

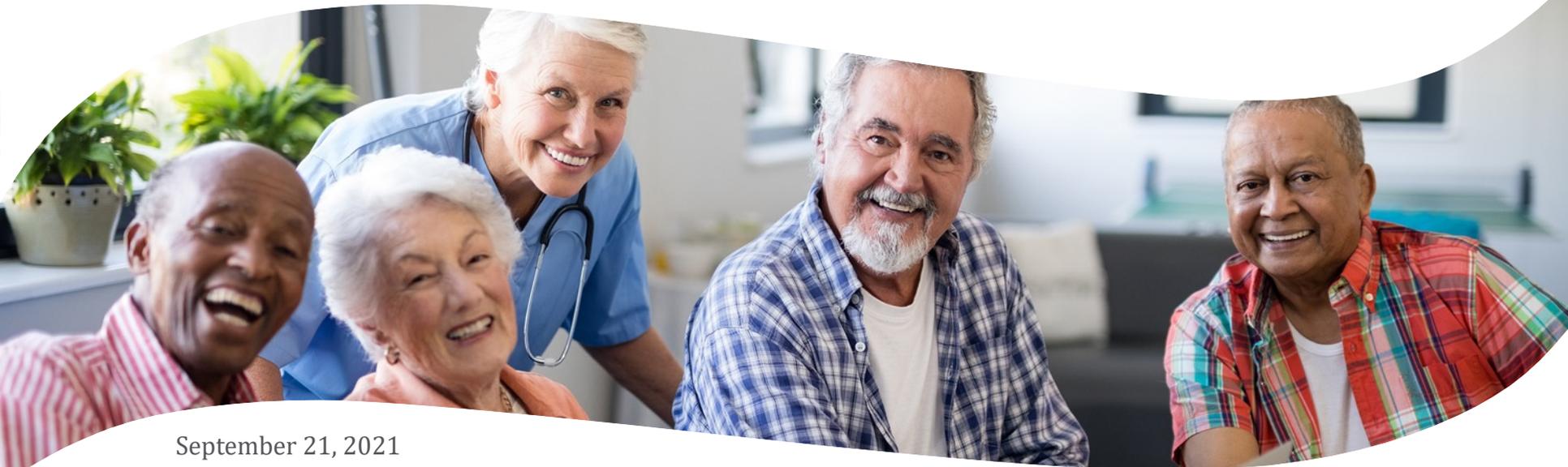
# Best Practices for Surveillance, Diagnosis and Treatment of *C. difficile*

## 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!

# Best Practices for Surveillance, Diagnosis and Treatment of *C. difficile*



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Presented by:

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Jennifer Massey, PharmD | Tech Advisor, Medication Safety



# 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.

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# Jennifer Massey, PharmD

## TECH ADVISOR, MEDICATION SAFETY



Jennifer is the hospital quality medication safety technical advisor and the North Carolina community coalition coordinator for Alliant Quality. She has over 10 years experience in the acute care hospital setting as a clinical staff pharmacist; including code response, ICU, emergency department, pediatrics and the operating room pharmacy in hospitals across Arkansas, Alabama, and North Carolina. Her background gives her a unique perspective on medication safety and adverse drug events. She earned her PharmD from the University of Arkansas for Medical Sciences in Little Rock, Arkansas. She is a member of the North Carolina Association of Pharmacists and is part of their opioid transformation team.

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# Objectives

## Learn Today:

- Understand *C. difficile* infection diagnosis
- Understand how antibiotics prescribing can contribute to *C. difficile*

## Use Tomorrow:

- Develop a *C. difficile* surveillance and reporting plan
- Develop a policy describing *C. difficile* infection control practices

# What is *C. difficile*?

*C. difficile* is a Gram-positive, spore-forming bacteria known to cause diarrhea and colitis

## Risk factors

- Antibiotic use- especially broad spectrum, long duration
- Age > 65 years
- Recent hospitalization
- Weakened immune system
- Previous CDI
- Known Exposure

## Cost

- 14,000 deaths in 2007
- \$4.8 billion in excess health care costs in 2007
- Average cost of CDI event: \$7500



# Standards for IP

**FAILURE IN ANY OF THESE MEASURES WILL RESULT IN F-TAG**

- Did the staff implement appropriate standard and transmission based precautions?
- Does the facility have a facility-wide ICPC including standards, policies, procedures and education that are current, based on national standards, and reviewed at least annually?
- Did the facility provide appropriate infection surveillance?

