Hot Topics in Antimicrobial Stewardship

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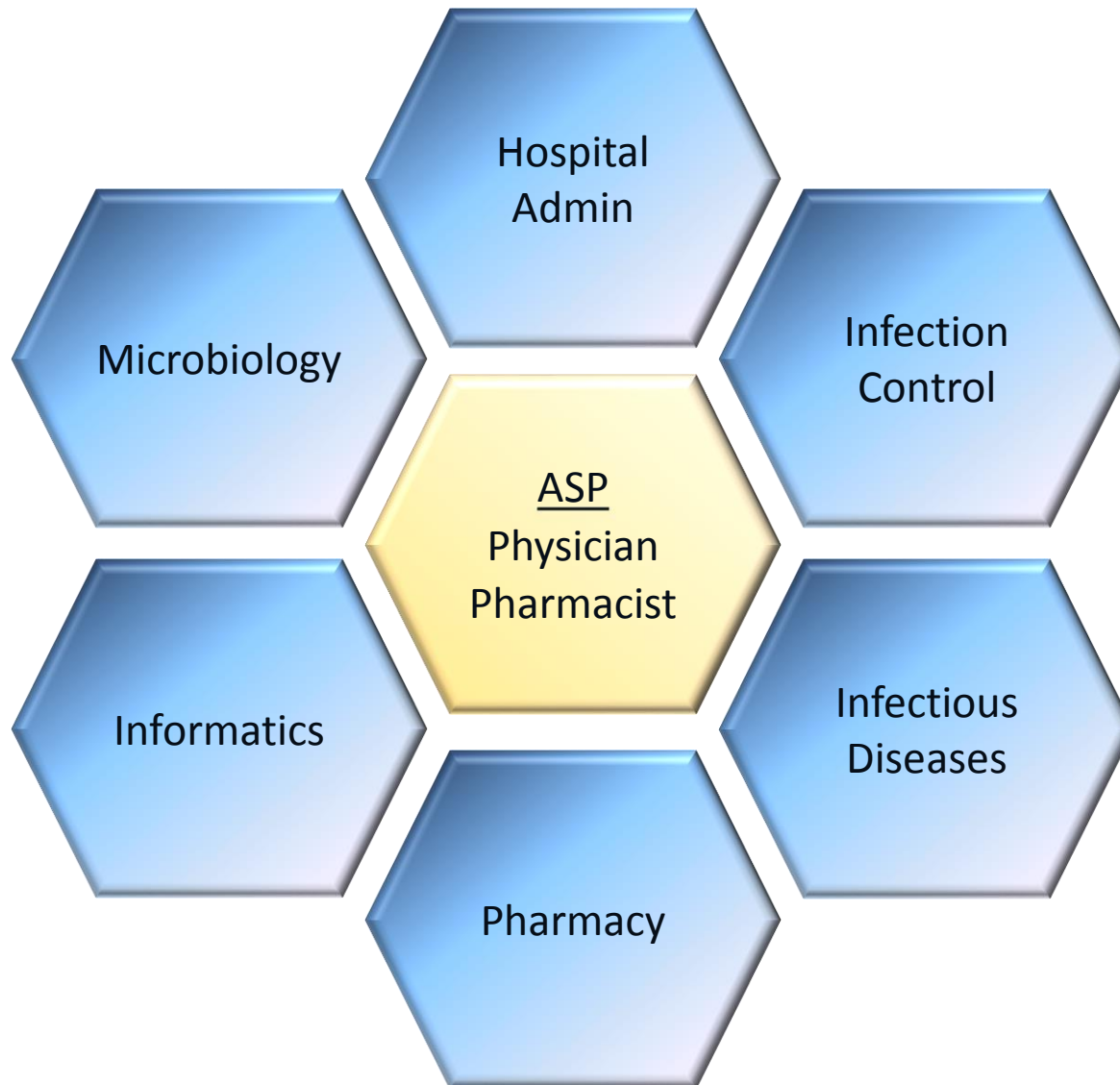University of New Mexico Hospital

Antimicrobial Stewardship Goals

- Primary Goal
  - Optimize clinical outcomes while minimizing the unintended consequences of antimicrobial use

- Secondary Goals
  - Reduce antimicrobial resistance
  - Reduce mortality and length of stay
  - Reduce associated healthcare costs

