Reminders

- For best sound quality, dial in at **1-800-791-2345** and enter code **11076**
- Mute your phone during the presentation
- Don’t put the call on hold
- Please use the chat box to ask questions!

*Please note – this webinar is being recorded.*
Housekeeping

- **Antibiotic Stewardship survey – Due Jan. 20**
  - [https://www.surveymonkey.com/r/KKXMKRF](https://www.surveymonkey.com/r/KKXMKRF)

- **Education Credit**
  - Nursing Education Credit – 1 hour
  - Pharmacy Education Credit – 0.1
    - Pharmacists, please list your license number on the sign-in sheet to receive credit
Agenda

- Welcome
- Dr. Ayesha Rashid: Linking Antimicrobial Stewardship Programs and Multi-drug Resistant Organisms (MDRO) Reduction
- Questions/discussion
- Wrap-up
Ayesha Rashid, MD, specializes in infectious disease with special interests in infections with hospitalized patients, prevention of infections and antimicrobial stewardship. She is board certified in infectious disease and internal medicine.
Linking Antimicrobial Stewardship Program and Multi-drug Resistant Organisms (MDRO) Reduction

Ayesha Rashid, MD, FACP
St. Paul Infectious Disease Associates
Allina/HealthEast

January 10, 2017

Minnesota Hospital Association

WORKING TOGETHER TO
PROTECT HEALTH &
PRESERVE ANTIBIOTICS
OBJECTIVES

- Discuss one of the goals of Antimicrobial Stewardship: Reduce emergence of MDROs
- How do the Antimicrobial Stewardship Programs (ASP) link with MDROs reduction efforts?
- Introduce MDH OneHealth Collaborative: Understanding the need to go beyond the healthcare facilities to protect health and preserve antibiotics
Linking Antibiotic Stewardship and MDROs

- **Joint Commission MM.09.01.01: Tracking** - Monitoring the antimicrobial stewardship program, which may include information on antibiotic prescribing and resistance patterns.

- **CMS Condition §482.42(b)(2)(i), (ii), and (iii) Meeting the Goals of the Antibiotic Stewardship Program:** Demonstrate improvements, including sustained improvements, in proper antibiotic use, such as through **reductions in CDI and antibiotic resistance** in all departments and services of the hospital.
“...educates staff and licensed independent practitioners involved in antimicrobial ordering, dispensing, administration, and monitoring about antimicrobial resistance and antimicrobial stewardship... Education occurs upon hire or granting of initial privileges and periodically thereafter...”
Examples of Ways to Meet Standard

- Include in mandatory education and/or training
- Integrate into existing education (e.g., newsletters, intranet, grand rounds)
- Targeted in-person education (e.g., staff meetings, conferences)
3) Patient Education

- “The hospital educates patients, and their families as needed, regarding the appropriate use of antimicrobial medications, including antibiotics.”

Examples of Ways to Meet Standard

- Incorporate into patient education around infection prevention and control
- Education about risk of MDROs

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**Viruses or Bacteria: What's got you sick?**

Antibiotics only treat bacterial infections. Viral illnesses cannot be treated with antibiotics. When an antibiotic is not prescribed, ask your healthcare professional for tips on how to relieve symptoms and feel better.

<table>
<thead>
<tr>
<th>Illness</th>
<th>Usual Cause</th>
<th>Antibiotic Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold/Ruuny Nose</td>
<td>✔️</td>
<td>NO</td>
</tr>
<tr>
<td>Bronchitis/Chest Cold (in otherwise healthy children and adults)</td>
<td>✔️</td>
<td>NO</td>
</tr>
<tr>
<td>Whooping Cough</td>
<td>✔️</td>
<td>Yes</td>
</tr>
<tr>
<td>Flu</td>
<td>✔️</td>
<td>NO</td>
</tr>
<tr>
<td>Strep Throat</td>
<td>✔️</td>
<td>Yes</td>
</tr>
<tr>
<td>Sore Throat (except strep)</td>
<td>✔️</td>
<td>NO</td>
</tr>
<tr>
<td>Fluid in the Middle Ear (otitis media with effusion)</td>
<td>✔️</td>
<td>NO</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>✔️</td>
<td>Yes</td>
</tr>
</tbody>
</table>
A cinematic inspiration...

