

C. difficile Infection Reduction in Long-Term Care – Session 5: Early Detection, Isolation and Recommendations for Testing



Paula St. Hill, MPH, a-IPC

January 11, 2023

 **ALLIANT**
HEALTH SOLUTIONS

QIN-QIO
Quality Innovation Network -
Quality Improvement Organizations
CENTER FOR MEDICARE & MEDICAID SERVICES
QUALITY IMPROVEMENT & INNOVATION GROUP

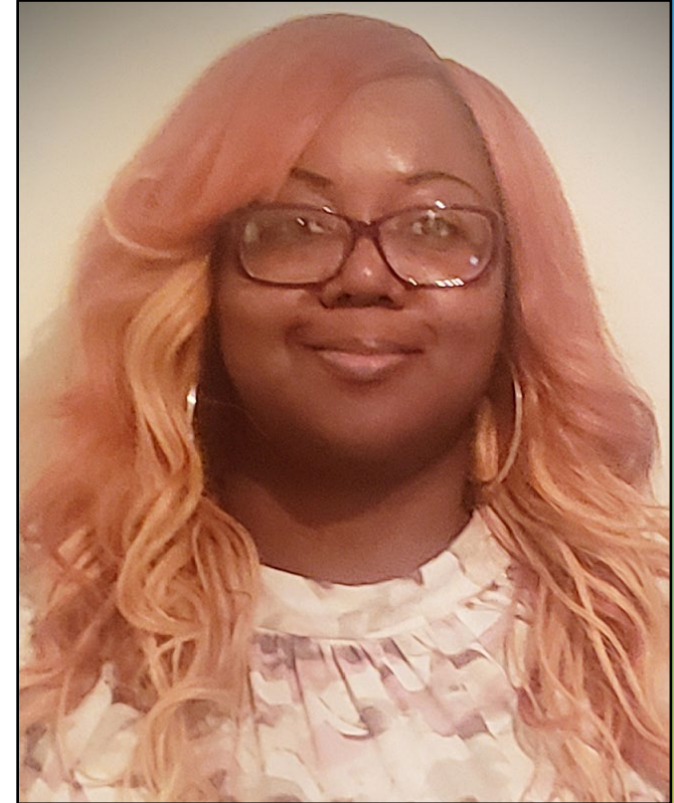
Paula St. Hill, MPH, a-IPC

TECHNICAL ADVISOR, INFECTION PREVENTION

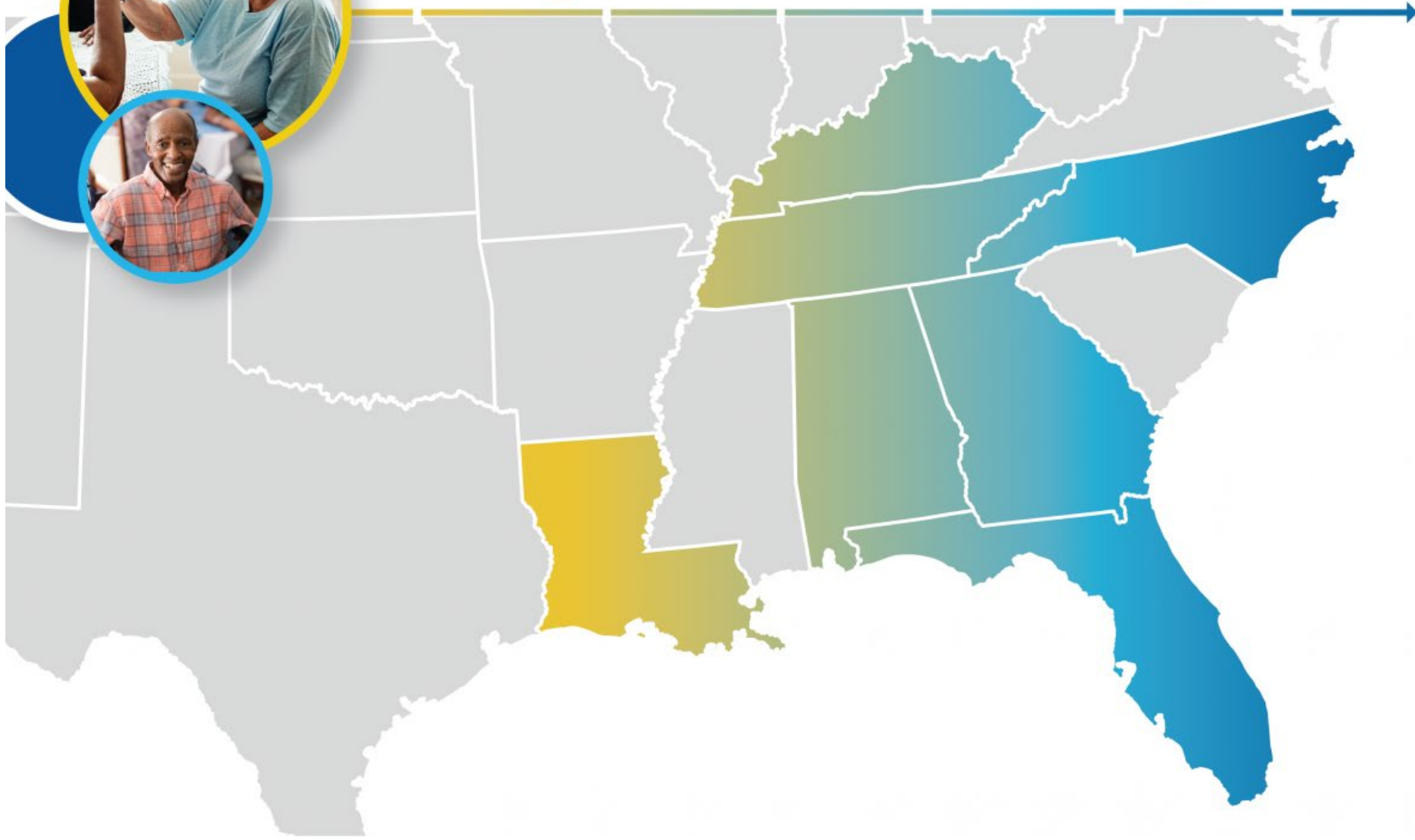
Paula is a doctoral student with a diverse background in public health, infection control, epidemiology and microbiology. She enjoys public health and identifying ways to improve health outcomes, specifically those related to healthcare-associated infections. She has 10 years of health care experience.

