MHA/OHA HIIN
Antibiotic Stewardship/MDRO Collaborative

March 14, 2017
Reminders

- For best sound quality, dial in at **1-800-791-2345** and enter code **11076**
- Mute your phone during the presentation
- Don’t put the call on hold
- Please use the chat box to ask questions!

*Please note – this webinar is being recorded.*
Housekeeping

- **Education Credit**
  - Nursing Education Credit – 1 hour
  - Pharmacy Education Credit – 0.1
    - Pharmacists, please list your license number on the sign-in sheet to receive credit
Agenda

- Welcome
- Brad Laible, PharmD, BCPS-AQ ID: Fluoroquinolone reduction
- Questions/discussion
- Wrap-up
Fluoroquinolone reduction & C. Difficile
Welcome Brad Laible, PharmD, BCPS-AQ ID

Brad Laible is a Professor in the Department of Pharmacy Practice at the SDSU College of Pharmacy and serves as the lead pharmacist for Avera Health System Antimicrobial Stewardship Program. Dr. Laible is a Board Certified Pharmacotherapy Specialist with Added Qualifications in Infectious Diseases. Dr. Laible joined the faculty of the South Dakota State University College of Pharmacy in 2004 and has an active pharmacy practice site at Avera McKennan Hospital & University Health Center in Sioux Falls, SD.
Avera Health Antimicrobial Stewardship Program

Brad Laible, PharmD, BCPS-AQ ID
Professor, Department of Pharmacy Practice, SDSU COP
Pharmacy Lead, Avera Health ASP
March 14th, 2017
Avera McKennan Antimicrobial Stewardship Program (ASP): 2004 - 2011

- Collaborative effort between:
  - Avera McKennan Pharmacy
  - SDSU College of Pharmacy Faculty/Students
  - Infectious Disease Specialists, PC

- Goal:
  - Proper Antimicrobial Stewardship
Avera ASP: 2004 - 2011

• What did we provide?
  – Continuous antimicrobial regimen review, mostly by decentralized pharmacists, with meetings with ID three times per week to discuss cases
    • Unsolicited recommendations targeted at improving antimicrobial therapy
  – Antimicrobial restriction for certain antimicrobials (hospital-wide)
### Results

Data from Jan 2006 – Dec 2007

**Table 1. Acceptance by Type of Recommendation**

<table>
<thead>
<tr>
<th></th>
<th>Accepted, n</th>
<th>Total, n</th>
<th>Acceptance, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose changes</td>
<td>30</td>
<td>39</td>
<td>76.9</td>
</tr>
<tr>
<td>Agent changes</td>
<td>146</td>
<td>200</td>
<td>73</td>
</tr>
<tr>
<td>Discontinuation of</td>
<td>203</td>
<td>315</td>
<td>64.4</td>
</tr>
<tr>
<td>antimicrobials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>379</td>
<td>554</td>
<td><strong>68.4</strong></td>
</tr>
</tbody>
</table>

## Results

**Table 2. Acceptance Rates by Antimicrobial**

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>Accepted, n</th>
<th>Total, n</th>
<th>Acceptance, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levofloxacin</td>
<td>141</td>
<td>220</td>
<td>64.1</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>53</td>
<td>73</td>
<td>72.6</td>
</tr>
<tr>
<td>Piperacillin/tazobactam</td>
<td>54</td>
<td>67</td>
<td>80.6</td>
</tr>
<tr>
<td>Cefazolin</td>
<td>33</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>37</td>
<td>42</td>
<td>88.1</td>
</tr>
<tr>
<td>Ampicillin/ sulbactam</td>
<td>26</td>
<td>35</td>
<td>74.3</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>28</td>
<td>39</td>
<td>71.8</td>
</tr>
<tr>
<td>Ertapenem</td>
<td>14</td>
<td>23</td>
<td>60.9</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>12</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>11</td>
<td>20</td>
<td>55</td>
</tr>
<tr>
<td>Fluconazole</td>
<td>13</td>
<td>17</td>
<td>76.5</td>
</tr>
<tr>
<td>Imipenem/cilastatin</td>
<td>9</td>
<td>11</td>
<td>81.8</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>6</td>
<td>11</td>
<td>54.5</td>
</tr>
<tr>
<td>Ceftazidime</td>
<td>8</td>
<td>10</td>
<td>80</td>
</tr>
</tbody>
</table>

* a Minimum of 10 total recommendations.
What Happened?

• Acceptance rates started to drop (2009 – 2010)
  – Picked all of the “low hanging fruit”?
  – Utilized one method too much?
  – Couldn’t maintain the effort?
  – Lack of focus?

