ANTIBIOTIC STEWARDSHIP: Getting Started

Steve Tremain, MD, FACPE
Physician Improvement Advisor
Cynosure Health

Welcome & Introduction

2016–2017 Deliverables
March 2017 vs July 2017 Survey Comparison

- 41 facilities responded to both surveys
- Improved overall compliance with DPHHS AMS Program
- All facilities improved implementing the following Core Elements into their own stewardship program:
  - Hospital Leadership (29 to 40 facilities)
  - Program Leadership (32 to 38 facilities)
  - Action: Documentation (10 to 26 facilities)
  - Action: 48 Hour Review (6 to 21 facilities)
  - Action: Review of courses of therapy (20 to 24 facilities)
  - Track (20 to 33 facilities)
  - Report (13 to 23 facilities)
Agenda

• Antibiotic Stewardship
  – What is it?
  – Keys to making it effective
  – Measurement
  – Techniques/Approaches
  – Getting started
• Coaching from CAH Peers
• Discussion
• Next Steps

What is Antibiotic Stewardship?

• Antimicrobial stewardship is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms. (APIC)
What is Antibiotic Stewardship?

• The right care for the patient
• Reduced resistance in the community
• Oh, and it does save $, but that is not the primary goal of an ASP
• But does it work?
  – Multiple prospective studies link stewardship with decreased resistance

Keys to an Effective Antibiotic Stewardship Program

• Organizational will
• Engagement of leaders, physicians, and pharmacists
• Necessary training provided
• Clear governance, roles, and responsibilities
Keys to an Effective Antibiotic Stewardship Program

• Evidence based:
  – National guidelines
  – Local usage patterns
  – Local antibiogram
• Measurement → reporting → learning
• Staff and Patient education
• Appropriate application of stewardship techniques

Remember

• We are protecting and preserving...not restricting antibiotics
• It’s about most appropriate care for each patient
  – It’s not always about de-escalation
Measurement

- Days of Therapy (DOT)
- Defined Daily Dose (DDD)
- Standardized Antibiotic Administration Ratio (SAAR)
- Antibiogram

Stewardship Techniques

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preprescription Authorization (PPA)</td>
<td>Limits access to selected antibiotics</td>
<td>Can increase the use of other antibiotics and may not decrease total use. Requires authorization pathway, including consideration of the need for after-hours authorization.</td>
</tr>
<tr>
<td>Postprescriptive Review and Feedback (PPRF)</td>
<td>Encourages communication and discussion, and creates learning loops. Can reduce targeted antibiotics as well as all antibiotic use. More likely to be accepted by prescribers</td>
<td>Initial inappropriate use of targeted antibiotics is not prevented.</td>
</tr>
<tr>
<td>48-hour Time Out</td>
<td>Prompts multidisciplinary discussion of appropriateness of current antibiotic orders, and often leads to de-escalation (narrower spectrum, shorter duration, or discontinuation).</td>
<td>Potential physician resistance, but generally easily overcome as physician experiences value of pharmacist’s assistance.</td>
</tr>
<tr>
<td>Formulary Restriction</td>
<td>Reduces antibiotic choice to manageable number, reduces duplicate therapy, decreases costs.</td>
<td>May be a challenge for hospitals with providers or specialists who work in many hospitals and find it difficult to use different formularies at each.</td>
</tr>
</tbody>
</table>
### Stewardship Techniques

<table>
<thead>
<tr>
<th>Order Sets and Treatment Algorithms</th>
<th>Prompts the prescriber to make choices based on likely bacteria or source of infection, consider allergies, adjust for renal function, consider cost, order appropriate tests and consultations. Allows for default algorithmic orders for common conditions for drug, dose, and duration. Can be paper or electronic.</th>
<th>Must allow for opt out with explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Guidelines</td>
<td>Provides the opportunity to include many leaders to develop hospital specific guidelines and algorithms. Allows for communication to front line care givers who are not infectious disease specialists.</td>
<td>Important and effective when coupled with PPA or PPRF. Lesser effectiveness as stand-alone strategy. Note: Infectious disease specialists are not required for guideline development. Any physician and/or pharmacist champion may lead this effort.</td>
</tr>
<tr>
<td>Education</td>
<td>Necessary for buy-in, discussion and use of order sets, algorithms, guidelines.</td>
<td>Required but not sufficient as a stand-alone strategy.</td>
</tr>
<tr>
<td>Pharmacodynamic Dose Optimization (PK Monitoring)</td>
<td>Using a pharmacodynamics parameter correlated with efficacy, PK Monitoring optimizes bacterial killing and decreases the emergence of resistance. This strategy has been applied to beta-lactams, ciprofloxacin, vancomycin, and cefepime.</td>
<td>Cost.</td>
</tr>
</tbody>
</table>

