Why Train in Antimicrobial Stewardship?

• New Joint Commission Requirement – Effective January 1, 2017
  – Requires education about antimicrobial stewardship and resistance to all who prescribe, dispense, administer, and monitor patients on antimicrobials

• Benefits to You:
  – Develop an understanding about the problem of antibiotic resistance
  – Understand when antimicrobials should and should not be used
  – Understand how you can personally help to decrease antibiotic resistance
Objectives

• Understand how antibiotic use and misuse promote antimicrobial resistance.

• Recognize and avoid common ways antibiotics are being misused.

• Identify how NM clinicians, pharmacists, and nurses work together to be effective antibiotic stewards.

• Identify antimicrobial stewardship behaviors in your routine work day that, if they become habits, can reduce antibiotic misuse.

• Locate Antibiotic Resources on the NM website (asp.nm.org)
Selection Pressure: Happening in a patient near you

- **Selection pressure** is the process that favors survival of resistant strains through exposure of antimicrobials.

- **Decreasing unnecessary antibiotic use** is key to reducing selection pressure and thus reducing antibiotic resistance.
Antibiotic Resistance –
A National and Local Threat

Estimated minimum number of illnesses and deaths caused by antibiotic resistance*:

At least 2,049,442 illnesses,
23,000 deaths

*bacteria and fungus included in this report

CDC – Antibiotic Resistance Threats in the United States-2013
Learning Assessment Question 1

What is the process by which resistant bacteria grow after a bacterial population is exposed to an antibiotic?

A. Antibiotic Selection
B. Selection Pressure
C. Infection Prevention
D. Antibiogram
What is the process by which resistant bacteria grow after a bacterial population is exposed to an antibiotic?

A. Antibiotic Selection

**B. Selection Pressure**

C. Infection Prevention

D. Antibiogram
Antibiotic Misuse

30-50% of antibiotic use in hospitals is unnecessary or inappropriate

- Centers for Disease Control and Prevention

https://www.cdc.gov/getsmart/healthcare/evidence.html
Primary Drivers of Antibiotic Resistance

Correctly prescribing antibiotics fights antibiotic resistance, hand-in-hand with performing infection prevention behaviors.

- **Antibiotic Use**
  - Any antibiotic use causes selection pressure

- **Unnecessarily broad**
  - Unnecessarily broad antibiotics causes unnecessary selection pressure and resistance.

- **Wrong Dosing**
  - Wrong dosing may result in treatment failure.

- **Unnecessary use**
  - Unnecessary use causes unnecessary selection pressure, toxicity, and side effects.

- **Unnecessary testing**
  - Unnecessary testing often results in unnecessary use of antibiotics.

- **Prolonged Duration**
  - Unnecessary antibiotic days results in resistance.

- **Hospital transmissions**
  - (i.e. poor hand hygiene)
A patient is admitted with community acquired pneumonia (CAP) and has completed 4 days of IV ceftriaxone and oral azithromycin. She is hemodynamically stable, no longer needs supplementary oxygen, is thinking clearly, and is ready for discharge. The prescriber plans to send her home on an additional 10 days of azithromycin.

What is concerning about this plan and its potential to increase bacterial resistance? *Select the best answer.*

A. Unnecessarily long antibiotic duration
B. Keeping antibiotics unnecessarily broad
C. Switching the patient to oral therapy
A patient is admitted with community acquired pneumonia (CAP) and has completed 4 days of IV ceftriaxone and oral azithromycin. She is hemodynamically stable, no longer needs supplementary oxygen, is thinking clearly, and is ready for discharge. The prescriber plans to send her home on an additional 10 days of azithromycin.

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A. **Unnecessarily long antibiotic duration***

B. Keeping antibiotics unnecessarily broad

C. Switching the patient to oral therapy

*IDSA/ATS guideline for CAP recommends 5 days of antibiotic therapy if patients are afebrile for 48-72 hours and have no more than one sign of clinical instability.
What is “Antimicrobial Stewardship”? Cooperative behaviors that strive to reduce patient harm by using antibiotics appropriately

INCREASED
- Patient Safety
- Efficacy
- Patient Satisfaction

DECREASED
- Adverse Events
- Antibiotic Resistance
- Length of Stay
- Costs
Antibiotic Stewardship Works When Everyone Contributes and Communicates!

**Clinicians Communicate:**
- Order tests only when indicated
- Use syndrome-specific guidelines
- Perform daily antibiotic time-outs
- Discontinue vancomycin when no longer necessary

**Pharmacists Communicate:**
- Ensure optimal antibiotic choice and dosing
- Recommend antibiotic changes based on culture results
- Address duration of therapy
- Discontinue vancomycin when no longer necessary
- Recommend converting patients to oral route when possible
- Counsel patients on safe and effective use of antibiotics

**Nurses Communicate:**
- Document quantity and consistency of diarrhea in regard to *C. difficile* testing
- Ask if an antibiotic, PICC line, or foley-catheter is no longer necessary
- Alert clinicians and pharmacists about changes in urine output
Nurses, central to patient care and trust, will have a growing role in Antimicrobial Stewardship.