Education: Resistance and optimal prescribing


- Harvard scientists reveal timelapse footage showing spread and evolution of antibiotics-resistant bacteria

- The incredible film shows the evolution of bacteria as it changes to fight different strengths of antibiotic in the lab
To illustrate just how quickly bacteria evolve to develop resistance, researchers at Harvard Medical School set up essentially a huge petri dish.

They then lined the dish with varying strengths of the antibiotic trimethoprim, starting with a strength that's just a bit stronger than what E. coli could handle. After the bacteria (the white stuff) had a chance to grow in the area without any antibiotics, a mutant starts to appear in the first band of antibiotics.
Watch the full, terrifying, video:

Bacteria on a “Mega-Plate” petri dish
Posted by Harvard University
9,867,146 Views
Seven Ways to Preserve the Miracle of Antibiotics

- John G. Bartlett, David N. Gilbert, Brad Spellberg
- May 2013 in *Clinical Infectious Diseases*

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Country</th>
<th>Antibiotic Usage(^a)</th>
<th>Rate of Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klebsiella(^b)</td>
<td>Greece</td>
<td>38</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>The Netherlands</td>
<td>11</td>
<td>0.20%</td>
</tr>
<tr>
<td>MRSA(^c)</td>
<td>Greece</td>
<td>38</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>The Netherlands</td>
<td>11</td>
<td>1.60%</td>
</tr>
</tbody>
</table>

\(^a\) Daily drug dose per 1000 inhabitants.
MRSA Infection Onset Outside of the Hospital

Most Healthcare-Associated MRSA Infections Have Their Onset Outside of the Hospital

- Community-Associated: 28%
- Healthcare-Associated (community-onset): 14%
- Healthcare-Associated (hospital-onset): 59%

Kleven et al. JAMA 2007;298:1763-71
HAI Reduction Including MRSA/ C difficile Reduction
Preventing CDI

- Spore acquisition
- Patient susceptibility
- Antimicrobial exposure
- Environmental cleaning
- Hand hygiene
- Early detection & Contact Isolation
- Reducing asymptomatic shedding?
- Gastric acid suppression
SHEA Podcast Series on Stewardship: Practical Approaches and Applications

Now Available! SHEA Podcast Series

Stewardship: Practical Approaches and Applications
(Ripped from the Hallways)

Focusing Stewardship to Help Tackle CDI

How to impact CDAD rates by antimicrobial stewardship (ASP) activities

Panelists

Libby S. Dodds-Ashley, PharmD, MHS Duke University School of Medicine

Larissa May, MD, MSHS, MSPH UC Davis Health System

Listen

More Podcasts coming soon...

Send us your comments, questions, and suggestions, Contact SHEA.
Clostridium difficile Infections and Antibiotic Use

[Graph showing the trend of Clostridium difficile infections and antibiotic use from 2012 to 2016.*]
Global Dissemination of Vancomycin Resistant Enterococcus (VRE)

Global dissemination of Klebsiella pneumoniae carbapenemase–producing K. pneumoniae and New Delhi metallo-β-lactamase-1–producing Enterobacteriaceae

Legend
- KPC positive *Klebsiella pneumoniae*
- NDM-1 positive *Enterobacteriaceae*

Hospital Acquired Infections and Antibiotic Use

Allina Health

Hospital Acquired Infections and Antibiotic Use

HAIs/10,000 PD

2.5

2

1.5

1

0.5

0

2012
2013
2014
2015
2016*

MRSA
VRE
ESBL
DOT/1000 PD

615
610
605
600
595
590
585
580
575
570

DOT/1000 PD
Core Elements of Outpatient Antibiotic Stewardship

Recommendations and Reports / November 11, 2016 / 65(6):1–12

Guillermo V. Sanchez, MPH, MSHS; Katherine E. Fleming-Dutra, MD; Rebecca...
New Antimicrobial Stewardship Standard