Paula enjoys spending time with her friends and family. In her spare time, she loves watching horror or thriller movies.

Contact: paula.sthill@allianthealth.org



Making Health Care Better *Together*



About Alliant Health Solutions

Hello, My Name Is...

Type into chat:

- Name
- Role
- Facility
- State
- What are you excited to learn today?

Learning Objectives

By the end of the session, the learner will:

1. Implement decision-making strategies for enhancing early recognition of patients with *C. difficile* infections
2. Understand *C. difficile* testing and ordering best practices
3. Understand isolation precautions for patients with *C. difficile* infections and discontinuation of isolation

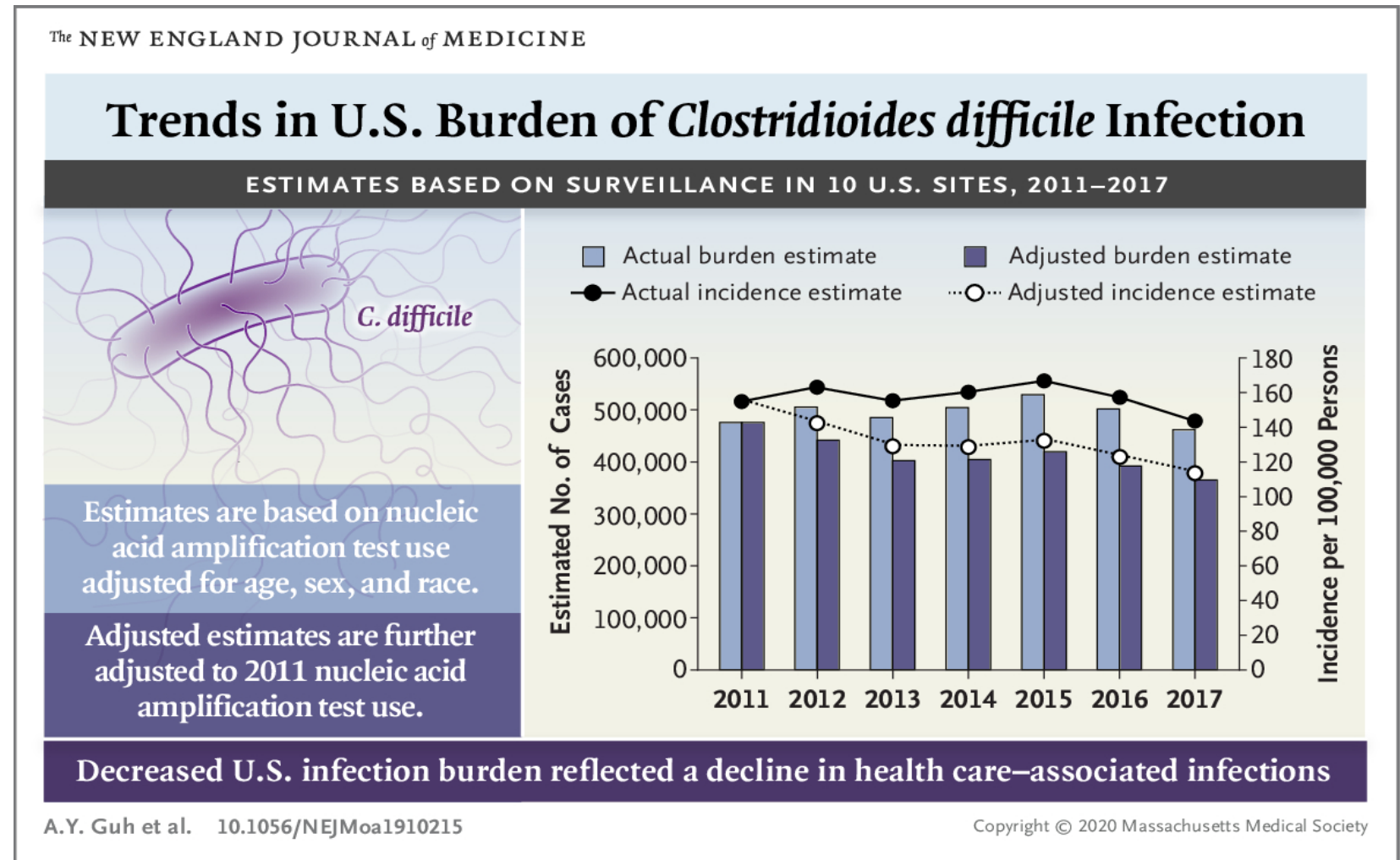
What is *C. diff*?

