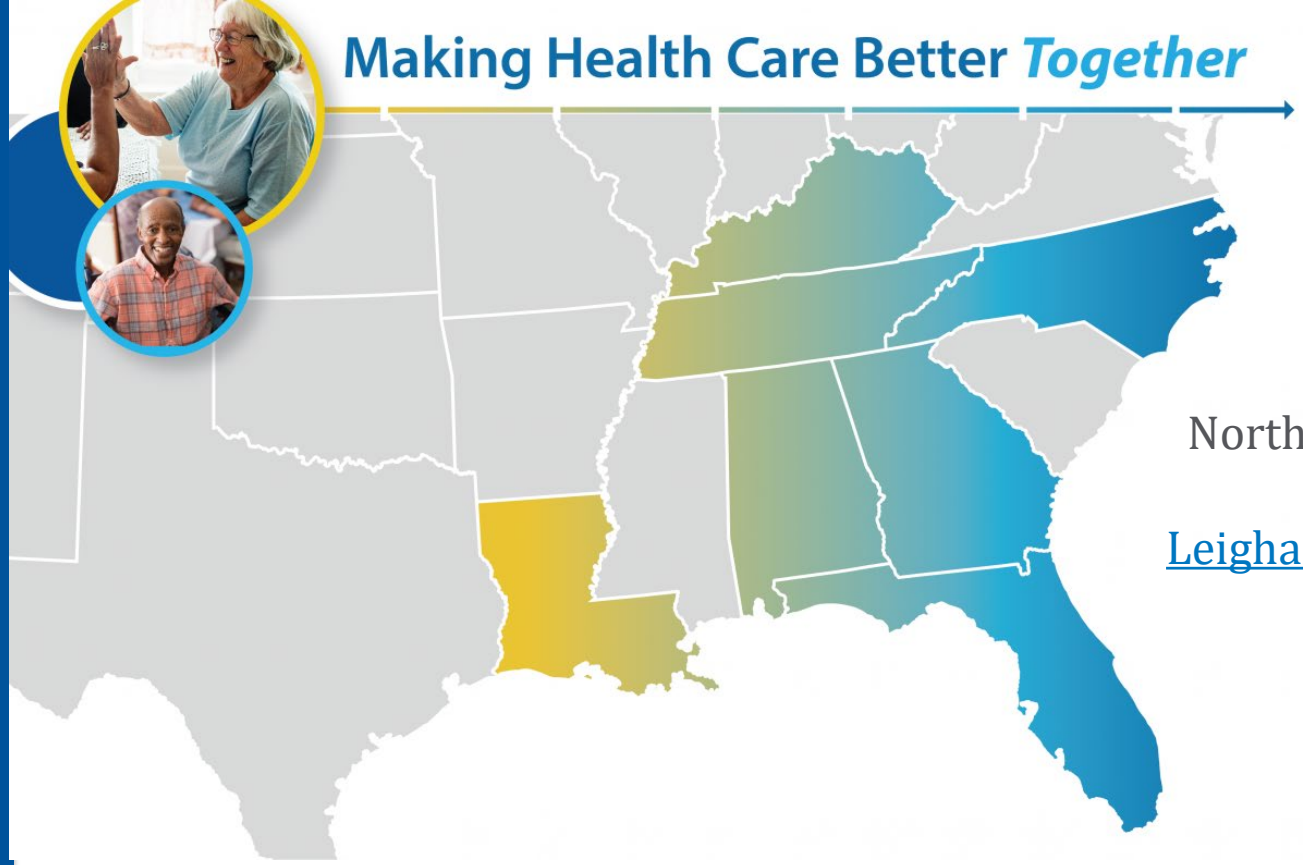
- ✓ Increase performance on ABCS clinical quality measures (i.e., aspirin use, blood pressure control, cholesterol management, cardiac rehab)
- ✓ Identify patients at high-risk for developing kidney disease & improve outcomes
- ✓ Identify patients at high risk for diabetes-related complications & improve outcomes

Quality of Care Transitions

- ✓ Convene community coalitions
- ✓ Identify and promote optical care for super utilizers
- ✓ Reduce community-based adverse drug events

Nursing Home Quality

- ✓ Improve the mean total quality score
- ✓ Develop national baselines for healthcare related infections in nursing homes
- ✓ Reduce emergency department visits and readmissions of short stay residents



Program Directors

Georgia, Kentucky,
North Carolina and Tennessee
Leighann Sauls
Leighann.Sauls@AlliantHealth.o

Alabama, Florida and Louisiana
JoVonn Givens
JoVonn.Givens@AlliantHealth.org

Upcoming Events

Learning and Action Webinars

Nursing Homes Tuesdays, 2pm ET/1pm CT	Community Coalitions Thursdays, 12:30 pm ET/11:30am CT
July 20, 2021: Understanding F-758: A Practical Approach to Gradual Dose Reductions (GDR) with a Definite Purpose	June 24, 2021: Go to The Hospital Or Stay Here: The Use of Evidence-Based Decision Guides to Reduce Readmissions
August 17,2021: Immunizations Let's get back to basic immunization practices: Assessment | Recommendation | Administration | Documentation	July 22, 2021: TBD

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