- Leadership Commitment
- Core Elements (CDC)
- Multidisciplinary Team
- Collect, Analyze, Report Data on Abx Stewardship Program
- Educate staff in antimicrobials
- Educate patients
- Organization Approved Multidisciplinary Protocols
- Action on Improvement Opportunities
Linking ASP and MDROs Reduction

- ICC
- P&T
- Abx Stewardship Committee
- Hand Hygiene Committee (subcommittee of ICC)
- IP Medical Directors
- CAT-Nursing PI
- ID Physician/Pharm D Task Force
- Enhanced Recovery-Multidisciplinary PI
- Physician Governance Council
- Hospital Program Committee (Care Council)

CARE PILLAR
Infection Control Committee
Hospital Quality Council
Organizational Quality Council
Allina Health Antibiotic Stewardship Webpage

ID Physician/Pharmacy Task Force Members:

There is a new Allina Health Antibiotic Stewardship webpage!! This webpage includes several GREAT references that have been approved by either the Allina Infectious Diseases Physician/Pharmacy Task Force, including Allina Antiograms, Allina Procalcitonin Guide, Allina Adult Outpatient Antibiotic Reference Guide, and the Antibiotic Desensitization Protocol. You can find this resource on the Medical Staff Resources webpage, Pharmacy Services webpage, or by searching “antibiotic” on the AKN:

Jessica S. Holt, Pharm.D., BCPS-AQ ID
Infectious Diseases Pharmacy Coordinator
MDH and Antibiotic Resistance

- Minnesota Antibiotic Resistance Collaborative (MARC) (early 2000s)
  - Guidance and activities for outpatient and long-term care

- Antibiotic stewardship conferences (2012-14)

- Minnesota guidance and tools
  - Acute care stewardship toolkit (2012)
  - Long-term care stewardship toolkit (2014)

- Challenges:
  - Connecting facilities with tools, implementation support
  - Poor understanding across human, animal, environmental health
One Health Antibiotic Stewardship Collaborative

- Multi-partner initiative to address antibiotic use
- Inter-agency approach by government
  - MDH
  - Department of Agriculture
  - Pollution Control Agency
  - Board of Animal Health
- Stakeholders from academia, clinical practice, health and agriculture advocacy groups

Mission
- Provide collaborative environment to promote judicious antibiotic use and reduce the impact of antibiotic resistant pathogens

Vision
- Minnesota leaders in human, animal, and environment health will work together to raise awareness and change behaviors to preserve antibiotics and treat infections effectively
Strategic Plan Goals

- Promote understanding of One Health antibiotic stewardship
  - Share resources through online platform and support public engagement
  - Hold exchanges among practitioners in different fields

- Improve human antibiotic stewardship
  - Make tools available to track antibiotic use across continuum of care
  - Set state human health antibiotic goals
  - Develop honor roll recognition system for health care facilities

- Improve animal antibiotic stewardship
  - Communicate national antibiotic goals for animal stewardship
  - Promote food-animal production best practices
  - Increase access to stewardship resources for companion animal medicine
  - Facilitate public engagement on animal stewardship

- Develop “antibiotic footprint” tool
  - Improve understanding of environmental impact on resistance
  - Target needs for communication about and improvement of antibiotic disposal guidelines
What is One Health Antibiotic Stewardship?

Antibiotics are powerful tools for fighting and preventing infections. However, widespread use of antibiotics has resulted in an alarming increase in antibiotic-resistant infections. Antibiotic stewardship consists of coordinated interventions that promote judicious antibiotic use and reduce the impact of antibiotic resistant pathogens. A One Health approach recognizes that human, agricultural and companion animal, and environmental health are interconnected, and issues such as antibiotic stewardship require a collaborative effort across multiple disciplines. We believe that a One Health approach will create an informed public and professionals that can communicate, and practice a more holistic approach to antibiotic stewardship.