# Who should be clinically evaluated for CDI?

- Residents with unexplained and new onset of watery diarrhea (>3 stools in 24 hours)
  - Continues after diarrhea causing medications are stopped
- Immediately initiate contact enteric precautions
- Discuss change in resident status with Provider and Infection Prevention RN
- **DO NOT REQUEST TESTS FOR CURE!!** (leads to unnecessary treatment, isolation, etc.)

# Laboratory Testing for CDI

- Glutamate Dehydrogenase (GDH) plus toxin
- Nucleic Acid Amplification Test (NAAT or PCR)
  - NAAT extremely sensitive and can pick up colonization
  - If burden of CDI is significant within a facility and control measures are in place, consider adding confirmatory test
- Toxin test detects *C. difficile* toxin A or B (enzyme immunoassay or EIA test)
  - Used frequently as confirmatory test



# How should surveillance cases be identified?

- Nursing homes should perform surveillance for all care locations
  - Review orders for *C. diff* tests to evaluate clinical picture
  - Review lab results for positive *C. diff* results
  - Review new admissions for recent or historical CDI
  - Perform surveillance per [NHSN Lab for CDI for LTCF](#) (pg. 12)
    - Reports with rates and graphs can be easily generated out of NHSN

# LabID Event Form

- Demographic information (requires SAMS level 3 access)
- Event details –
  - Event Type – LabID
  - Organism Type – *C. difficile*
  - Specimen Body Site/System: GI tract
  - Specimen Source: Stool
  - Resident Care Location: ex. Hall B
  - Resident Service Type
  - Acute Care transfer? – from Medical record



Form Approved  
OMB No. 0920-0666  
Exp. Date: 12/31/22  
www.cdc.gov/nhsn

## Laboratory-identified MDRO or CDI Event for LTCF

Page 1 of 1

|  |  |
|--|--|
| *required for saving   |  |
| Facility ID:   | Event #:   |
| *Resident ID:  |  |
| Medicare number (or comparable railroad insurance number):   |  |
| Resident Name, Last:   | First: Middle:                                   |
| *Gender: M F Other   | *Date of Birth: __/__/__                         |
| Ethnicity (specify):   | Race (specify):                                  |
| *Date of First Admission to Facility: __/__/__   | *Date of Current Admission to Facility: __/__/__ |
| <b>Event Details</b>   |  |
| *Event Type: LabID   | *Date Specimen Collected: __/__/__               |
| *Specific Organism Type: (check one)   |  |
| <input type="checkbox"/> MRSA <input type="checkbox"/> MSSA <input type="checkbox"/> VRE <input type="checkbox"/> <i>C. difficile</i> <input type="checkbox"/> CephR-Klebsiella<br><input type="checkbox"/> CRE- <i>E. coli</i> <input type="checkbox"/> CRE- <i>Enterobacter</i> <input type="checkbox"/> CRE- <i>Klebsiella</i> <input type="checkbox"/> MDR- <i>Acinetobacter</i> |  |
| *Specimen Body Site/System:  | *Specimen Source:                                |
| *Resident Care Location:   |  |
| *Primary Resident Service Type: (check one)  |  |
| <input type="checkbox"/> Long-term general nursing <input type="checkbox"/> Long-term dementia <input type="checkbox"/> Long-term psychiatric<br><input type="checkbox"/> Skilled nursing/Short-term rehab (subacute) <input type="checkbox"/> Ventilator <input type="checkbox"/> Bariatric <input type="checkbox"/> Hospice/Palliative   |  |
| *Has resident been transferred from an acute care facility in the past 4 weeks? Yes No   |  |
| If Yes, date of last transfer from acute care to your facility: __/__/__   |  |
| If Yes, was the resident on antibiotic therapy for this specific organism type at the time of transfer to your facility? Yes No  |  |
| <b>Custom Fields</b>   |  |
| Label  | Label  |
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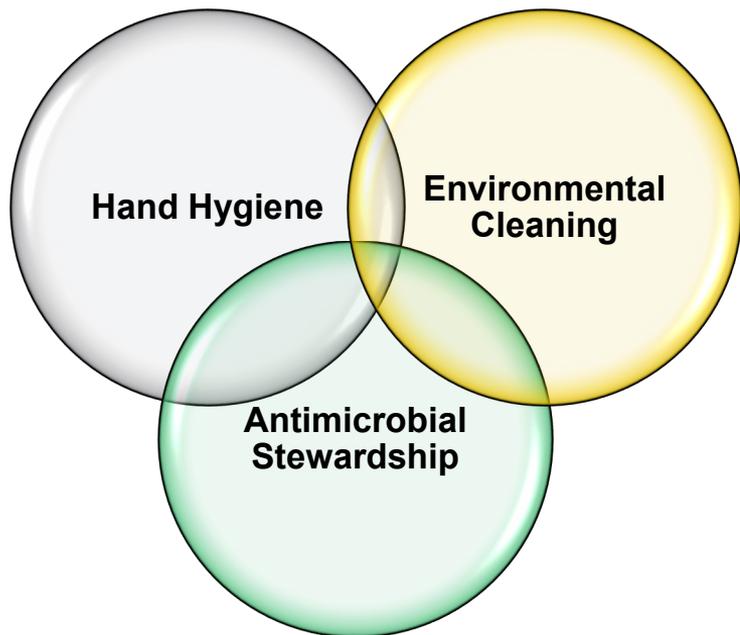
# Sustain the Gains