Antimicrobial Stewardship Team

UNMH Antimicrobial Stewardship Program Mission Statement

To Preserve the Miracle of Antibiotics for All
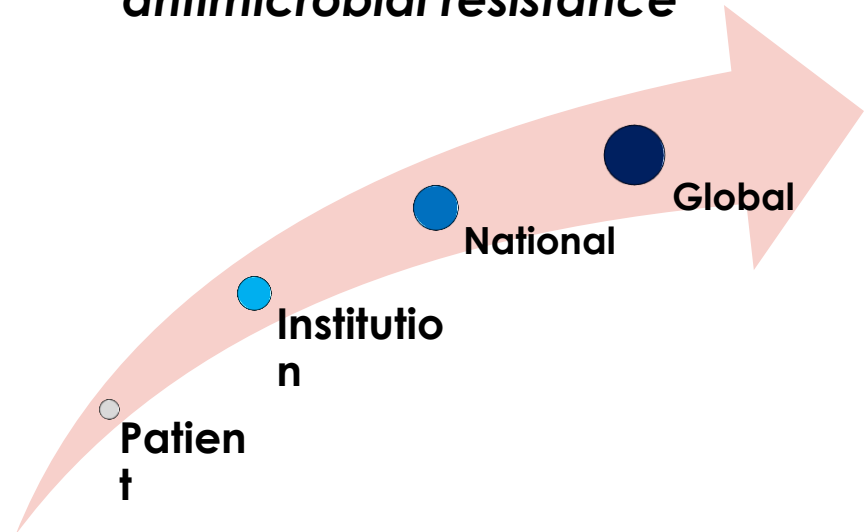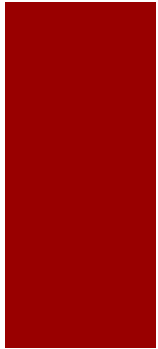
ASP Interventions

ASP Activities

- Patient Centered
  - Prospective audit and review
  - Formulary management
  - Identify patients who may benefit from ID consult

- Institutional
  - Antibiograms
  - Clinical pathways
  - Dose optimization

Impact of Interventions

Goal: Decrease or slow antimicrobial resistance

Global

National

Institution

Patient

CDC Core Elements of ASP – Hospital-Based

CDC's Core Elements for ASPs

✓ Obtain leadership commitment
  - Includes dedicating necessary human, financial and information technology resources

✓ Appoint a single leader responsible for program outcomes

✓ Appoint a single pharmacist leader responsible for working to improve antibiotic use

✓ Obtain support from key stakeholder
  - Infection control and prevention
  - Information technology
  - Quality improvement
  - Clinicians

CDC's Core Elements for ASPs (cont.)

- ✓ Implement policies and interventions to improve antibiotic use

- ✓ Evaluate ongoing treatment need after an initial treatment period
  - E.g. "Antibiotic timeout" after 48 hours

- ✓ Monitor antibiotic prescribing and resistance patterns

- ✓ Regularly report information on antibiotic use and resistance to doctors, nurses, and relevant staff

- ✓ Educate clinicians about resistance and optimal prescribing

NHSN Annual Facility Survey – Antimicrobial Stewardship (2015)

Element	Number	%
Leadership	2,457	60.1
Accountability	2,949	72.1
Drug Expertise	3,566	87.2
Act	3,844	94.0
Track	3,211	78.5
Report	2,767	67.6
Educate	2,827	69.1

42.5% of Hospitals had all 7 elements

Data from A. Srinivasan (Slide, SHEA Conference 2015)

CDC Core Elements of ASP – Nursing Homes

https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-checklist.pdf

3-Letter Acronyms

- ASP

- TJC

- CMS

TJC – New Antimicrobial Stewardship Standard

- Issued 6/22/2016

- Effective 1/1/2017

- Medication Management Standard (MM.09.01.01)

- 8 Elements of Performance

TJC's New Antimicrobial Stewardship Standard

- Leadership support
- Education
  - Staff and licensed providers
  - Patients and families
- ASP Team
- Includes core elements
- Use of multidisciplinary protocols for improving ABX use
- Analyzes and report data
- Takes action on improvement activities

Requirements

The Joint Commission has approved the following revisions for prepublication. While revised requirements are published in the semiannual updates to the print manuals (as well as in the online E-dition®), accredited organizations and paid subscribers can also view them in the monthly periodical *The Joint Commission Perspectives*®. To begin your subscription, call 877-223-6866 or visit http://www.jcrinc.com.

