National Nursing Home Quality Care Collaborative (NNHQCC) II and the *Clostridium difficile* Infection (CDI) Initiative

Antibiotic Resistance: Strategies to Decrease the Spread of Resistance

Health Services Advisory Group (HSAG)  
Thursday, May 31, 2018
Objectives

1. Describe what is meant by antibiotic resistance.
2. Explain how antibiotic resistance develops.
3. Define key antibiotic resistant organisms in healthcare.
4. Identify resources and strategies to decrease the development and spread of antibiotic resistance.
## 2018 Education and Outreach

- **Monthly Educational Webinars**

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Registration Information to Follow. Check [www.hsag.com/events](http://www.hsag.com/events) often for upcoming webinars and events.

CDI = Clostridium difficile infection
QIO Program CDI Initiative Overview
What is a QIN-QIO?

- Funded by the Centers for Medicare & Medicaid Services (CMS)
  - Quality Innovation Network-Quality Improvement Organization (QIN-QIO) in each state
  - Dedicated to improving health quality at the community level
  - Ensures people with Medicare get the care they deserve, and improves care for everyone
Nearly 25 percent of the nation’s Medicare beneficiaries

HSAG is the Medicare QIN-QIO for Arizona, California, Florida, Ohio, and the U.S. Virgin Islands.
Infographic

Patient is at the center of care

- Cardiac Health
- Disparities in Diabetes
- Transforming Clinical Practice
- Antibiotic Stewardship in Communities
- Coordination of Care
- Behavioral Health
- Healthcare-Acquired Conditions in Nursing Homes
- Support of Clinicians in the Quality Payment Program
- Improve Hand Hygiene and Injection Practices in ASCs
- Adult Immunizations

*ASCs=Ambulatory Surgical Centers
Patient is at the center of care

- Cardiac Health
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Key CDI Reduction Strategies

QAPI = Quality Assurance and Performance Improvement

- Antibiotic Stewardship
- NHSN Data Entry and Analysis
- CDI Management
- Communication
Final Rules—Reform of Requirements for Long-Term Care Facilities (LTCFs)

QAPI and Infection Control Implementation Dates

Phase 1
November 28, 2016
- Quality Assurance & Performance Improvement*
- QAA Committee
- Infection Control–Program*

Phase 2
November 28, 2017
- Quality Assurance & Performance Improvement-
- QAPI Plan
- Infection Control–Facility Assessment
- and Antibiotic Stewardship**

Phase 3
November 28, 2019
- Quality Assurance & Performance Improvement-
- QAPI Implementation
- Infection Control Preventionist

*This section is partially implemented in Phase 2
**This section partially implemented in other phases

Nursing Home
Online Training Sessions
NH Online Training Sessions

Nursing Home Training Sessions Introduction

We hope that you find these training tools and resources helpful in your work to implement antibiotic stewardship and prevent C. difficile infections in your residents. All are welcome to explore this site and use the information as applicable to you and your organization. Thank you for your dedication to preventing infections in residents (and staff, too) and promoting appropriate antibiotic use.

Training sessions and resources for nursing homes to support:
- Implementation of principles and practices of antibiotic stewardship
- Prevention and management of Clostridium difficile infections
- TeamSTEPPS® communication strategies and tools to promote quality and safety

Background:

*C. difficile* causes: 1 out of 3 C. difficile infections occur in patients 65 years or older (CDC 2015), 1 out of 3 elderly patients aged 65 or older with a...
1. Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS®) in long-term care (LTC): Communication Strategies to Promote Quality and Safety

2. Exploring Antibiotics and their Role in Fighting Bacterial Infections

3. Antibiotic Resistance: How it Happens and Strategies to Decrease the Spread of Resistance

4. Antibiotic Stewardship

5. Clostridium difficile Part One: Clinical Overview

6. Clostridium difficile Part Two: Strategies to Prevent, Track, and Monitor C. difficile
Purpose of the Online Training Sessions

• Provide NH leaders with a set of training materials to enhance understanding of important concepts and practices.

• Provide certificates of participation or a total of 11.3 nursing continuing education (CE) credits at no-cost.