Clostridioides difficile, commonly abbreviated as CDI or *C. difficile*, is a bacterium that causes an infection of the large intestine (colon). *C. difficile* is an emerging cause of infectious diarrhea in nursing homes. Outbreaks have been and continue to be reported. It is estimated that 8% to 33% of nursing home residents treated with antibiotics acquire CDIs (CDC, 2021).



Urgent Public Health Threat

The Centers for Disease Control and Prevention (CDC) recognizes CDIs as a public health threat. In 2017, there were approximately 400,000 CDI cases in the United States (Guh et al., 2020).



CDC CDI Case Definitions

C. *difficile* infection Incident Case:

A case of CDI is defined as a positive *C. difficile* toxin assay or a positive *C. difficile* molecular assay (e.g., PCR) of a stool specimen from a resident of the surveillance catchment area who is at least one year old. Cases with a *C. difficile*-positive stool specimen greater than eight weeks after the last positive specimen are considered new cases with an incident stool specimen. Therefore, for surveillance purposes, an individual may be classified and captured as a new incident case if eight consecutive weeks have elapsed since their last *C. difficile*-positive test.

Recurrent episodes:

CDI cases with a positive *C. difficile* stool specimen between two to eight weeks of the last positive specimen are considered recurrent episodes.

Duplicate episodes:

CDI cases with a positive *C. difficile* stool specimen less than two weeks after the last positive specimen are considered duplicate episodes.

CDI Cases Are Classified Into Three Epidemiologic Categories

- **Health Care Facility-Onset (HCFO)** - if the positive stool specimen was collected more than three calendar days after hospital admission or in a long-term care facility resident.
- **Community-Onset Health Care Facility-Associated (CO-HCFA)** - if the positive stool specimen was collected in an outpatient setting or within three days after hospital admission in a person with documented overnight stay in a healthcare facility (i.e., hospitalization or long-term care facility stay) in the 12 weeks before stool specimen collection
- **Community-Associated (CA)** - if the positive stool specimen was collected in an outpatient setting or within three calendar days after hospital admission in a person with no documented overnight stay in a health care facility during the 12 weeks before the specimen was collected.

Early Recognition – Sign and Symptoms

- Watery diarrhea as often as 10 to 15 times a day
- Abdominal cramping and pain, which may be severe
- Rapid heart rate
- Dehydration
- Fever
- Nausea
- Increased white blood cell count
- Kidney failure
- Loss of appetite
- Swollen abdomen
- Weight loss
- Blood or pus in the stool

Testing

Four main tests:

- **Culture**
 - Most sensitive test available, but often associated with false-positive results due to the presence of non-toxigenic strains
- **Antigen**
 - Detects the presence of *C. difficile* antigen (GDH) by latex agglutination or immunochromatographic assays
- **Toxin**
 - Enzyme immunoassay (EIA) detects toxin A, toxin B or both A and B
- **PCR/ NAAT**
 - Detects toxigenic *C. difficile* in stool








Testing (Cont'd)

