SA5- Making it Happen: Research Updates on Cultural Challenges to Antimicrobial Stewardship in PA/LTC

Saturday, March 24
11:00 AM- 12:30 PM

Session Description
The session will present updates and outcomes from research about antimicrobial stewardship in PA/LTC settings, including cultural facilitators and barriers to improving antibiotic use and ongoing work that promotes antimicrobial stewardship as part of a culture of safety. Outcomes, challenges, and lessons learned shared in this session can support attendees seeking to innovate antimicrobial stewardship in their buildings.

Learning Objectives
Recognize features of community PA/LTC settings that appear to correlate with lower rates of overall antibiotic use.
Discuss outcomes from research that supported PA/LTC settings in using their own data and forming collaborative antimicrobial stewardship teams.
Explain the relevance of implementing antibiotic stewardship as a part a culture of safety that includes leadership, administration and front-line staff.

Presenter(s): Ghinwa Dumyati, MD; Robin Jump MD, PhD; Morgan Katz, MD, MHS

Presenter(s) Disclosures: All speakers have reported they have no relevant financial relationships to disclose.
Learning Objectives

• Explain the relevance of implementing antibiotic stewardship as a part of a culture of safety that includes leadership, administration, and front-line staff.

• Introduce an opportunity for using this approach to develop an antibiotic stewardship team in your facility.

What is Antibiotic Stewardship?

Appropriate use of antibiotics

• Right drug
• Right dose
• Right indication
• Right duration

Technical problems and solutions

• Computer shuts down → Call tech support and fix
• Water leaking in a house → Call a plumber to fix the leak

**Assign the problem to an expert, and get out of the expert’s way**

Inappropriate antibiotic prescribing → NOT AN EASY FIX
Inappropriate Antibiotic Prescribing

- Vague clinical symptoms
- Belief that you are preventing sepsis
- Fear of litigation
- No support from executives
- Limited diagnostic resources
- Poor communication
- Family pressure
- Off-site prescribers
- No time for education
- Poor execution

Previous Interventions

- Electronic alerts for inappropriate prescribing
- Pre-printed order sets for prescribing antibiotics
- Antibiograms circulated to providers
- Prescribing guidelines mailed to clinicians

Reframe the Landscape.

Patient Safety Becomes a Priority

- 1999: To Err is Human
- 2001: DoD implements a patient safety program
- 2002: Joint Commission established its National Patient Safety Goals (NPSGs) program
- 2006: TeamSTEPPS program released
- 2011: CUSP program developed and released

What we have learned

- Education alone does not work
- Long term care is a nursing-led field
- Tools (technical solutions) may help, but only if they are part of nursing workflow
- Prescriber feedback is helpful if collaborative
Hypothesis: Merging patient safety methodology with technical antibiotic stewardship tasks will promote behavior change and enhance antibiotic stewardship methods across the healthcare spectrum.

AHRQ Safety Program for Improving Antibiotic Use

- Addresses both:
  - Technical aspects
    - e.g., best practice in antibiotic prescribing for common infectious diseases syndromes
  - Adaptive aspects
    - e.g., safety culture, behavior change, teamwork and communication

Components of Project

- Multi-disciplinary interactive webinars
  - Aimed at changing culture/behavior
- Educational modules for staff
  - Technical and communication training
- Technical tools to guide prescribing
  - Pocket guides
- Templates to help form team, write policies and track progress of interventions
- Certificates documenting satisfactory interventions for CMS requirements

National AHRQ Safety Program for improving antibiotic use

- Spans the healthcare spectrum
  - 250-500 Acute Care Sites
    - December 2017 - November 2018
  - 250-500 Long-Term Care Sites
    - December 2018 – November 2019
  - 250-500 Ambulatory Care Sites
    - December 2019 – November 2020

Progress: Long-term care cohort

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<td>Recruit pilot site</td>
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<td>Evidence review</td>
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<td>In-person TEP meeting</td>
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<td>Develop educational toolkit</td>
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LTC Webinars: Adaptive Topics

- Improving antibiotic use is a patient safety issue
- Improving communication and teamwork around antibiotic prescribing
- Engaging a senior executive
- Identifying opportunities to improve antibiotic use
- Developing an action plan to improve antibiotic safety
- Sustaining antibiotic stewardship program
**LTC Webinars: Technical Topics**