• Develop and disseminate materials that can be accessed and used by LTC partners and stakeholders interested in these topics.
Use of the Online Training Sessions

• NH leaders can decide:
  – Which modules would be helpful.
  – The appropriate staff member to include for each module.
  – How to use the materials during education sessions or self study.
  – How to best provide this training over time.
Nursing Home Training Sessions
This is an introduction to a set of training sessions aimed to provide NH leaders with training materials that can be used to enhance understanding of important concepts and practices that promote stewardship and C. difficile prevention, and provide information, tools, and resources to take action...
View Resource

Additional Clostridium difficile Information
This is a webpage that contains additional Clostridium difficile information, prevention strategies, and tools and resources.
View Resource
Nursing Home Online Training Sessions

Session 3: Antibiotic Resistance: How it Happens and Strategies to Decrease the Spread of Resistance
Topics

- What is antibiotic resistance?
- Why do bacteria become resistant to antibiotics?
- How do bacteria become resistant to antibiotics?
- How much of a problem is antibiotic resistance?
- Are antibiotic resistant infections a problem in nursing homes?
- How can labs help you to identify resistant bacteria?
- How can you prevent the development and spread of antibiotic resistance?
- Take home messages.
- Optional tools and resources.
What is Antibiotic Resistance?
Fast Facts

CLOSTRIDIUM DIFFICILE

- Spore forming bacteria
  - Difficult to kill on surfaces
  - Difficult to treat
    - Reoccurs in about 1 in 5 patients who contract the illness
- People on antibiotics are 7–10 times more likely to get CDI and for 1 month post treatment.
- Occurs most commonly in hospitals, nursing homes, and outpatient settings.
- More than 80 percent of CDI deaths occur in people age 65 and older.
  - Prompt identification and appropriate treatment is crucial to improve outcomes.

What is Antibiotic Resistance?

• Antibiotic resistance is the ability of a bacteria to mutate or change so that antibiotics cannot kill it or stop it from reproducing.
How Bacteria Become Resistant to Antibiotics

• Bacteria are living organisms and contain specific DNA or genetic make-up

• Two ways that bacteria become resistant
  – Mutations: changes in genes
  – Gene transfer: new genes picked up from other bacteria

• Simply using antibiotics, even judicious use, can increase the risk of the spread of antibiotic resistance (bacteria unable to be killed by antibiotics)
Different ways that bacteria can resist the effects of antibiotics:

- Bacteria can produce protein enzymes that destroy antibiotics.
- Bacteria can change their cellular structure to either block the binding site of the antibiotic or disrupt the function of the antibiotic.
- Bacteria can reduce their exposure to antibiotics.
Antibiotic Resistant Infections in NHs

• Infections are common in long-term care facility (LTCF) residents.
• Multi-drug resistant organisms (MDROs) are causes of infection and colonization in LTCF residents.
MDRO Examples include:

- methicillin-resistant *Staphylococcus aureus* (MRSA)
- vancomycin-resistant *Enterococci* spp. (VRE)
- drug-resistant *Streptococcus pneumoniae*
- multidrug-resistant gram-negative bacteria (e.g., *Pseudomonas aeruginosa*, *Acinetobacter* spp and extended-spectrum B-lactamase (ESBL)-producing *Enterobacteriaceae*).
• LTCF residents are at higher risk for colonization and infection with resistant organisms because of:
  – Increased exposure to antibiotics.
  – Increased exposure to invasive devices.

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<td>Age</td>
<td>Transfers between acute and long-term care settings</td>
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<td>Changes in the immune system</td>
<td>Staffing issues</td>
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<td>Functional impairments</td>
<td>Inadequate hand hygiene</td>
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<td>Multiple medications</td>
<td>Low flu vaccination rates in staff members</td>
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How You Can Prevent Resistance
How Can You Prevent the Development and Spread of Antibiotic Resistance?

- You cannot prevent the development of all resistance, as it is a naturally occurring phenomenon.
- Your job is to slow development and reduce the spread of antibiotic resistant bacteria.
- Effective diagnosis and treatment, including the wise use of antibiotics, is a key part of preventing antibiotic resistance.
- To prevent further emergence and spread of antibacterial resistance utilize infection prevention and control practices.