Joint Commission Requirement

New Antimicrobial Stewardship Standard

APPLICABLE TO HOSPITALS AND CRITICAL ACCESS HOSPITALS

Effective January 1, 2017

Medication Management (MM)

Standard MM.09.01.01
The [critical access] hospital has an antimicrobial stewardship program based on current scientific literature.

Elements of Performance for MM.09.01.01

1. Leaders establish antimicrobial stewardship as an organizational priority. (*See also* LD.01.03.01, EP 5)

   Note: *Examples of leadership commitment to an antimicrobial stewardship program are as follows:*

   - *Accountability documents*
   - *Budget plans*
   - *Infection prevention plans*
   - *Performance improvement plans*
   - *Strategic plans*
   - *Using the electronic health record to collect antimicrobial stewardship data*

2. The [critical access] hospital educates staff and licensed independent practitioners involved in antimicrobial ordering, dispensing, administration, and monitoring about antimicrobial resistance and antimicrobial stewardship practices. Education occurs upon hire or granting of initial privileges and periodically thereafter, based on organizational need.

3. The [critical access] hospital educates patients, and their families as needed, regarding the appropriate use of antimicrobial medications, including antibiotics. (For more information on patient education, refer to Standard PC.02.03.01)

Note: *An example of an educational tool that can be used for patients and families includes the Centers for Disease Control and Prevention's Get Smart document, "Viruses or Bacteria—What's got you sick?* at http://www.cdc.gov/getsmart/community/downloads/getsmart-chart.pdf.

4. The [critical access] hospital has an antimicrobial stewardship multidisciplinary team that includes the following members, when available in the setting:
   - Infectious disease physician
   - Infection preventionist(s)
   - Pharmacist(s)
   - Practitioner

   Note 1: *Part-time or consultant staff are acceptable as members of the antimicrobial stewardship multidisciplinary team.*

   Note 2: *Telehealth staff are acceptable as members of the antimicrobial stewardship multidisciplinary team.*

5. ⒟ The [critical access] hospital's antimicrobial stewardship program includes the following core elements:
   - Leadership commitment: Dedicating necessary human, financial, and information technology resources.
   - Accountability: Appointing a single leader responsible for program outcomes. Experience with successful programs shows that a physician leader is effective.
   - Drug expertise: Appointing a single pharmacist leader responsible for working to improve antibiotic use.
   - Action: Implementing recommended actions, such as systemic evaluation of ongoing treatment need, after a set period of initial treatment (for example, "antibiotic time out" after 48 hours).
   - Tracking: Monitoring the antimicrobial stewardship program, which may include information on antibiotic prescribing and resistance patterns.

CMS – Conditions of Participation

- Proposed rule change issued in June 2016

- Require hospitals to implement antibiotic stewardship programs to participate in Medicare and Medicaid

- Comment period was over as of 8/15/16

CMS §482.42(b): Antibiotic Stewardship Program Organization and Policies

- Effective January 1, 2017

- Demonstrate coordination among all components of the hospital responsible for antibiotic use and factors that lead to antimicrobial resistance

- Document the evidence-based use of antibiotics in all departments and services of the hospital

- Demonstrate improvements, including sustained improvements in proper antibiotic use

https://s3.amazonaws.com/public-inspection.federalregister.gov/2016-13925.pdf

Why ABX Stewardship?

- 30 – 50% of antibiotic use is inappropriate and are likely prolonged and not scaled back

- ASPs have been shown to reduce ABX by almost 20% in inpatient settings
  - Patient safety
  - Drug-resistance
  - Cost

- Data that associates effective ASPs and lower infection rates

- Antibiotic resistance continues to grow
  - 23,000 deaths[1]
  - > 2 million infections[1]

[1]CDC Antibiotic Resistance Threats in the US, 2013
http://www.cdc.gov/drugresistance/threat-report-2013/index.html

