Advancing Antimicrobial Stewardship in Community and Rural Hospitals

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Disclosures

- The SCORE study was supported by the Pfizer Grant for Learning and Change administered by The Joint Commission
- Co-investigator on investigator-initiated study on antimicrobial stewardship
- Primary Investigator: Eddie Stenehjem, MD, MSc
Objectives

- Participants will be able to:
  - Define antimicrobial stewardship
  - Give an example of an antimicrobial stewardship intervention

National Landscape

- September 2014: President’s Executive Order, PCAST report
- November 2015: Proposed Standard for Antimicrobial Stewardship by The Joint Commission (TJC)
- Coming soon:
  - National Quality Partners (NQP) Antibiotic Stewardship Initiative
  - Condition of Participation by Centers for Medicare & Medicaid Services (CMS)
What Is Stewardship?

Systematic efforts to optimize the use of antibiotics to maximize benefits, minimize resistance and decrease adverse events.

Core Elements of a Stewardship Program

- Leadership commitment from administration
- Single leader responsible for outcomes
- Single pharmacy leader
- Antibiotic use tracking
- Regular reporting on antibiotic use and resistance
- Educating providers on use and resistance
- Specific improvement interventions

http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html
Types of Stewardship Interventions

- Antimicrobial Stewardship
- Prospective Audit with Feedback
- Formulary Restriction
- Antimicrobial Indications
- Guidelines and Clinical Pathways
- Education
- Dose Optimization
- IV to PO Conversion
- Rapid Diagnostics
- Decision Support

Stewardship and C. difficile

- Previous antibiotic use is the predominant risk factor for C. difficile
  - All antibiotics carry this risk, but most commonly implicated are clindamycin, cephalosporins, beta-lactams and fluoroquinolones.

- Use of combination therapy and long-term receipt of antibiotic therapy are also risk factors

- Treatment with concomitant antibiotics compromises the initial response to C. difficile and the risk of recurrence

- Antimicrobial stewardship helps to reduce unnecessary antibiotic use, minimize combination therapy and reduce treatment duration, which all help to reduce the risk of C. difficile and improve outcomes

What about Community and Rural Hospitals?

- 2005 United States Hospitals
  - 4935 Registered Hospitals
  - 72% have <200 beds

- Most of these are without antibiotic oversight
- All included in National Action Plan
- Very few studies of stewardship in these settings
- Rate of antibiotic use at these facilities is high

Antibiotic Use

- NHSN AU option
- Excluding:
  - Maternity
  - Newborn
  - Psychiatry
  - Rehabilitation

Days of Therapy per 1000 Patient Days Present

Intermountain Facilities

Small
Large
**SCORE study**

- **Objective**: Define an antibiotic stewardship strategy for Intermountain’s smaller hospitals that optimizes outcomes while maximizing resources.
- **Setting**: Community and Rural Hospitals less than 200 beds within Intermountain Healthcare.
- **Design**: Cluster randomized controlled trial.
  - Program 1 (High resource): 5 hospitals
  - Program 2 (Medium resource): 5 hospitals
  - Program 3 (Low resource): 5 hospitals
- **Timeline**: 6 months curriculum development, 15-month intervention period.

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Example Interventions

Date: 08/29/2013 07:00
To: Dr. Sydnor

Mrs. Buckel in room T907 has been on vancomycin and piperacillin-tazobactam for 48 hours. This patient has allergies to no antibiotics and appears to tolerate other oral therapies.

The following microbiology data are available:
Negative cultures to date________________________________
_______________________________________________

The CDC recommends re-evaluating antibiotic therapy at this time based on new data and the current clinical picture.

☐ Yes, I have acknowledged this patient’s current regimen, and plan to tailor their antibiotics.
☐ Yes, I have acknowledged this patient’s current regimen, and wish to continue the current regimen.

Please return to pharmacy at the time of discharge.

Example Interventions (cont.)

Pillar 1: Prospective Audit with Intervention and Feedback

Pillar 2: Antimicrobial Restrictions
**ALL Sites - Antibiotic Best Practices**

**IV to PO Conversion**
**Antibiotic Indications**
**48 hour Antibiotic "Timeout"**
Access to: ID clinicians and pharmacists
Monthly Hospital Antibiotic Utilization Report

<table>
<thead>
<tr>
<th>Program 1</th>
<th>Program 2</th>
<th>Program 3</th>
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<tbody>
<tr>
<td>PAF - Lite: Audit a limited number of antimicrobial agents* and provide feedback</td>
<td>PAF: Audit an expanded list of antimicrobial agents** and provide feedback</td>
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</tr>
<tr>
<td>Restriction (local pharmacy review) of selected antimicrobials***</td>
<td>Restriction (Infectious Diseases review) of selected antimicrobials***</td>
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</tr>
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<td>Access to: ID clinicians and pharmacists</td>
<td>ID study staff to review positive blood and CNS culture results and all cultures with MDROs.</td>
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* Vancomycin, carbapenems, piperacillin/tazobactam, and cefepime

** Vancomycin, carbapenems, piperacillin/tazobactam, cefepime, aminoglycosides, ciprofloxacin, levofloxacin, ceftriaxone, and ampicillin/sulbactam

*** Restricted agents: Imipenem/meropenem, linezolid, daptomycin, ceftaroline, tigecycline, echinocandins, voriconazole, and amphotericin compounds

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**Education Initiative - Pharmacy**
KAP survey
Topics covered:
- Stewardship Basics
- Antibiotic Time Out
- IV to PO
- Antibiotic Indications
- Bug-Drug mismatch
- When to call ID

**Stewardship Basics – all of those in Low, plus**
- De-escalation - mylearning
- Anaerobes - mylearning
- Restrictions - mylearning
- Allergy Verification
- Stewardship Pearls / question and answer

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SCORE Study Conclusions

- Antimicrobial use in SCH is comparable to larger facilities
  - Stewardship is needed

- Stewardship is feasible in these settings

- Stewardship can lower antimicrobial use
  - Which program type fits best, to be determined
Antimicrobial stewardship is an important approach to reducing antimicrobial resistance, including C. difficile.

Soon, all facilities will be required to have antimicrobial stewardship programs in place and functioning.

Antimicrobial stewardship is feasible in all facilities, but must be tailored to unique site needs.

Thank you for your time and attention!

Questions?
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