## USING DATA TO IMPROVE

- Utilize NHSN data analysis functions to improve upon your own CDI rates
  - Report your data by the definition – we are all in this together!
  - Most widely used HAI tracking system (>22,000 facilities reporting!)
    - LTCF, Acute care hospitals, Ambulatory Surgery Centers
  - Facilities can use the data to
    - Identify problem areas such as a single hall with higher rates of CDI
    - Measure progress of prevention efforts
    - Comply with reporting requirements

# CDI Prevention

## Pillars of Prevention



- Hand Hygiene
- Environmental Cleaning
- Antimicrobial Stewardship

# Hand Hygiene, Standard, and Transmission Based Precautions

- Always follow standard precautions
- Always perform hand hygiene before and after resident encounters
- Initiate *Contact Enteric Precautions* for all who enter the resident's room (at the earliest suspicion of CDI)
  - Hand hygiene using soap and water when leaving the room
  - Gown
  - Gloves
  - Preferentially use dedicated or disposable equipment

<https://spice.unc.edu/resources/nc-standardized-isolation-signage/>



## CONTACT PRECAUTIONS



*Visitors must report to Nursing Station before entering.*

### SPECIAL ENTERIC

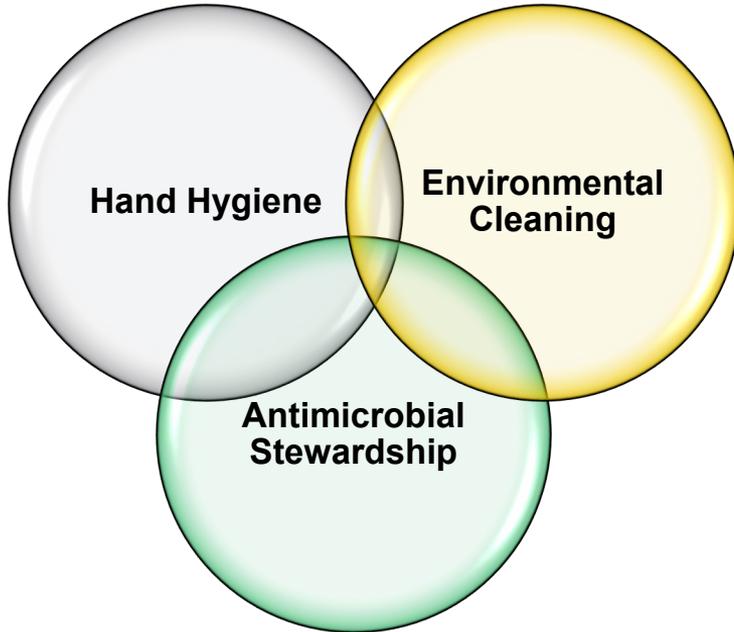
-   Perform hand hygiene **before** entering room AND wash hands with **soap and water** before leaving room.  
*Lávese las manos con agua y jabón.*
-   Wear gloves when entering room or cubicle, and whenever touching the patient's intact skin, surfaces, or articles in close proximity.
-   Wear gown when entering room or cubicle and whenever anticipating that clothing will touch patient items or potentially contaminated environmental surfaces.
-   Use patient-dedicated or single-use disposable shared equipment or clean and disinfect shared equipment (BP cuff, thermometers) between patients.