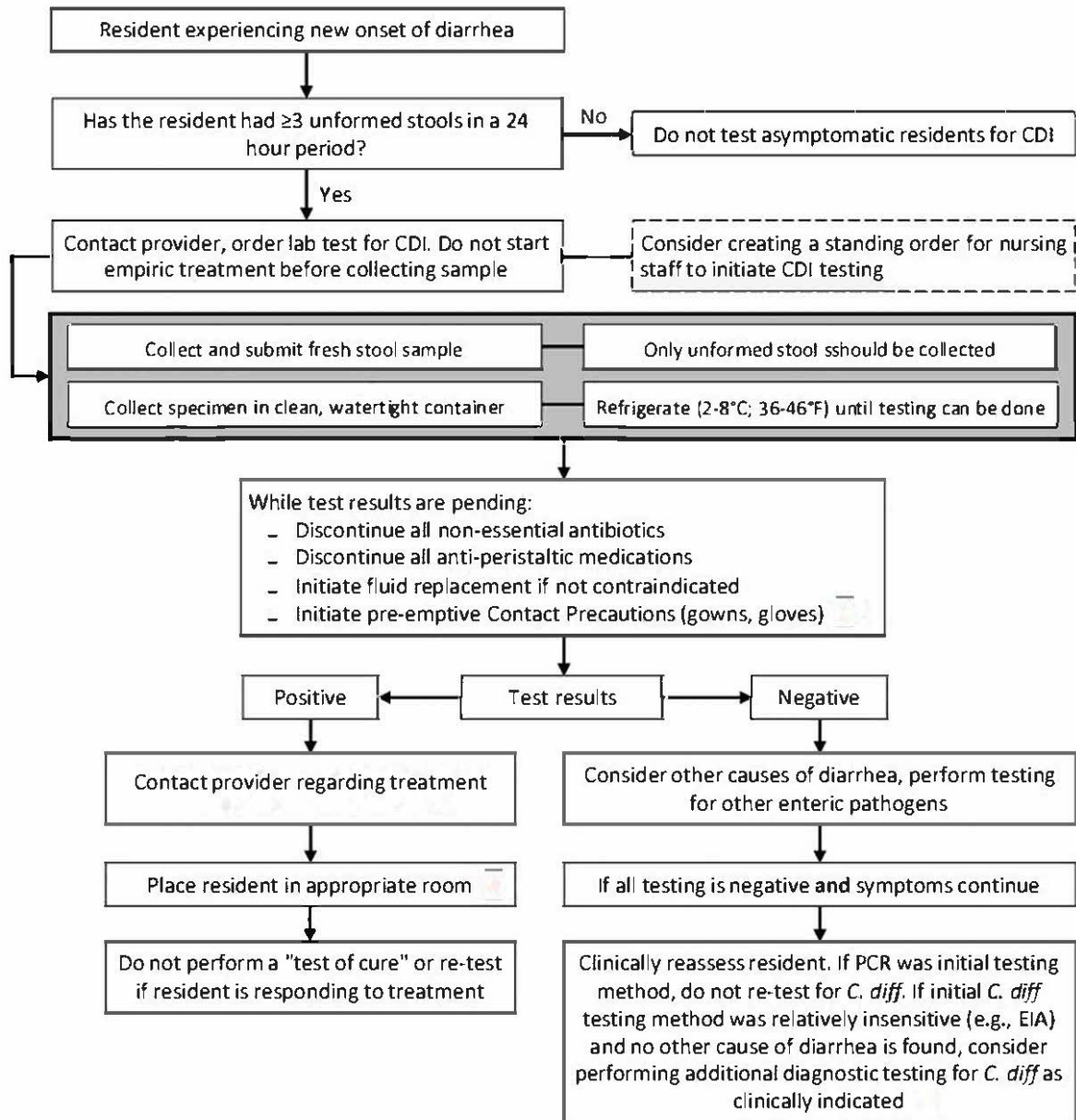
- Only watery or unformed stools should be collected and tested
- Testing asymptomatic patients is not clinically useful and may lead to the use of unnecessary antibiotics
- Repeat testing during the **same** episode of diarrhea is not recommended
- "Test of cure" is not recommended
- Retest after completion of treatment **only** if signs and symptoms of infection continue.
- Avoid routine testing of children less than one-year-old
- Testing for children between the ages of one to three years old can be considered, but testing for other causes of diarrhea (e.g., viral) is recommended first
 - Children older than three years old can be tested in the same manner as older children and adults

Bristol Stool Chart

- Only unformed stools should be tested (Bristol stool chart types 5-7).

Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid



Early Recognition and Testing Flow Chart

Recommendations for Stool Collection and Submission

DO's

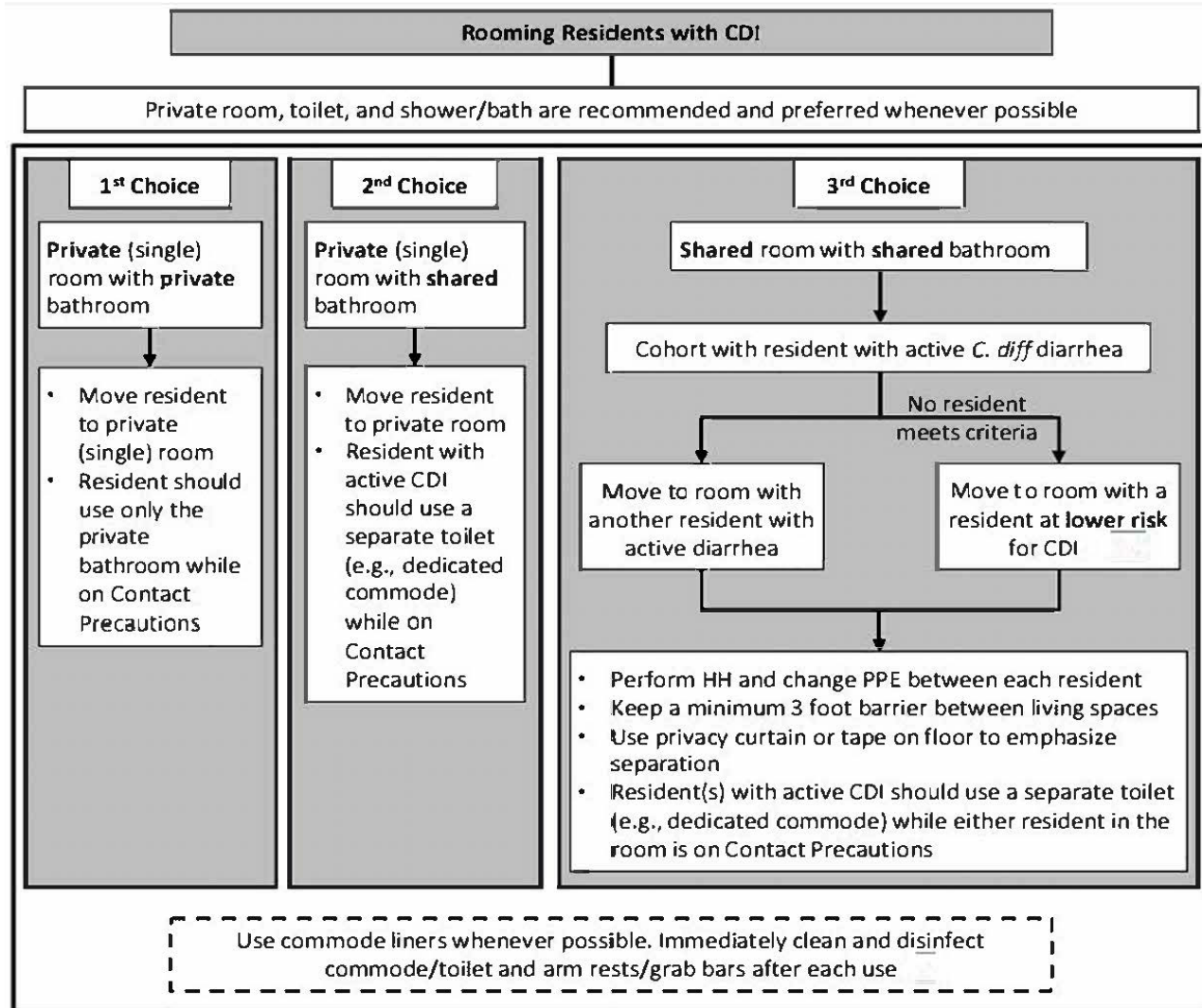
- Submit fresh stool samples for CDI testing from the patient with suspected CDI: ≥ 3 unformed stools per 24 hours residents
- Avoid repeat testing; submit one specimen per resident
- Retest for CDI **only** if CDI symptoms continue or recur **after 10 days of treatment**
- Refrigerate (store at 36-46 °F) until tested stool specimen until testing can be done
- Collect the specimen in a clean, watertight container
- Consider diagnoses other than CDI first for residents 1-2 years; if no recent antimicrobial exposure, use more than one diagnostic test (include culture)

DON'Ts

- Test asymptomatic residents for CDIs
- Perform tests-of-cure on any residents post-treatment
- Conduct repeat testing during the **same** episode of diarrhea for confirmed CDI in the resident
- Transport the specimen in media, as this may increase false positive test results
- Wait to transport specimens; transport specimens **as soon as possible** after collection
- Routinely test for CDI in patients <1 year of age

Contact Precautions

- Contact Precautions require wearing a gown and gloves on entering a resident's room. The resident is given dedicated equipment (e.g., a stethoscope and blood pressure cuff) and placed in a private room. Residents on Contact Precautions should be restricted to their rooms except for medically necessary care and restricted from participation in group activities.
- Contact Precautions are recommended if the resident has acute diarrhea, draining wounds, or other sites of secretions or excretions that are unable to be covered or contained or for a limited period during a suspected or confirmed MDRO outbreak investigation.