- Antibiotic stewardship program development
- Appropriate collection of urine and respiratory specimens
- Diagnosis and management of urinary tract infections
- Diagnosis and management of respiratory tract infections
- Communication with providers about infectious concerns
- Communication with family members about infectious concerns

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**The Four Moments of Antibiotic Decision-Making**

1. Does my patient have an infection that requires antibiotics?
2. Have I ordered appropriate cultures before starting antibiotics? What empiric therapy should I initiate?
3. A day or more has passed. Can I stop antibiotics? Can I narrow therapy or change from IV to oral therapy?
4. What duration of antibiotic therapy is needed for my patient’s diagnosis?

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**Challenges**

- Time constraints of staff makes regular participation on webinars difficult
- Data collection: Different methods of collecting outcomes for such facility
- Qualitative data is pending requires dedicated time from frontline staff

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**Successes**

Educational modules and webinars have been developed and tested with regular feedback from technical expert panel and pilot sites.

All material is tailored specifically for long-term care.
Benefits of Participating

• **FREE!**
• Solution to your dilemma of how to create an ASP program to satisfy CMS requirements
• Access to Antibiotic Stewardship experts for coaching and troubleshooting.
• Monthly interactive webinars.
  - 25-30 minutes long
  - 24/7 access to project website
  - Slides and facilitator guides available for local use

More Benefits of Participating

• Access to:
  - eLearning Tools to improve antibiotic prescribing practices
  - Educational material for patients and families
  - Materials to assist with compliance with CMS mandates

Expected Outcomes of Participation

• Improve safety culture around antibiotic prescribing.
• Enhance teamwork and communication among health care workers and between health care workers and patients/families.
• Reduce unnecessary antibiotic use.
• Improve antibiotic decision-making by frontline staff.
• Reduce *Clostridium difficile* infection rates.
• Improve compliance with CMS mandates

What Do Participating Facilities Need to Do?

• Identify your antibiotic stewardship team.
• Identify and engage frontline staff.
• Participate in monthly webinars with experts.
• Identify antibiotic-related defects and solutions, incorporate relevant tools
• Submit requested data to the program website.

Project Website

- [https://safetyprogram4antibioticstewardship.org/](https://safetyprogram4antibioticstewardship.org/)
- Project email: antibioticsafety@norc.org

Thank you

- Robin Jump
- Sara Cosgrove
- Pranita Tamma
- Melissa Miller
- Meghan Walrath
- Mayo Levering
- Kathleen Speck
- TEP expert panel

Fliers will be available for participation at the end of this presentation
Antibiotic Stewardship & Culture Change in PA/LTC: A Cautionary Tale

Robin Jump, MD, PhD
VISN10 Geriatric Research Education and Clinical Center (GRECC)
Louis Stokes Cleveland VA Medical Center
Case Western Reserve University

Learning Objectives
By the end of the session, participants will be able to:
• Articulate challenges related to recruitment and retention of post-acute and long-term care (PA/LTC) settings in research studies
• Recognize opportunities for being flexible with an approach to early phase research
• Discuss features of community post-acute and long-term care settings that appear to correlate with lower rates of antibiotic use.

Hypothesis
An educational intervention targeted to long-term care (LTC) staff will influence antimicrobial use among LTC residents.

Educational Interventions
• On-line course for LTC nurses
  3 hours, with nursing contact hours
• Interactive case-based discussions, with cases for providers
  5 hours, with CME
• Both previously tested and vetted
Educational Interventions

For Nursing Staff: On-Line
- Signs and symptoms of infection in older adults
- Upper respiratory tract infections, bronchitis and pneumonia
- UTI vs. Asymptomatic Bacteriuria
- Isolation Precautions
- Collecting Samples for Microbiological Culture
- Communication with Providers using SBAR*

For Providers: Discussion
- Urinary Tract Infections (UTIs)
- Upper Respiratory Tract Infections (URIs)
- Lower Respiratory Tract Infections
- Skin and Soft Tissue Infections (SSTIs)
- C. difficile Infection (CDI)

Research Plan

Educational Intervention
- Recruit 12* Nursing Homes
- Collect & analyze antibiotic use data
- Collect & analyze antibiotic use data
- Assess changes in antibiotic use

Time

False Start #1

Recruit 12* Nursing Homes
Collect & analyze antibiotic use data
Collect & analyze antibiotic use data
Assess changes in antibiotic use

*Based on naive and inaccurate effect size calculation.