### PRECAUCIONES DE CONTACTO

*Los visitantes deben presentarse primero al puesto de enfermería antes de entrar. Lávese las manos. Póngase guantes al entrar al cuarto.*

# CDI Prevention

## Pillars of Prevention



- Hand Hygiene
- Environmental Cleaning
- Antimicrobial Stewardship

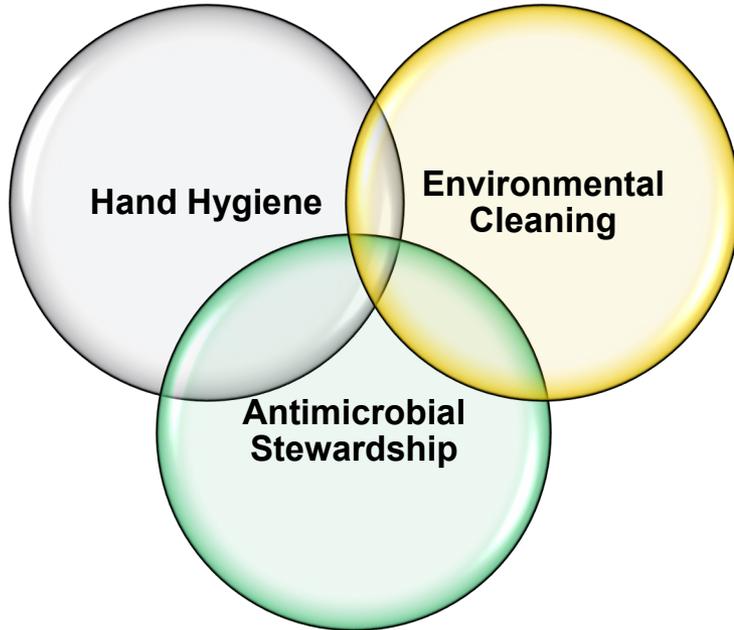
# Environmental Cleaning

## CLEAN AND DISINFECT PATIENT ROOMS AND CARE EQUIPMENT

- Policies and Procedures
  - EPA registered *sporicidal* disinfectants
    - Quats and daily disinfectants may not be effective against *C. diff*
    - During outbreaks, consider use of sporicidal agent for all routine disinfection
  - Follow manufacturer instructions for use
  - Clean shared equipment between each use (glucometer, bladder scanner, etc.)
  - Follow routine practices – changing wiper/mop head, clean to dirty workflow, frequent cleaning of high touch surfaces
  - Use checklists
- Audits and Observations
  - Define responsibilities – who cleans what
  - Regularly audit to ensure cleaning is completed per policy
  - Report audit findings to QAPI committee to develop action plans when needed

# CDI Prevention

## Pillars of Prevention



- Hand Hygiene
- Environmental Cleaning
- Antimicrobial Stewardship

# Risk Factors

- Antibiotic use- especially broad spectrum, long duration
- Age > 65 years
- Recent hospitalization
- Weakened immune system
- Previous CDI
- Known Exposure



# Antibiotic Use and *C. difficile*

- Symptoms usually develop shortly after antibiotic use, with risk persisting for up to 90 days
- Highest risk occurs during the first month after antibiotic exposure
- Extended antibiotic use and use of multiple antibiotics further increase risk

# Contributing Antibiotics

- Clindamycin
- Cephalosporins
  - Ceftriaxone, cefepime, etc.
- Fluoroquinolones
  - Ciprofloxacin, levofloxacin, etc.
- Aztreonam
- Carbapenems
  - Meropenem, doripenem, ertapenem, etc.
- Certain penicillins
  - Augmentin (amox/clav)



# Treatment of *C. difficile*

- Vancomycin or fidaxomicin is recommended over metronidazole for initial episode
  - vancomycin 125 mg po QID x 10 days
  - fidaxomicin 200 mg po BID x 10 days
- If access to vancomycin or fidaxomicin is limited:
  - metronidazole 500 mg po TID x 10 days
- Fecal microbiota transplantation is recommended for patients with multiple recurrences of CDI who have failed appropriate antibiotic treatments

# Fidaxomicin

- Brand Name: DIFICID
- Narrow spectrum antimicrobial
- Minimal effect on surrounding microbiota
- Studies have shown that fidaxomicin decreases rates of *C. difficile* recurrence\*

**10 day course Fidaxomicin - \$3,360**

**1<sup>st</sup> recurrence of *C. difficile* - estimated \$25k – \$120k**

In vitro activity of OPT-80 tested against clinical isolates of toxin-producing *Clostridium difficile*.  
Karlowsky JA, Laing NM, Zhanel GG. *Antimicrob Agents Chemother.* 2008;52:4163–4165

# F880 – Appropriate Infection Surveillance

- Determine if the facility has an Antibiotic Stewardship Program that includes:
  - Written antibiotic use protocols on antibiotic prescribing including documentation of the indication, dosage, and duration of use of antibiotics
  - Protocols to review clinical signs and symptoms and lab reports to determine if the antibiotic is indicated or if adjustments to therapy should be made
  - Identify what infection assessment tools or management algorithms are used for one or more infections (SBAR tool for UTI assessment, etc.)