Bathing residents with CDI

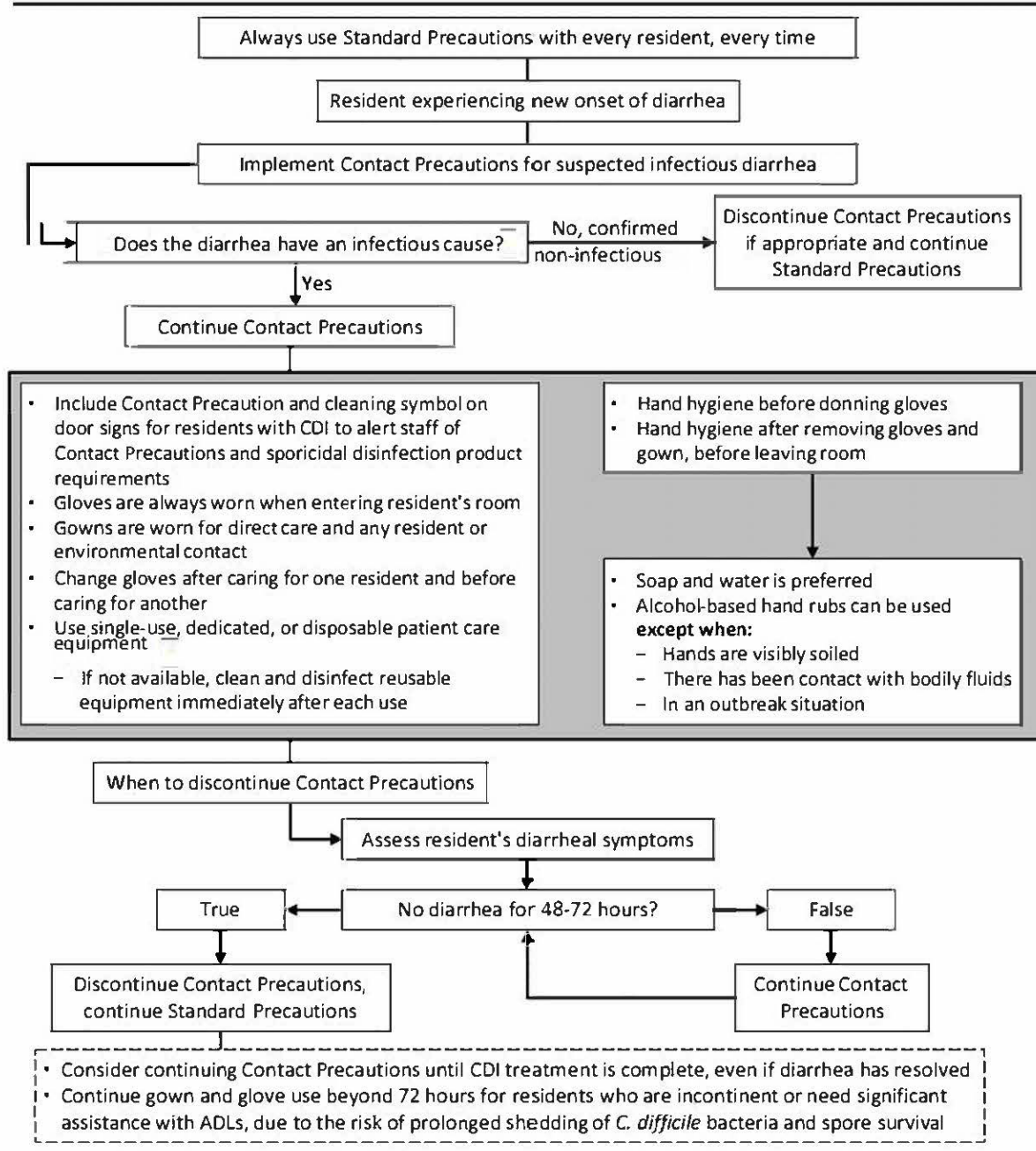
- Always have residents with active CDI use a shower and avoid use of bath tubs
 - Clean and disinfect shower/tub area immediately after every resident use
- Preferably, resident(s) with active CDI shower after residents without active CDI

Rooming considerations flowchart for residents with CDIs

Discontinuing Contact Precautions

- Discontinue precautions when diarrhea has resolved (i.e., the resident has < 3 unformed stools in 24 hours)
- Some studies suggest continuing Contact Precautions for 48 hours after the resolution of diarrhea due to continued *C. difficile* shedding, environmental contamination and resident skin colonization (McDonald et al., 2018)
- Some facilities continue Contact Precautions through the completion of CDI antibiotic therapy (McDonald et al., 2018)
- In facilities with high rates of CDI, consider continuing Contact Precautions until discharge
- Consider extending Contact Precautions for residents that are incontinent and require considerable assistance with activities of daily living

Contact Precautions



Contact precautions implementation and discontinuation flowchart

IDSA/SHEA Recommendations for Health Care Providers: CDI Prevention and Control (McDonald et al., 2018)

Measure	Recommendation
<ul style="list-style-type: none"> Isolation 	<ul style="list-style-type: none"> Accommodate residents with CDI in a private room with a dedicated toilet to decrease transmission to other residents
<ul style="list-style-type: none"> Contact Precautions 	<ul style="list-style-type: none"> Use personal protective equipment, such as gloves and gowns, before entering resident rooms and wear them when in close contact with residents
<ul style="list-style-type: none"> Hand hygiene 	<ul style="list-style-type: none"> Wash with soap and water before and after contacting a resident and after removing gloves. (Handwashing with soap and water is preferred over alcohol-based hand-hygiene products after contact with an area likely to be contaminated with fecal material.)
<ul style="list-style-type: none"> Bathing 	<ul style="list-style-type: none"> Encourage residents to wash their hands and shower to reduce the number of skin spores
<ul style="list-style-type: none"> Cleaning and disinfection of medical equipment 	<ul style="list-style-type: none"> Use disposable equipment and ensure that reusable equipment is thoroughly cleaned and disinfected, preferably with a sporicidal (EPA List K)
<ul style="list-style-type: none"> Environmental cleaning 	<ul style="list-style-type: none"> Evaluate cleaning processes to ensure quality and effectiveness of environmental cleaning
<ul style="list-style-type: none"> Antibiotic stewardship 	<ul style="list-style-type: none"> Minimize the frequency and duration of antibiotic use as well as the number of antibiotic agents

Summary and FAQs

Q: What is the preferred population for *C. difficile* testing, and should efforts be made to achieve this target?

A: Residents with unexplained and new-onset ≥ 3 unformed stools in 24 hours are the preferred target population for testing for CDIs

Q: What is the most sensitive method of diagnosis of CDIs in stool specimens from patients likely to have CDI based on clinical symptoms?

A: Use a NAAT alone or a multi-step algorithm for testing (i.e., GDH plus toxin; GDH plus toxin, arbitrated by NAAT; or NAAT plus toxin) rather than a toxin test alone when there are pre-agreed facility criteria for resident stool submission

Q: When should isolation be implemented?