Educational Interventions

Collect & analyze antibiotic use data

Collect & analyze antibiotic use data

Assess changes in antibiotic use

False Start #1

Recruit 12* Nursing Homes
Collect & analyze antibiotic use data

*Based on naive and inaccurate effect size calculation.
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**False Start #2**
- Recruit 12* Nursing Homes
- Collect & analyze antibiotic use data

**Educational Intervention**
- Recruit 12* Nursing Homes
- Collect & analyze antibiotic use data
- Collect & analyze antibiotic use data
- Assess changes in antibiotic use

**Time**

**Now what?**
- Collect & analyze antibiotic use data from 6 Nursing Homes

**Creative Work Around**
- Asked nursing homes to participate in semi-structured interviews
- Learned a whole new methodology (inspired by my research assistant)
New Hypothesis

Nursing homes with more judicious antibiotic use would have an environment more favorable towards antimicrobial stewardship compared to NHs with less judicious antibiotic use.

New Research Plan

- Collect & analyze antibiotic use data from 6 Nursing Homes
- Show comparative data and interview to understand their interpretation

Rates of Antibiotic Use By Class

Number of Starts by Length of Therapy

Broken Promises

- Did not respond to requests for interviews
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**Facility Culture & Antibiotic Stewardship**

<table>
<thead>
<tr>
<th>Less Supportive</th>
<th>More Supportive</th>
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<tr>
<td>Reactive; not learning from previous experience. ‘Staff turnover’</td>
<td>Proactive. Policy &amp; procedure to guide staff and facility</td>
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<tr>
<td>Hierarchy and silos</td>
<td>Egalitarian; multidisciplinary communication; multimodal communication</td>
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<td>Nurses do not have/do not use their voice</td>
<td>Everyone working together to help residents</td>
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**Limitations**

<table>
<thead>
<tr>
<th>Nursing Home</th>
<th>Roles of People Interviewed</th>
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**Theme** | **Less Supportive** | **More Supportive**
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Practice Patterns | No specific criteria for starting antibiotics | Criteria for sending urine cultures
External Influences | Outside providers (e.g., emergency department, private physicians) prescribe antibiotics for unclear reasons | The family builds trust with the physicians at the nursing home
Infection Prevention & Control | Lack of surveillance; delays or failure to start contact precautions; reacting to outbreaks rather than planning | Early, preemptive isolation. Post signs for family only visits during influenza season
Leadership | Competing priorities; antibiotic stewardship less important vs. other | Incorporated into ongoing training on many subject
Communication | Passive, via notebook/binder, within silos | Regular multidisciplinary meetings about residents
Facility Culture | Nurses follow orders | Nurses talk to providers
Research with nursing homes remains very challenging
Staff turnover is a hindrance
Correlation between low rates of antibiotic use and more engaged staff likely reflects a culture dedicated to quality & improvement
It’s ok to punt.

Acknowledgments
- Richard Banks
- Rebecca Carter
- Bridget Wilson
- Barbara Heath
- Patricia Higgins
- Robert Bonomo
- VA, NIH/NCATS/CTSC
- Ghinwa Dumyati
- Ken Schmader
- Chris Cnich
- Rebekah Moehring
- Lona Moda
- Danielle Snyderman

Thank you!
robinjump@gmail.com  Robin.Jump@va.gov
Implementing Antimicrobial Stewardship through Hospital-Nursing Home Collaboration

Ghinwa Dumyati, MD
Professor of Medicine
Infectious Diseases Division and
Center for Community Health and Prevention
University of Rochester Medical Center

Learning Objectives

1. Define the methods used by hospital antimicrobial stewardship team to assist the nursing homes in implementing an antibiotic stewardship program (ASP)
2. List key stakeholders needed to implement and sustain an ASP in the nursing homes
3. Discuss the barriers in implementing such program and identify solutions