SHEA/APIC Guideline: Infection Prevention and Control in the Long-Term Care Facility
The Core Elements of Antibiotic Stewardship for Nursing Homes

The Core Elements of Antibiotic Stewardship for Nursing Homes adapts the CDC Core Elements of Hospital Antibiotic Stewardship into practical ways to initiate or expand antibiotic stewardship activities in nursing homes. Nursing homes are encouraged to work in a step-wise fashion, implementing one or two activities to start and gradually adding new strategies from each element over time. Any action taken to improve antibiotic use is expected to reduce adverse events, prevent emergence of resistance, and lead to better outcomes for residents in this setting.

https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html
In nursing homes, approximately 20% of healthcare providers account for about 80% of antibiotics prescribed.¹

Roughly 40–75% of antibiotics are prescribed incorrectly.

Nearly 50% of antibiotics prescribed in nursing homes may be given longer than necessary.¹
Antibiotic Resistant Infections in NHs: Insights

• If you are not using antibiotics judiciously, you can promote the development of resistant strains in your facility.

• Using antibiograms to track resistance and susceptibility patterns helps you to know if you are developing resistance to specific antibiotics in your facility.
Antibiotic Resistant Infections in NHs: More Insights

• Prescribing practices help us to prevent the development of resistant organisms in each facility.

• Poor infection prevention and control practices contribute to further emergence and spread of antibacterial resistance.
How Labs Can Help You To Identify Resistant Bacteria

• Labs can grow bacteria and then use growth patterns, gram stains, and other biochemical testing to identify the bacterial isolate.

• Labs can identify the susceptibility patterns for identified organisms.
• Labs can create antibiograms.
  – Summary snapshot of antibiotic patterns across all of the organisms (cultures from residents) in your facility
  – Helps guide clinicians in selecting the best antimicrobial treatment in the event of pending microbiology culture and susceptibility results
Antibiogram Resources

About Anti-biograms (Antimicrobial Susceptibilities of Selected Pathogens) from the Minnesota Department of Health

Concise Anti-biogram Toolkit from the Agency for Healthcare Quality and Research (AHRQ)
Take Home Messages

• Antibiotic resistance is a growing problem across all healthcare settings. This is happening on our watch—and it is our problem to address as well.

• The fewer antibiotics we use (avoiding abuse or misuse), the slower antibiotic resistance will be to develop, and the result will be that we will have antibiotics available to us when we need them.

• Infection control is a key component to prevent emergence and spread of antibacterial resistance.
Additional Resources
Optional Tools and Resources

- **Take Action to Prevent and Manage Multidrug-resistant Organisms and C. difficile in the Nursing Homes.** A Four-part recorded webinar presented by Nimalie Stone, MD, MS, a medical officer at the Centers for Disease Control and Prevention (CDC) (1:04:12).

  [https://www.youtube.com/watch?v=iRN-mvadpKg](https://www.youtube.com/watch?v=iRN-mvadpKg)
Optional Tools and Resources: Education Module for Nurses in LTCFs

The Minnesota Department of Health

These education modules were developed for nurses and for nursing assistants on antibiotic use and antibiotic resistance:

- Education Module for Nurses in LTCFs: Antibiotic Use and Antibiotic Resistance.
  
  [PDF](http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/modprintnurseabx.pdf)
  
  - For the presentation slides: [PDF](http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/modslidenurseabx.pdf)
  
  - For the post-test questions: [PDF](http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/modanswernurseabx.pdf)
Optional Tools and Resources:

Education Module for LTCF Nursing Assistants

The Minnesota Department of Health

These education modules were developed for nurses and for nursing assistants on antibiotic use and antibiotic resistance:

• Education Module for Nursing Assistants in LTCFs: Antibiotic Use and Antibiotic Resistance.
  – For the presentation slides: PDF
    http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/modslidenaabx.pdf
  – For the post-test questions: PDF
    http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/modanswernaabx.pdf
Guidance for Preventing Transmission of Carbapenem-Resistant Enterobacteriaceae (CRE) in Skilled Nursing Facilities
https://www.dhs.wisconsin.gov/publications/p0/p00532.pdf