# Antibiotic Stewardship Team

- Monitoring:
  - Broad spectrum antibiotics
    - At minimum: indication, dose, duration
  - Proton Pump Inhibitors (Protonix, Prevacid, etc.)
    - Determine indication and evaluate
  - Bowel Protocols
    - Should not be on scheduled laxatives or stool softeners
  - Antidiarrheal Agents
    - Should not be on PRN or scheduled antidiarrheal agents
  - Lactobacillus
    - Not supported by CDI guidelines
  - Questran
    - Separate from PO vancomycin dosing by at least 2-3 hours



# Objectives Check In!



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**Complete this sentence in Chat:** *I will...*

# References

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Polage, C. R., Gyorke, C. E., Kennedy, M. A., Leslie, J. L., Chin, D. L., Wang, S., ... Cohen, S.H. (2015, September 8). Overdiagnosis of *Clostridium difficile* infection in the molecular test era. *JAMA Internal Medicine*, 175, 1792-1801. <http://dx.doi.org/10.1001/jamainternmed.2015.4114>

# CMS 12<sup>th</sup> 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

# Making Health Care Better *Together*

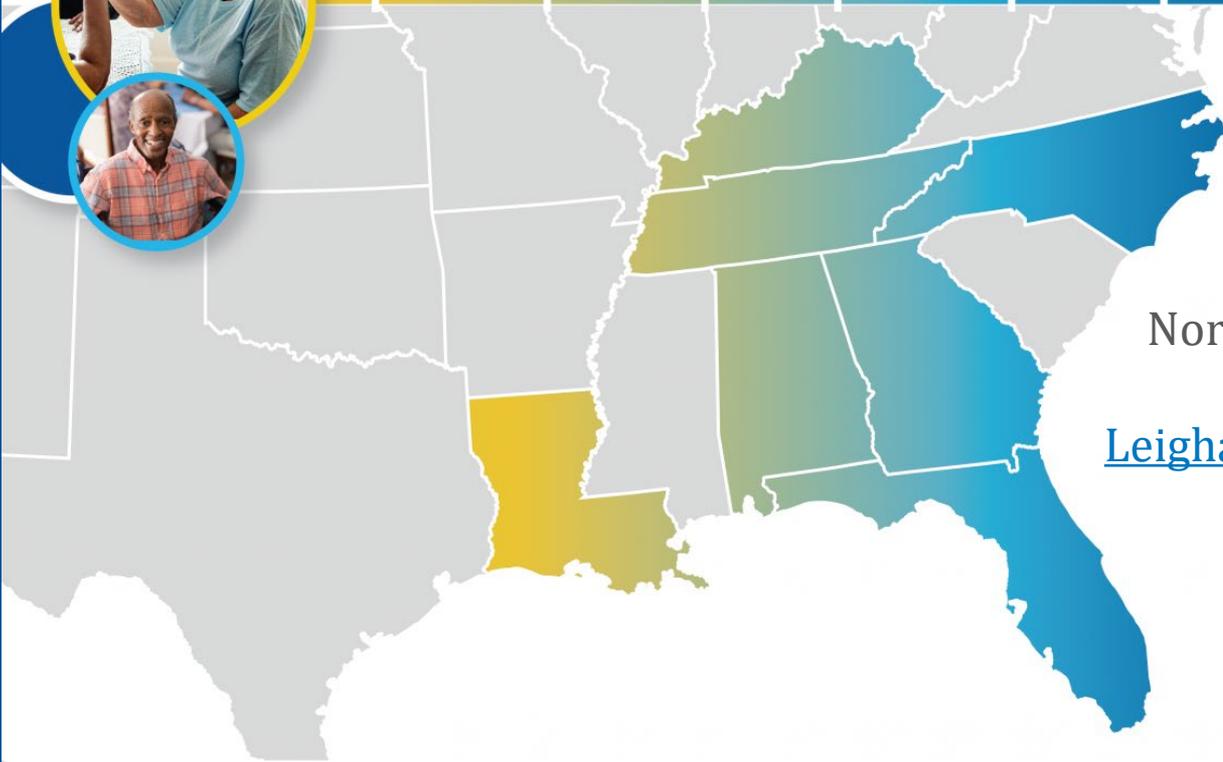


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