The Rochester Hospital-Nursing Home Antimicrobial Stewardship Collaboration

Project Objectives:

1. Implement antimicrobial stewardship programs in Nursing Homes (NH)
2. Reduce the use of quinolones for the treatment of urinary tract infections (UTI) and pneumonia
3. Reduce the overall incidence of C. difficile infections (CDI)

Project Implementation

• Rochester, NY
  33 nursing homes (NH)
• Initially recruited 6 NH expanded to 10
• Size: 120-550 beds
• Project started in 2014
• ASP implemented successively moving from one NH to another
• Tools and approach tailored depending on NH context and needs
• Through a Medical Directors’ Advisory Group
• Regional workshops
• Website

Speaker Disclosures

Dr. Dumyati has no financial relationship(s).

Project funded by New York State Department of Health

Funding from C. difficile infection surveillance by the CDC Emerging Infections Program

NH Bed size Ventilator dependent beds In house Medical Staff In house Dispensing Pharmacist Infection Preventionist Ownership Hospital Affiliation
1 Small Yes Yes Yes Part Time Non-profit Yes
2 Large Yes Yes Yes Full Time Government
3 Medium Yes Yes Yes Part Time Non-profit Yes
4 Small Yes Yes Part Time Non-profit Yes
5 Large Yes Yes Part Time Non-profit
6 Large Yes Yes Full Time Non-profit
7 Large Yes Yes Full Time Non-profit
8 Small Yes Yes Part Time Non-profit Yes
9 Medium Yes Yes Part Time Non-profit
10 Small Yes Yes Part Time Non-profit

*http://www.rochesterpatientsafety.com/*
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CDC Core Elements of Antibiotic Stewardship

Provide a framework to improve antibiotic prescribing
1. Leadership support
2. Accountability
3. Drug expertise
4. Actions to improve use
5. Tracking
6. Reporting info to staff
7. Education

http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.htm

I. Leadership, Accountability, Expertise

Hospital-Nursing Home Collaboration

I. Leadership, Accountability, Expertise

1. Nursing Home Leadership
2. Hospital Leadership

Hospital Team Data Collection

- Antibiotics
- Urine culture data
- Antibiotic use data
- Assessment of appropriateness of treatment
- Feedback of data
- Testing and treatment guidelines
- Education
- Resident care, outcomes, pain points

Nursing Home Team Implementation of Antimicrobial Stewardship

- Implementation of tools and guidelines
- Antibiotic review and feedback
- Review of urine culture testing and UTI treatment
- Education

Using Data for Action

- Eight most common antibiotic indications by days of therapy (DOT)
- Eight most common indications by number of residents

II. Tracking: Measuring Antibiotics

- None of the NHs had accessible electronic medication administration to generate summary data
- Dispensing data obtained
  - In-house pharmacy
  - Large corporate pharmacies
  - Data cleaning and summary done by hospital team
- Unable to get data from all the NHs

Hospital-Nursing Home Collaboration

- 13 Medical Directors
- Nursing Home Leadership
- Hospital Infectious Disease Physician
- Hospital Antimicrobial Stewardship Pharmacist
- Project Infection Preventionist and Coordinator

Leadership
- Nursing Home Administrator
- Medical Director
- Director of Nursing
- Director of Quality

Key Stakeholders
- Infection Preventionist
- Nursing Educator
- Nurse Practitioner/Physician Assistant
- In-house Dispensing Pharmacist
- Consultant Pharmacist

Hospital Expert Team
- Hospital Infectious Diseases Physician
- Hospital Antimicrobial Stewardship Pharmacist
- Project Infection Preventionist and Coordinator

Nursing Home Expert Team
- Key Stakeholders
- Nursing Home Administrator
- Medical Director
- Nurse Practitioner/Physician Assistant
- In-house Dispensing Pharmacist
- Consultant Pharmacist

Data Collection
- Antibiogram
- Urine culture data
- Antibiotic use data
- Assessment of appropriateness of treatment

Education and Tools
- Input from Medical Directors’ Advisory team
- Feedback of data
- Testing and treatment guidelines
- Education
- Pocket cards, posters, pamphlets

Nursing Home Team Implementation of Antimicrobial Stewardship

- Implementation of tools and guidelines
- Antibiotic reviews and feedback
- Review of urine culture testing and UTI treatment
- Education

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Data Can Drive Intervention

Treatment for UTI

But Look at The Antiibiogram!