Facility Guidance for Control of Carbapenem-Resistant Enterobacteriaceae (CRE): November 2015 Update, CRE Toolkit
Optional Tools and Resources: Videos

**Preventing the Spread of Carbapenem-Resistant Enterobacteriaceae in LTCs**
https://www.youtube.com/watch?v=oiklARo-7U8 CDC (1:00:29)

**The Basics of Antibiotic Resistance: Focus on Carbapenem-Resistant Enterbacteriaceae (CRE)**
https://www.youtube.com/watch?v=HxbmtDOcbZA. CDC (56:55)
Environmental Hygiene: Best Practices to Use When Cleaning and Disinfecting Patient Rooms

Oregon Patient Safety Commission and the Oregon Healthcare-Associated Infection Program at the Oregon Health Authority. English (8:42)  
https://www.youtube.com/watch?v=Zx9fg0u4cQ

Environmental Hygiene: Best Practices to Use When Cleaning and Disinfecting Patient Rooms

Oregon Patient Safety Commission and the Oregon Healthcare-Associated Infection Program at the Oregon Health Authority. Spanish (10:16)  
https://www.youtube.com/watch?v=9s-Blp-1g20
Getting Started with NHSN: HSAG YouTube Channel

https://www.youtube.com/user/hsagvideo
HSAG NHSN Resources

www.hsag.com/nh-nhsn-resources
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Email us to be added!

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The Ohio Nursing Home Quality Care Connection

The QCQ Newsletter is your monthly Nursing Home Quality Care Collaborative (NHQCC) Ohio member update that provides information on the latest activities. It is a quick reference for information on upcoming learning events, tips, to improvement tools, resources, news, best practices, and success stories.

The Centers for Medicare & Medicaid Services (CMS) recently released Interpretable Guidance update for Phase II of the Requirements of Participation. A CMS Interpretable Guidance document dated June 30, 2017, outlines the Revised Interpretable Guidance for Survey Agendas, revised T-Tags, a revised survey process, training resources for surveyors and Long-Term Care (LTC) providers and enforcement, and Nursing Home Compare recommendations for Phase II. Phase II requirements are scheduled to take effect November 20, 2017.

Encourage Resident Mobility

Mobility is a term that includes physical strength, flexibility, balance, and endurance, according to the National Nursing Home Quality Improvement Campaign. It includes important activities that require movement, such as turning over in bed, getting up, standing, walking, or using a device. Not all residents are equally mobile; however, being able to move helps improve physical function and psychological well-being. For example, improved mobility can improve sleep, appetite, and independence during activities of daily living.

To help nursing homes encourage resident mobility, the National Nursing Home Quality Care Collaborative Change Package includes a six-point change bundle to help the multidisciplinary quality improvement team support function and well-being of residents. The six points are as follows:

1. Define mobility for each unique individual.
2. Provide a place or space to move.
3. Provide supportive equipment.
4. Train staff and residents.
5. Support and encourage.
6. Address physical and psychological needs that inhibit mobility.

You can find specific action items for each of these six points in Attachment 3 of the NHQCC Change Package (April 2017 v2.0).

Quality Measure Tips: Activities of Daily Living (ADL)

The ADL quality measure reports the percentage of residents who need help with ADLs. This measure is important because it helps to ensure that residents receive the care they need. When you are working with your staff members, you may want to consider the following questions:

- Is the staff member's coding documentation accurate?
- Has the root cause for the decline been determined and treated?
- Is pain/depression managed?
- Is the resident receiving appropriate assistance from staff members?

If you find a resident not receiving appropriate assistance, contact the nursing home administrator or the state ombudsman. If any questions arise, please contact ohnursinghome@hsag.com.
Contact Us!

Questions? Comments? Assistance?
Reach out to your state QIO.

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Thank you!
This material was prepared by Health Services Advisory Group, the Medicare Quality Improvement Organization for Arizona, California, Florida, Ohio, and the U.S. Virgin Islands, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy.

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