How Many People Have Heard about Antibiotic Timeouts?
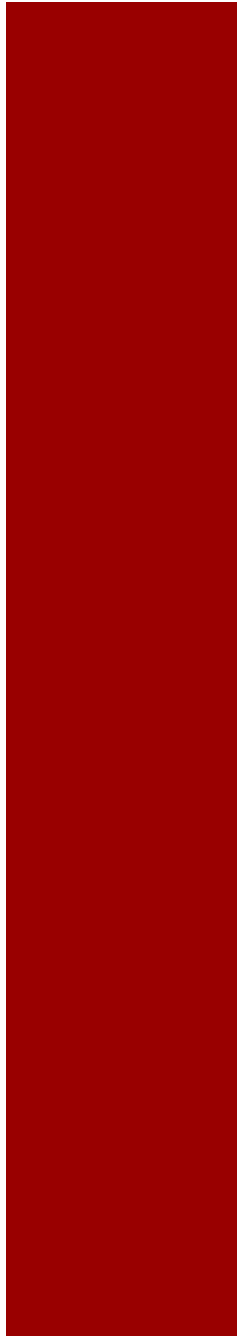
Antibiotic Timeouts

- All clinicians should perform a review of ABX 48 hrs after ABX should ask:

1. Does this patient have an infection that will respond to antibiotics?

2. If so, is the patient on the right antibiotic(s), dose, and route of administration?

3. Can a more targeted ABX be used to treat the infection (i.e., deescalate)?

4. How long should the patient receive the antibiotic(s)?

Antibiotic Timeouts – Good in Principle, Hard in Practice

- Teaching hospital

- Evaluated Zosyn and Vancomycin use (broad-spectrum antibiotics)

- Timeout program:
  - Electronic dashboard that aggregated infection-relevant data
  - Note template in EMR that included structured review of ABX indications
  - Educational and social marketing campaign

- Impact
  - Vancomycin was more greatly impacted than Zosyn
    - 64 vs. 48% with vancomycin discontinued by day 5
    - 67 vs. 62% with vancomycin discontinued by day 5
  - Modest level of clinician satisfaction with EMR dashboard and note template

Graber CJ et al. Hosp Pharm 2015; 50: 1011-24.

How's Our Antibiotic Prescribing Relative to Everyone Else?

- Newer module in CDC's National Healthcare Safety Network (NHSN) → Antibiotic Use and Resistance Module

- How many people are aware of this? How many people are using this?

- Captures electronic data on ABX administered and admission/discharge/transfer data

CDC NHSN AUR Module

- Calculates rates of use to evaluate current antibiotic use (units or facility-wide), to aggregate data for regional/national data, and to create benchmarks (ABX use measure)
  - Days of therapy per 1000 patient days present
  - Split by locations (adult vs. peds, ICU vs. ward)
  - Current agent categories: broad spectrum gram neg agents (community vs. hospital acquired), anti-MRSA agents, all ABX
  - Developing a standardized antibiotic administration ratio (SAAR)

- As of 2015, roughly 100 facilities were submitting data

- **Caveat:** Need structured data from clinical decision support systems

Is Rapid Diagnostic Testing Enough?

- Often times, no…

- So interventions need to be paired with stewardship activities

- Challenge: many disease entities do not have rapid diagnostics to rule out infections or reliability is not sufficient
  - ICU settings
  - Inpatient floor
  - Ambulatory care

Akrami K et al. J Thoracic Dis 2016.

Stewardship Training Programs

Making a Difference in Infectious Diseases (MAD-ID)

- Basic program

- Advanced program

- 19 contact hours (1.9 CEUs) each

- http://mad-id.org/antimicrobial-stewardship-programs/

Society of Infectious Disease Pharmacists (SIDP)

- Partnered with ProCE
  - info@proce.com

- Offers up to 43 contact hours (4.3 CEUs)

- http://www.sidp.org/Stewardship-Program

Additional Resources

- STEWARDSHIP-EDUCATION.org
  - Collaborative project between SHEA, IDSA, PIDS, NFID, MAD-ID, SIDP, and ASHP

- APIC's Stewardship Toolkit
  - http://www.apic.org/Professional-Practice/Practice-Resources/Antimicrobial-Stewardship

- CDC's Get Smart Campaign
  - http://www.cdc.gov/getsmart/
  - Checklist for Core Elements of Hospital Antibiotic Stewardship Programs

Support Antimicrobial Stewardship

Be a Microbiome Defender!