III. Action to Improve: UTI testing and Treatment

Clinical Situation

Diagnostic Process and Decision Making

Decision to treat or active monitoring

Monitor Clinical situation and lab results

Reassessment at 48-72 hours: Stop, or change antibiotic, decide on duration

Medical chart review to understand the antibiotic prescribing pathway

Urine culture is often ordered for change in mental status, foul smelling urine, family request

Documentation is poor? Quality of Communication of nursing staff with medical providers

A positive urine culture drives treatment

No clinical evaluation after result of culture is available

IV. Development of Guidelines and Education

Nursing Staff

Medical Staff

Residents and Families

Poster

Guidelines

Feedback- Face to Face

• Review progress toward implementing all the ASP core elements

• Review processes

• Communication (use of SBAR)

• Documentation

• Follow up on culture results

• Additional educational needs

• Next intervention

• Sustaining progress- who will collect data and give feedback?
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Feedback: Measuring Progress

Comparative Feedback-Reporting Antibiotic Use

Comparative Feedback-Ciprofloxacin Use

CDI Incidence- NH Collaborative

Successes and Lessons Learned

Challenges

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<th>Successes</th>
<th>Lessons Learned</th>
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<tr>
<td>• We helped establish ASP in several Rochester NH</td>
<td>• Champions are crucial</td>
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<td>• We fostered collaboration between different disciplines in and between NHs</td>
<td>• A knowledgeable Medical Director or Pharmacist can drive the program</td>
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<td>• We created guidelines and tools that are widely used and we supported educational programs</td>
<td>• By communicating expectations and providing feedback</td>
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<td>• Quinolone use and overall antibiotic use decreased in several facilities</td>
<td>• Focusing on overall antibiotic use</td>
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<td>• A cohesive team is key to a successful and sustainable program</td>
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<td>• Change takes time!</td>
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Challenges

- Difficulty in recruiting nursing homes
- High staff turnover
- Loss of ASP champion
- Need to repeat education
- No leadership support, vacancy in key stakeholders positions
- Lack of expertise
- Antibiotic stewardship expertise
- Infection control expertise
- Competing priorities
- IP wears many hats
- Limited time to collect and analyze data, difficult to adapt to new systems
- NHSN, Excel
- Pressure to use antibiotics
- Pressure from residents’ family
- Pressure to avoid re-hospitalization
- Data from Rochester/NYS EIP (unpublished)
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**Solutions and Sustainability**

- **Difficulty in recruiting nursing homes**
  - Assess readiness for implementing an ASP prior to initiating the program

- **Lack of expertise**
  - Training of consultant and dispensing pharmacists
  - Collaborate with hospital experts

- **Competing priorities**
  - Collaboration between stakeholders
  - Recruit staff to the team with data collection expertise

- **High staff turnover**
  - Recruit multiple team members
  - Set a process for regular staff education

- **Difficult to obtain data**
  - Educate the consultant pharmacist on analyzing antibiotic data
  - Use of manual antibiotic data collection by IP or other NH staff
  - Involve IT

- **Pressure to use antibiotics**
  - Educate residents and their family
  - Create and disseminate treatment guidelines

**Acknowledgments**

- **Project Coordination**
  - Christina Felken, MPH
  - Grant Barney

- **Medical Director Advisory Group**
  - Alexandra Yemishcheva, MD
  - Dallas Nelson, MD
  - Joseph Nicholas, MD
  - Timothy Hulahan, MD
  - Annette Medina-Wojciech, MD
  - Scott Schabel, MD
  - Diane Kane, MD
  - Robin Jump, MD, PhD

- **Medical Pharmacy**
  - Elizabeth Dodds Ashley, PharmD
  - Gail Quinlan, RN, CIC

- **All the Nursing Homes Dispensing Pharmacies**
  - Vince Galetta, Pharm D, Buffalo Pharmacies

- **Brandi Van Velzenburg, Pharm D, Health Direct Pharmacy**

- **All the nursing Homes IPs and Nursing Home Staff**

- **Microbiology Labs**