A: Residents with suspected CDI should be placed on preemptive contact precautions pending the *C. difficile* test results if test results cannot be obtained on the same day

Q: Should private rooms and/or dedicated toilet facilities be used for isolated residents with CDI?

A: 1) Accommodate residents with CDI in a private room with a dedicated toilet to decrease transmission to other residents. If there is a limited number of private single rooms, prioritize residents with stool incontinence for placement in private rooms
2) If cohorting is required, it is recommended to cohort residents infected or colonized with the same organism(s). Do **not** cohort residents with CDIs who are discordant for other multidrug-resistant organisms such as MRSA or VRE

Q: How long should isolation be continued?

A: 1) Continue contact precautions for at least 48 hours after the diarrhea has resolved
2) Prolong contact precautions until discharge if CDI rates remain high despite the implementation of standard infection control measures against CDI

References

APIC Text. (2018). Chapter 73. Clostridium difficile Infection and Pseudomembranous Colitis.

CDC. (2021). *Laboratory-identified Event Surveillance for Multidrug Resistant Organisms (MDROs) and Clostridioides difficile Infection (CDI) Events in Long-term Care Facilities (LTCFs)*. Centers for Disease Control and Prevention.

https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-labid-event-protocol_current.pdf

Guh, A. Y., Mu, Y., Winston, L. G., Johnston, H., Olson, D., Farley, M. M., Wilson, L. E., Holzbauer, S. M., Phipps, E. C., Dumyati, G. K., Beldavs, Z. G., Kainer, M. A., Karlsson, M., Gerding, D. N., & McDonald, L. C. (2020). Trends in U.S. Burden of *Clostridioides difficile* Infection and Outcomes. *New England Journal of Medicine*, 382(14), 1320–1330.

<https://doi.org/10.1056/nejmoa1910215>

McDonald, L. C., Gerding, D. N., Johnson, S., Bakken, J. S., Carroll, K. C., Coffin, S. E., Dubberke, E. R., Garey, K. W., Gould, C. V., Kelly, C., Loo, V., Shaklee Sammons, J., Sandora, T. J., & Wilcox, M. H. (2018). Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). *Clinical Infectious Diseases*, 66(7), e1–e48.

<https://doi.org/10.1093/cid/cix1085>

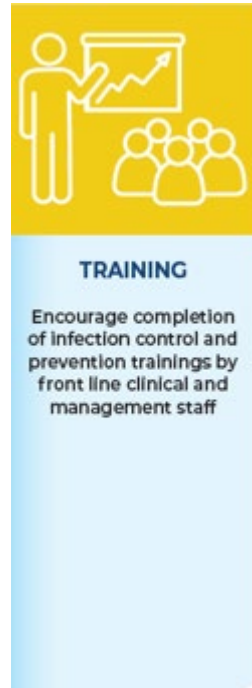
Questions?



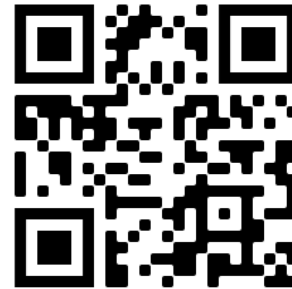
Scan the QR codes or Click the Links to Complete the Assessments!

CMS requested Alliant Health Solutions, your QIN-QIO, to work with select nursing homes to understand emerging health care needs in nursing homes. Alliant Health Solutions is engaging nursing home leadership in this area to ensure plans are in place to achieve and maintain health quality and equity!

Please scan the QR code below and complete the assessment.



Nursing Home Infection Prevention (NHIP) Initiative Training Assessment



<https://bit.ly/NHIPAssessment>

Nursing Home and Partnership for Community Health: CMS 12th SOW GOALS



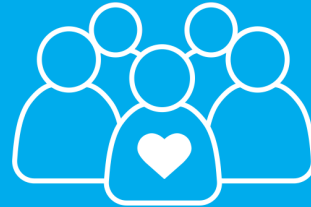
OPIOID UTILIZATION AND MISUSE

- Promote opioid best practices
- Reduce opioid adverse drug events in all settings



PATIENT SAFETY

- Reduce hospitalizations due to c. diff
- Reduce adverse drug events
- Reduce facility acquired infections



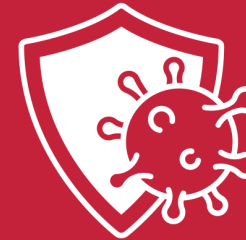
CHRONIC DISEASE SELF-MANAGEMENT

- Increase instances of adequately diagnosed and controlled hypertension
- Increase use of cardiac rehabilitation programs
- Reduce instances of uncontrolled diabetes
- Identify patients at high-risk for kidney disease and improve outcomes



CARE COORDINATION

- Convene community coalitions
- Reduce avoidable readmissions, admissions to hospitals and preventable emergency department visits
- Identify and promote optimal care for super utilizers



COVID-19

- Support nursing homes by establishing a safe visitor policy and cohort plan
- Provide virtual events to support infection control and prevention
- Support nursing homes and community coalitions with emergency preparedness plans