For more information, see the 2017 American Nurses Association/Center for Disease Control and Prevention White Paper “Redefining the Antimicrobial Stewardship Team.”
Learning Assessment Question 3

Match each of the following stewardship techniques with the healthcare team member primarily responsible:

A. Orders a urinalysis and urine culture only when patient has new UTI symptoms such as dysuria and/or suprapubic pain
   I.   Clinicians

B. Communicates when the patient has experienced multiple liquid stools in the past 24 hours but received a laxative 2 days ago
   II.  Pharmacists

C. Performs PK/PD calculations to ensure optimal antibiotic dosing
   III. Nurses
Learning Assessment Answers to Question 3

Match each of the following stewardship techniques with the healthcare team member primarily responsible:

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   - III. Nurses
TOP 5 NM Antibiotic Stewardship Behaviors that nurses, pharmacists, and clinicians share

1. **Document allergy histories clearly, including reaction type and severity.** Reported antibiotic allergies result in the use of second-line antibiotics and inferior outcomes.

2. **Perform Antibiotic Time Out** as a daily practice. Stop IV vancomycin at 48-72 hours, for instance, when no MRSA has been isolated from appropriate clinical samples. Avoid unnecessarily prolonged antibiotic durations.

3. **Avoid treating positive urine cultures** if the patient does not have symptoms consistent with UTI (asymptomatic bacteriuria).

4. **Avoid treating with fluoroquinolones (ciprofloxacin, levofloxacin) empirically for cystitis.** Alternative antibiotics have fewer chronic side effects and may be associated with less *C. difficile* diarrhea.

5. **Reduce** hospital-acquired *Clostridium difficile* infection by only testing stool samples from patients that meet clinical criteria (C Diff Test-worthy diarrhea).
Antimicrobial Resources:
NM website for antibiotic guidance and policies

Examples of Antibiotic Resources Content:

• Hospital antibiograms
• Empiric use guidelines
• Suggested duration of therapy for common infections
• Treatment Guideline for Community Acquired Pneumonia
• Fluoroquinolone alternatives for uncomplicated urinary tract infections
• C. difficile testing guidance
• Blood culture testing guidance
• Link to CDC Be Antibiotics Aware Website

• Outpatient, inpatient, patient-centered education
Announcing NM ASP Website:

asp.nm.org

Antibiotic Resources

*Empiric antibiotics recommendations*

*Duration recommendations*

*Community acquired pneumonia*

*Hospital antiibiograms*

and more…

Robust antimicrobial prescribing resources are freely available on the internet and content is mobile-friendly!
Northwestern Medicine

Antimicrobial Stewardship Program

Since 1990, our antimicrobial stewardship program has pioneered innovation in antimicrobial stewardship practice and research.

Antimicrobial Resources

Meet Our Team

Research

Residency and Fellowship

Welcome to Northwestern Medicine Antimicrobial Stewardship

Our Mission

To ensure that our patients receive the safest and most effective antimicrobial therapy for their infection while preserving and protecting the effectiveness of these endangered resources for future patients.

Follow us on Twitter!
@NM_IDSteward
-Antimicrobial Stewardship Program
-Division of Infectious Diseases
Examples of Content on asp.nm.org

Northwestern Medicine Site-Specific Antimicrobial Resources

Northwestern Memorial  | Central DuPage  | Lake Forest  
|------------------------|----------------|-------------|
Delnor                  | Kishwaukee     | Valley West |
Marianjoy               | Huntley/Woodstock | McHenry    |

and System-Specific Antibiotic Content on asp.nm.org

**Bone and Joint**
- Duration of Therapy Guide
- Empiric Prescribing Guidelines - Bone & Joint

**Cardiovascular**
- Antibiotic Lock Therapy
- Duration of Therapy Guide
- Empiric Prescribing Guidelines - Cardiovascular

**Central Nervous System**
- Duration of Therapy Guide
- Empiric Prescribing Guidelines - CNS
CDC’s Be Antibiotics Aware Website:
-- Provides National Guidelines and Patient Resources
-- asp.nm.org has a link to this website: one-stop shopping

#BeAntibioticsAware

**WARNING:** Antibiotics don’t work for viruses like colds and the flu. Using them for viruses will **NOT** make you feel better or get back to work faster.

https://www.cdc.gov/antibiotic-use/index.html
Learning Assessment Question 4

An outpatient NM nurse wishes to give a clinic patient some information about coughs/colds and not treating viral infections with antibiotics. Where can a patient handout on this topic be easily obtained?

A. Azithromycin Package Insert
B. Clinical Pharmacology
C. EPIC
D. asp.nm.org website
A NM nurse wishes to give a clinic patient some information about coughs/colds and not treating viral infections with antibiotics. Where can a patient handout on this topic be easily obtained?

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Summary

- Bacterial resistance is a growing world-wide public health threat that is present throughout the NM System.

- Antimicrobials are often misused
  - Clinicians, pharmacists, and nurses all play a role in reducing unnecessary antibiotics.
  - **Communicate** clinical information and be involved in **daily antibiotic time-outs**.

- Antimicrobial Stewardship’s goal is to optimize antimicrobial use and decrease infections due to antimicrobial resistance.

- Know how to find *NM Antibiotic Resources on asp.nm.org* via your phone or desktop computer.

- Be a steward and contact your ASP with your ideas!
Thank You!

Questions?

-Click through the next several slides to find your Stewardship team
Antimicrobial Stewardship Team at CDH

• ID Physicians
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  – Jennifer Delacruz, MD
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