Disclosure

I HAVE NO ACTUAL OR POTENTIAL CONFLICT OF INTEREST IN RELATION TO THIS PRESENTATION.
Objectives (Pharmacists)

- Describe the new regulatory requirements from the Joint Commission regarding the implementation of antimicrobial stewardship programs in hospitals
- Discuss barriers to implementing antimicrobial stewardship programs and methods which can be utilized to overcome these barriers
- Identify examples of initial stewardship initiatives
Objectives (Technicians)

- Define antimicrobial stewardship and the role of stewardship programs in improving patient safety and quality of care
- Explain the role of the pharmacy technician/student in improving antibiotic use
- Identify examples of initial stewardship initiatives
Antibiotic Stewardship Definition

The rationale & safe selection of antimicrobial therapy to ensure appropriate dosing, route & duration while maximizing clinical cure & minimizing unintended consequences of drug therapy

CID 2007;44:159-77
Centers for Disease Control 2013

Estimated minimum number of illnesses and deaths caused annually by antibiotic resistance*:
At least 2,049,442 illnesses, 23,000 deaths

*bacteria and fungus included in this report

Top 18 Biggest Threats; Urgent, Serious, Concerning
## CDC Threat Level

<table>
<thead>
<tr>
<th>CDC Threat Level</th>
<th>Organisms</th>
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| **Urgent**       | *Clostridium difficile*  
|                  | CRE  
|                  | *Neisseria gonorrhoeae* |
| **Serious**      | MDR Acinetobacter, Pseudomonas  
|                  | ESBL producers  
|                  | MDR Campylobacter  
|                  | VRE, MRSA  
|                  | Drug resistant *Streptococcus pneumoniae*  
|                  | Fluconazole resistant Candida  
|                  | Drug resistant non-typhoidal Salmonella  
|                  | Drug resistant Salmonella serotype typhi  
|                  | Drug resistant Shigella  
|                  | MDR Drug resistant tuberculosis |
| **Concerning**   | Vancomycin resistant *Staphylococcus aureus*  
|                  | Erythromycin resistant Group A Streptococcus  
|                  | Clindamycin resistant Group B Streptococcus |
CDC Core Elements

Importance of Antibiotic Stewardship

- Leadership Commitment
- Accountability
- Drug Expertise
- Action
- Tracking
- Reporting
- Education

www.cdc.gov
Percent of Hospitals with Antibiotic Stewardship Programs by State, 2015*

Nationally, 48.1% of all hospitals have stewardship programs (2,199 of 4,549); the national goal is 100% of hospitals by 2020.

Source: CDC’s National Healthcare Safety Network (NHSN) Survey
History of Regulatory Mandates

CENTERS FOR MEDICARE & MEDICAID SERVICES
THE JOINT COMMISSION
By the end of 2017, CMS should have Federal regulations (Conditions of Participation) in place that will require **U.S. hospitals, critical access hospitals, and long-term care and nursing home facilities to have in place robust antibiotic stewardship programs that adhere to best practices**, such as those contained in the CDC Core Elements for Hospital Antibiotic Stewardship Program recommendations. Similar requirements should be phased in rapidly for other settings including long-term acute care hospitals, other post-acute facilities, ambulatory, surgery centers, and dialysis centers.
• BY 2020
• All states will implement stewardship activities in healthcare settings
• All states will have established or enhanced regional efforts to reduce transmission of antibiotic resistant pathogens and improve appropriate antibiotic use in healthcare facilities across the continuum of care
• All federal facilities will have robust stewardship programs
• 95% of Medicare eligible hospitals and government facilities (DOD, VA) will report antibiotic use data to NHSN
• Reduce inappropriate use for monitored conditions/agents by:
  20% in-patient from baseline
  50% outpatient from baseline
• Increased oversight on the utilization of antibiotics in food production
• CDC and AHRQ will expand research
Convened 150 key stakeholders across human and animal health sectors to discuss the increasing problem of antibiotic resistance

**Human Health**
- Session 1: Improving Inpatient Prescribing; Focus on Patients
- Session 2: Improving Outpatient Prescribing; Focus on Families
- Session 3: Improving Long-term Care Prescribing; Focus on Aging Population

Kristi Kuper, Pharm.D.
CMS Conditions for Participation

- **Long Term Care Facilities (Released in July 2015)**
  - Final Rule- October 4th, 2016
  - Phase I (November 28th, 2016), Phase II (November 28th, 2017), Phase III (November 28th, 2019)
  - Phase II- Antibiotic Stewardship
    - Facility must have a program in place that includes antibiotic use protocols and a system to monitor antibiotic use