IMMUNIZATION

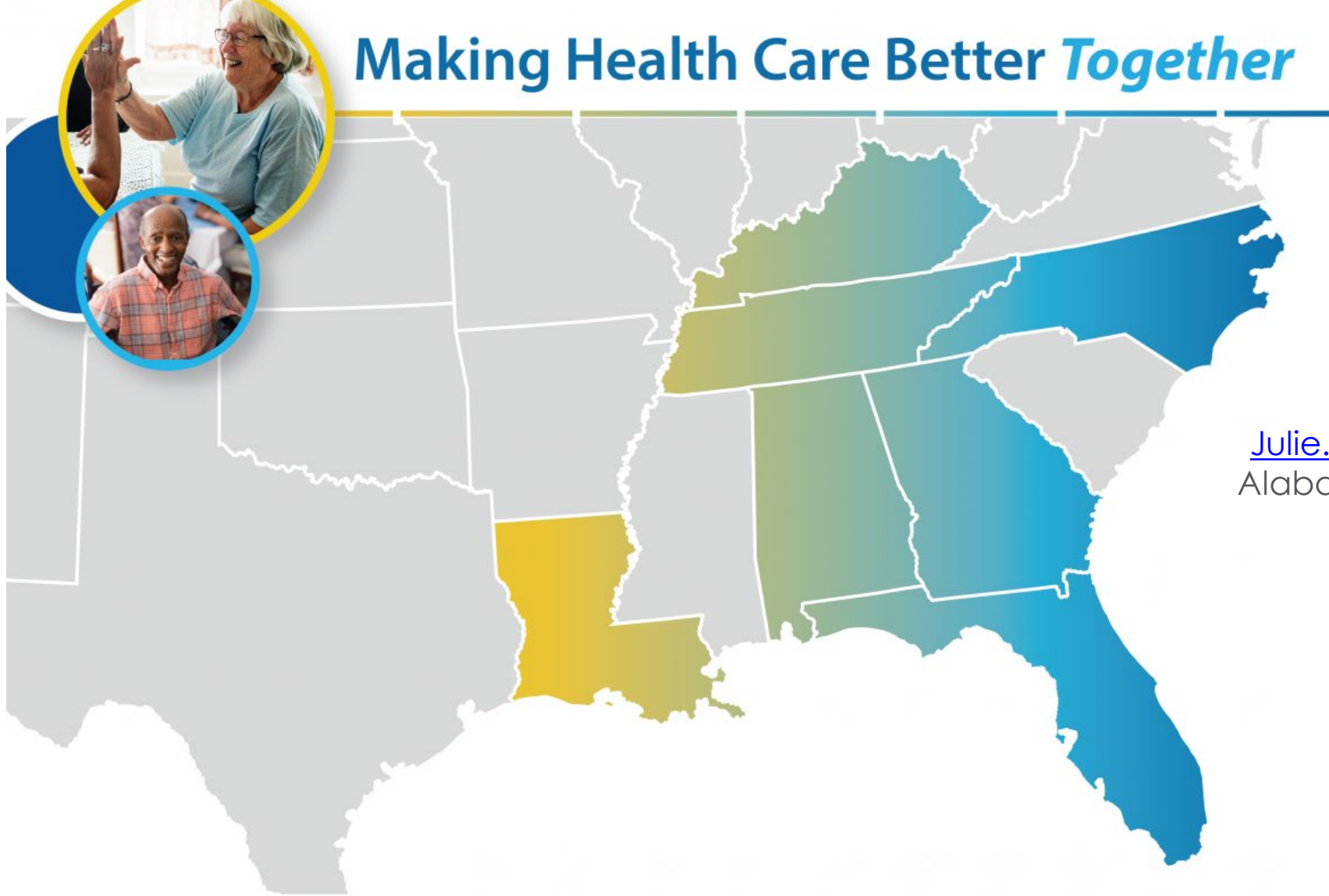
- Increase influenza, pneumococcal, and COVID-19 vaccination rates



TRAINING

- Encourage completion of infection control and prevention trainings by front line clinical and management staff

Making Health Care Better *Together*



Julie Kueker
Julie.Kueker@AlliantHealth.org
Alabama, Florida and Louisiana



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

Program Directors

Making Health Care Better Together



ALABAMA • FLORIDA • GEORGIA • KENTUCKY • LOUISIANA • NORTH CAROLINA • TENNESSEE



@AlliantQIO



Alliant Health Solutions



@AlliantQIO



AlliantQIO

This material was prepared by Alliant Health Solutions, a Quality Innovation Network – Quality Improvement Organization (QIN – QIO) under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services (HHS). Views expressed in this material do not necessarily reflect the official views or policy of CMS or HHS, and any reference to a specific product or entity herein does not constitute endorsement of that product or entity by CMS or HHS. Publication No. 12SOW-AHS-QIN-QIO TO1-NH--3065-01/05/23



QIN-QIO
Quality Innovation Network -
Quality Improvement Organizations
CENTERS FOR MEDICARE & MEDICAID SERVICES
EQUALITY IMPROVEMENT & INNOVATION GROUP