### Stewardship Techniques

<table>
<thead>
<tr>
<th>Computer Assisted Decision Support Programs</th>
<th>Provides real time guidance and feedback to prescribers, and the option to monitor prescribing practices and create prior authorization mechanisms.</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacist-Driven Intravenous to Oral Switch Programs</td>
<td>Pharmacist have heightened awareness of the oral bioavailability of antibiotics, and can initiate timely IV to oral administration for patients who meet criteria. Drugs often suitable for early IV to oral conversion include fluoroquinolones, metronidazole, macrolides, doxycycline, clindamycin, and linezolid.</td>
<td>Potential medical staff resistance to pharmacist orders.</td>
</tr>
<tr>
<td>Pharmacy Dosing Programs</td>
<td>Pharmacist managed dosing for vancomycin and aminoglycosides has been shown to reduce mortality, Length of Stay, adverse events, and costs.</td>
<td>Clinicians, particularly residents, will lose or fail to learn dosing skills because of exclusion from the dosing and learning loop.</td>
</tr>
</tbody>
</table>
How to Get Started

1. Perform a Gap Analysis

2. Obtain leadership buy-in

3. Find champions

4. Look at your usage data

5. Obtain necessary training
   http://mad-id.org/

6. Start small
   – Consider 48 hour time out as a starting point
   – Narrow focus (one unit, one service?)

6. Gain competence and confidence

7. Spread and add techniques
The 48 Hour Time Out

- Often pharmacist led
- Culture & Sensitivities checked
- Physician called
- Discussion to answer these 6 questions:
  - Does the patient have an infection?
  - If the patient has an infection, is it a bacterial infection?
  - If a bacterial infection, what is the likely source?
  - If a bacterial infection, are culture and sensitivity (C&S) information available?
  - If C&S information is not available, based on the patient’s history or the local antibiogram, is the bacteria likely to be resistant to usual treatment?
  - Is the duration of therapy appropriate for the infection?

A Word to the Wise for the ”Stewards”

- Be the firefighter
- not the police
Our Peer Coaches

- Rolando Rodriguez
  – Weiser Memorial Hospital; Weiser, ID

- Michael Groessinger
  – Valor Health; Emmett, ID

- 16-bed critical access hospitals

- Services: Emergency Dept, Med/Surg, Infusion, Specialty Clinic, Family Practice, Surgical Services, Labor and Delivery

Hospital Sharing

Holy Rosary Healthcare

Fast facts*
Here’s a snapshot of who we are and what we do:

- Full-time Equivalents: 219
- Medical Staff: 165
- Inpatient Admissions: 1,285
- Emergency Visits: 4,902
- Available Beds:** 96
- Births: 303
- Total Community Benefit: $1.48 million

*Statistics based on year-end December 2015 results.
**Available beds are beds in service and available for all hospital nursing units (excluding bassinets).
Hospital Sharing

- Shared Pharmacist position between Marias Medical Center in Shelby, MT and Pondera Medical Center in Conrad, MT
- Facilities are 24 miles apart in Northcentral Montana
- On-site at each facility approximately 20 hours per week, remotely cover pharmacy at other facility
- Completing MAD-ID Antimicrobial Stewardship Program
- Services (vary by facility): Emergency Department, Surgical Services, Med/Surg, Infusion, Clinic, Nursing Home, Labor and Delivery

Hospital Sharing

- **Marias Medical Center; Shelby, MT**
  - 21-bed critical access hospital
- **AMS Team:** Pharmacist, DON, Infection Prevention RN, Physician, Lab Manager
- **Interventions:** pharmacy-dosing of vancomycin; daily antibiotic review; tracking antimicrobials and indications (since Feb 2017); Medical Staff meeting reporting (starting Jun 2017); Pharmacy Renal Dosing Protocol approved (Jun 2017), Antimicrobial Stewardship policy approved (Jul 2017); DOT reporting started (Dec 2017)
Hospital Sharing

- **Pondera Medical Center; Conrad, MT**
  - 20-bed critical access hospital

- **AMS Team**: Pharmacist, CNO, Infection Prevention RN, Physician, Lab Manager

- **Interventions**: pharmacy-dosing of vancomycin; daily antibiotic review; tracking antimicrobials, requiring indication, and 48 hour “soft stop” (since Feb 2017); Medical Staff meeting reporting (starting Apr 2017); Antimicrobial Stewardship policy approved (Apr 2017); Pharmacy Renal Dosing Protocol approved (Jul 2017); DOT reporting started (Dec 2017); updated AMS policy to reflect nursing home AMS program (Feb 2018)

---

Hospital Sharing

- **Marias Medical Center and Pondera Medical Center**

  - **Barriers**:
    - EHR limitations
    - Access to order sets/treatment algorithms (integration into EHR)
    - Antibiotic restriction difficulties
    - Educational opportunities for prescribers
    - Antibiogram with limited samples
    - Time intensive data collection and compilation

  - **Opportunities**:
    - Expansion into Ambulatory, ED, and Extended-Care Facility

  - **Successes**:
    - Stop dates entered more often on antibiotic orders, IV to PO conversion more frequent, PK monitoring/renal dosing, case-by-case recommendations
Discussion

• AKA Intellectual Food Fight

Next Steps

• Complete NHSN Patient Safety Survey
• DPHHS Deliverables Survey
• Days of Therapy (DOT) Data Collection Tool Distribution
Antibiotic Stewardship Change Package

- HRET HIIN Antibiotic Stewardship Change Package
- Fully referenced
- Focuses on the “How To”

Questions?

Steve Tremain, MD   stremain@cynosurehealth.org

Thank You