- **Acute Care and Critical Access Hospitals (released June 2016)**
  - Strengthens partnership between infection prevention program and antibiotic stewardship pharmacist
  - The Antibiotic Stewardship Program should be hospital wide
  - Should be integrated into a QAPI program
  - Requires a dedicated leader

- **Acute care and critical access hospitals must meet these regulatory requirements to participate in Medicare.**
CMS-3295-P
Antimicrobial Stewardship

*Require hospitals to have policies and procedures for, and to demonstrate evidence of, an active and hospital-wide antibiotic stewardship program.*

*Hospitals would be required to improve their internal coordination among all components responsible for antibiotic use*
Current Status of Regulatory

- Final Rule for hospitals was scheduled for publication November 10th, 2016
  - Delayed due to new White House Administration.

- March 2017-Seema Verma was confirmed as the Administrator for CMS

- New requirement for Antimicrobial Stewardship /revisions for Infection Control
  - $1.1 billion/yr
  - CMS states that this cost will be more than offset by savings and improved quality of care

- November 2017- Final Ruling
Joint Commission- January 2017

New Medication Management Standard

**Elements of Practice**

- (EP 1): Leaders establish antimicrobial stewardship as an organizational priority
- (EP 2): Educate staff and licensed independent practitioners involved in antimicrobial ordering, dispensing, administration, and monitoring about antimicrobial resistance and antimicrobial stewardship practices.
- (EP 3): Educate patients, and their families as needed, regarding the appropriate use of antimicrobial medications, including antibiotics.
- (EP 4): The hospital has an antimicrobial stewardship multi-disciplinary team
- (EP 5): The hospital's antimicrobial stewardship program includes the following CDC core elements: Leadership, Accountability, Drug Expertise, Action, Tracking, Reporting, and Education
- (EP 6): The hospital's antimicrobial stewardship program uses organization-approved multidisciplinary protocols.
- (EP 7): The hospital collects and analyzes data on its antimicrobial stewardship program, including antimicrobial prescribing and resistance patterns.
- (EP 8): The hospital takes action on improvement opportunities identified in its antimicrobial stewardship program.
Leadership Commitment

Joint Commission Antimicrobial Stewardship Standard

- **(EP 1):** Leaders establish antimicrobial stewardship as an organizational priority

- **(EP 4):** The hospital has an antimicrobial stewardship multi-disciplinary team that includes:
  - ID physician
  - Pharmacist(s)
  - Infection Preventionist(s)

*Part time or consultant staff are acceptable as members.*
**(EP 6):** The hospital's antimicrobial stewardship program uses organization-approved multidisciplinary protocols.

- Examples include:
  - Plan for Parenteral to Oral Antibiotic Conversion
  - Guidelines for Antimicrobial Use in Adults
  - Formulary Restriction
  - Preauthorization Requirements for Specific Antimicrobials
  - Assessment of Appropriateness of Antibiotics for CAP
  - Guidelines for Antimicrobial Use in Pediatrics
Education

Joint Commission Antimicrobial Stewardship Standard

▪ **(EP 2):** Educate staff and licensed independent practitioners involved in antimicrobial ordering, dispensing, administration, and monitoring about antimicrobial resistance and antimicrobial stewardship practices.
  - All Employees (On Hire)

▪ **(EP 3):** Educate patients, and their families as needed, regarding the appropriate use of antimicrobial medications, including antibiotics.
You've Been Prescribed an Antibiotic

Your healthcare team thinks that you or your loved one might have an infection. Some infections can be treated with antibiotics, which are powerful, life-saving drugs. Like all medications, antibiotics have side effects and should only be used when necessary. There are some important things you should know about your antibiotic treatment.

◊ Your healthcare team may run tests before you start taking an antibiotic.
  - Your team may take samples (e.g., from your blood, urine or other areas) to run tests to look for bacteria. These tests can be important to determine if you need an antibiotic at all and, if you do, which antibiotic will work best.

◊ Within a few days, your healthcare team might change or even stop your antibiotic.
  - Your team may start you on an antibiotic while they are working to find out what is making you sick.
  - Your team might change your antibiotic because test results show that a different antibiotic would be better to treat your infection.
  - In some cases, once your team has more information, they learn that you do not need an antibiotic at all. They may find out that you don't have
(EP 5): The hospital's antimicrobial stewardship program includes the following CDC core elements: Leadership, Accountability, Drug Expertise, Action, Tracking, Reporting, and Education

(EP 7): The hospital collects and analyzes data on its antimicrobial stewardship program, including antimicrobial prescribing and resistance patterns

(EP 8): The hospital takes action on improvement opportunities identified in its antimicrobial stewardship program.
Barriers to Implementation