About One Health Antibiotic Stewardship

Learn what antibiotic resistance is, its effect on humans, animals, and the environment, and why One Health Antibiotic Stewardship is important.

Current State Plan Progress and Data

Review the state plan and track its progress. Find the latest Minnesota antibiograms (antimicrobial susceptibilities of pathogens) and surveillance data.

Footprint Model

An antibiotic footprint is a tool to communicate magnitude of antibiotic usage to environmental loading of antibiotics via the antibiotic lifecycle.
MDH Contacts for One Health Stewardship

- Amanda Beaudoin, DVM, PhD
  Director of One Health Antibiotic Stewardship
  amanda.Beaudoin@state.mn.us

- Ruth Lynfield, MD
  State Epidemiologist
  ruth.Lynfield@state.mn.us
<table>
<thead>
<tr>
<th>Organization</th>
<th>Association/Board</th>
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<tbody>
<tr>
<td>Abbott Northwestern Hospital</td>
<td>Minnesota Hospital Association</td>
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<tr>
<td>Allina Health</td>
<td>Minnesota Medical Association</td>
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<tr>
<td>Association for Professionals in Infection Control and Epidemiology – Minnesota</td>
<td>Minnesota Milk Producers Association</td>
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<tr>
<td>Blue Cross Blue Shield</td>
<td>Minnesota Nurse Practitioners</td>
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<td>Children’s Hospitals and Clinics of Minnesota</td>
<td>Minnesota Pollution Control Agency</td>
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<td>Emergency Physicians Professional Association - Minnesota</td>
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<td>HealthEast</td>
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<td>HealthPartners</td>
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<td>North Dakota State University</td>
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<td>Land O’Lakes</td>
<td>Park Nicollet</td>
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<td>Stratis Health</td>
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<td>University of Minnesota</td>
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<td>Minnesota Association of Physician Assistants</td>
<td>University of St. Thomas</td>
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<td>Minnesota Beef Council</td>
<td>US Geographical Survey</td>
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<td>Minnesota Board of Animal Health</td>
<td>Veterans Affairs Healthcare System</td>
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<td>Minnesota Board of Medical Practice</td>
<td>Zoetis Animal Health</td>
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<td>Minnesota Board of Veterinary Medicine</td>
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<td>Minnesota Department of Agriculture</td>
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Seven Ways to Preserve the Miracle of Antibiotics

Our proposed “antibiotic salvage bundle” would include the following steps:

- Establish a US database for antibiotic use and resistance comparable to that of the European Union;
- Restrict use of antibiotics in agriculture;
- Prevent selected nosocomial infections using an established systematic implementation plan based on precedent;
- **Aggressively promote antibiotic stewardship**;
- Promote use of new diagnostics with emphasis on point-of-care molecular methods;
- Reduce the Food and Drug Administration (FDA) antibiotic barrier; and
- Facilitate public–private partnerships for antibiotic development.

May 2013 in *Clinical Infectious Diseases*
Thank you for listening!
MHA/OHA HIIN Contacts

- **OHA**
  - James Guliano, Vice President Quality Programs
  - Rosalie Weakland, Senior Director Quality Programs
  - Subcontractor – HSAG
    - Christine Bailey, Director, Quality Improvement and Patient Safety

- **MHA**
  - Tania Daniels, Vice President, Quality and Patient Safety
  - Lali Silva, Senior Director Quality and Process Improvement
  - Susan Klammer, Quality/Safety Project Coordinator
  - Cammie Wadman Baca, Quality & Process Improvement Specialist
Thank you for joining us!

Next Webinar:
Tuesday, February 14
11:30 AM CT / 12:30 PM ET

Complete the ASP survey by Jan. 20

https://www.surveymonkey.com/r/KKXMKRF