- IT Support
- Physician Champion
- Pharmacist Training/Knowledge of Antibiotics/Infectious Disease
- Engaging the Pharmacists (Time Constraints)
- Funding
IT Support

- **Joint Commission**
  - The hospital collects and analyzes data on its antimicrobial stewardship program, including antimicrobial prescribing and resistance patterns (EP7)

- **CDC Core Elements (JC EP5)**
  - The hospital's antimicrobial stewardship program includes the following CDC core elements: Leadership, Accountability, Drug Expertise, Action, Tracking, Reporting, and Education

- **Days of Therapy versus Defined Daily Doses**
  - Day of therapy- Obtained directly from hospital charge/administration data
  - Defined Daily Dose- The assumed average maintenance dose per day for a drug used for its main indication. (WHO)
  - Standardized per 1000 patient days

- **CDC Antibiotic Use/Resistance (AUR Data)**
  - Days of Therapy/1000 patient days
  - National Reporting of Antimicrobial Use
Community Hospital Broad Spectrum Antibiotics

(Days of Therapy/1000 patient Days)

![Graph showing antibiotic usage over months with categories: Vancomycin, Piperacillin Tazobactam, 3rd/4th Cephalosporins, Fluoroquinolones, Carbapenems.](image)
Physician Champion

IDSA/SHEA Position Statement:
- “Strongly believe that antibiotic stewardship programs are best led by infectious disease physicians with additional stewardship training”

Less than half of ID physicians are compensated for stewardship duties
- “isn’t it just part of their day to day responsibilities?” (umm..No)

Don’t let Perfect get in the way of Good
- No ID physician?
  - Recruit another Physician champion (Hospitalist, Internal Medicine)

Relationship between AS Physician and Pharmacy is vital to the overall success of the stewardship program!
Pharmacist ID Training

- Pharmacist with ID training is preferred.

- ASHP recognizes that the current shortage of pharmacists with advanced training in infectious diseases and the limited number of training opportunities may require pharmacists without such training to assume some of the stewardship responsibilities.

- Don’t let Perfect get in the way of (better than) Good

Antimicrobial Stewardship Training

- Society of Infectious Disease Pharmacists
- MAD-ID
- SHEA/CDC
Engaging the Pharmacists

Teach & Train
Involve Pharmacists
Manage Conflict
Efficiency is Key
Funding

- **Reporting Structure for Antimicrobial Stewardship**
  - Pharmacy Department funded highlighting impact on drug budget
  - Initial cost savings that flat line over time (drug shortages, generic availability)
  - **Quality & Safety Department Funded**
    - Infection Control Example
    - AS crosses many disciplines, all who prescribe, administer, dispense antibiotics!
    - Tracking quality & safety outcomes can demonstrate sustained value over time

- **Joint Commission Standard is the only national standard for antimicrobial stewardship**
  - 29% acute care; 74% critical access participate in CMS without JC accreditation
  - Lack of financial penalty
  - SCIP Core Measures

- **Antimicrobial Stewardship Program should report through Quality Department**

CID 2014:59(S3):S112-21
Stewardship in Community Hospitals
ALABAMA
Community Hospital Site A - Broad Spectrum Antibiotics

Days of Therapy/1000 patient days

- Vancomycin
- Piperacillin Tazobactam
- Fluoroquinolones
- Carbapenems
- 3rd/4th Cephalosporins
- Aminoglycosides
Community Hospital Site A - 3rd/4th Generation Cephalosporins

Days of Therapy/1000 patient days

- Total 3rd/4th Cephs
- Ceftriaxone
- Ceftazidime
- Cefepime
Community Hospital Site A - Fluoroquinolones

Days of Therapy/1000 patient days

- Total FQ
- Levofloxacin
- Ciprofloxacin
Days of Therapy/1000 patient days

- Vancomycin
- Piperacillin Tazobactam
- 3rd/4th Cephalosporins
- Fluoroquinolones
- Carbapenems
Assessment
Assessment Question #1

What is the only nationally recognized standard for regulating antibiotic prescribing in hospitals?

A. CMS Conditions for Participation 3295-P
B. CDC Core Elements Checklist
C. The Joint Commission Medication Management Standard
D. PCAST
Assessment Question #2

According to the Joint Commission Medication Management Standard, which of the following should be included (at a minimum) on an organization’s antibiotic stewardship team?

A. ID physician
B. Pharmacist
C. Infection Preventionist
D. All of the Above
Assessment Question #3

“Giving a patient antibiotics affects not just that patient, but also their environment, and all that come into contact with that environment.”

True
False

Dancer, SJ., JAC, 2001; 48: 463-478
Thank Ya’ll
QUESTIONS/COMMENTS WELCOME