• ASP chose go another direction…
Focused Stewardship

- ASP with a focus on reducing fluoroquinolone overuse
- 565 bed, acute care, teaching hospital
- Used multiple methods of stewardship
  - Monitoring and reporting of antibiogram data
  - Audit and feedback
  - IV to PO conversion
  - Empiric guidelines
  - Prescriber education
Results

• 30% decrease in fluoroquinolone utilization as empiric therapy for *P. aeruginosa* infections
• 10% improvement in susceptibility of *P. aeruginosa* to antipseudomonal agents (both ciprofloxacin and structurally unrelated agents)
• 2-fold reduction in mortality associated with Pseudomonal infections
• Stable level of fluoroquinolone-resistant *E. coli* (~20%)

### Fluoroquinolone Susceptibility Trends: Avera McKennan

<table>
<thead>
<tr>
<th>Organism</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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</thead>
<tbody>
<tr>
<td><strong>E. coli</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Levofloxacin</td>
<td>87</td>
<td>79</td>
<td>80</td>
<td>80</td>
<td>77</td>
<td><strong>75</strong></td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td><strong>75</strong></td>
</tr>
<tr>
<td><strong>P. aeruginosa</strong></td>
<td></td>
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<tr>
<td>Levofloxacin</td>
<td>75</td>
<td>72</td>
<td>75</td>
<td><strong>57</strong></td>
<td>70</td>
<td>64</td>
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<tr>
<td>Ciprofloxacin</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>
Fluoroquinolone Avoidance Project 2011 - Current

- Avera Stewardship Workgroup
- Lead to ASP program for entire health-system
- Focus on reduction of fluoroquinolone overuse
- Multiple approaches to the effort:
  - Provider education
  - Electronic Order Set Revisions
    - Started with Pneumonia
  - Decentralized pharmacists providing audit and feedback
Infection-Related Order Sets: Avera System

- Pneumonia - CAP ICU
- Pneumonia - CAP Med Surg
- Pneumonia - HCAP

Recommended INITIAL Therapy - Select BOTH Ceftriaxone AND Azithromycin

- Ceftriaxone 2 Gm/D5w (Rocephin 2 Gm Ivpb) 250 ML IV daily 250 MLS/HR
  - BOTTLE COMMENT: Give first dose stat
- Azithromycin 500 Mg/D5w (Zithromax 500mg Ivpb) 250 ML IV daily 250 MLS/HR
  - BOTTLE COMMENT: Give first dose stat

If Beta-Lactam Allergy - Choose Both

- Avera Health recommends reserving quinolone therapy for patients with documented beta-lactam allergy.
  - LevoFLOXacin 750 MG/D5W (LEVAQUIN 750 MG IVPB) 150 ML IV daily 100 MLS/HR
  - BOTTLE COMMENT: Give first dose stat
- Aztreonam 2 Gm D5w 50ml (Azactam) 50 ML IV 8h 100 MLS/HR
  - BOTTLE COMMENT: Give first dose stat

If patient has risk for infection with Pseudomonas aeruginosa, please consult...
Levofloxacin Days of Therapy / 1000 Patient Days
Avera McKennan Inpatient Use

- Antibiogram
- Education

2011
<table>
<thead>
<tr>
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<td>75</td>
<td>82</td>
<td>84</td>
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<td>-</td>
<td>70</td>
<td>70</td>
<td>82</td>
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<td>82</td>
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</tbody>
</table>
Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America


Section of Infectious Diseases, Boston University School of Medicine, Boston, Massachusetts; Division of Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, Maryland; Division of Infectious Diseases, University of Miami Miller School of Medicine, Miami, Florida; Department of Clinical Pharmacy, School of Pharmacy, University of California, San Diego; Department of Medicine, Weill Cornell Medical Center/New York- Presbyterian Hospital, New York, New York; Department of Internal Medicine, Texas A&M Health Science Center College of Medicine, Houston; Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia; Division of Allergy and Infectious Diseases, University of Miami School of Medicine, Miami, Florida; Department of Clinical Pharmacy, School of Pharmacy, University of California, San Diego; Department of Emergency Medicine, University of California, Davis; Department of Emergency Medicine, David Geffen School of Medicine, University of California, Los Angeles Medical Center, Los Angeles, California; Department of Emergency Medicine, University of California, San Francisco; Department of Pediatrics, Washington University School of Medicine in St. Louis, Missouri; Section on Infectious Diseases, Wake Forest School of Medicine, Winston-Salem, North Carolina; Department of Veterans Affairs and University of Utah, Salt Lake City; Infectious Diseases, Memorial Sloan Kettering Cancer Center, New York, New York; and Trinity Consultants, LLC, Berkeley, California.

Evidence-based guidelines for implementation and measurement of antibiotic stewardship interventions in inpatient populations including long-term care were prepared by a multidisciplinary expert panel of the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. The panel included clinicians and investigators representing internal medicine, emergency medicine, critical care, surgery, epidemiology, pharmacy, and adult and pediatric infectious disease specialties. The recommendations address the best approaches for antibiotic stewardship programs to influence the optimal use of antibiotics.

**Keywords:** antibiotic stewardship; antibiotic stewardship programs; antibiotics; implementation.

**EXECUTIVE SUMMARY**

Antibiotic stewardship has been defined in a consensus statement from the Infectious Diseases Society of America (IDSA), the Society for Healthcare Epidemiology of America (SHEA), and the Pediatric Infectious Diseases Society (PIDS) as “coordinated interventions designed to improve and measure the appropriate use of antibiotics,” so that antibiotic stewardship programs (ASPs) are best led by infectious disease physicians with additional stewardship training.

Summarized below are the IDSA/SHEA recommendations for implementing an ASP. The expert panel followed a process that included systematic weighing of the strength of the guidelines and other ASPs.

**Core elements of hospital antibiotic stewardship programs**

- Leadership commitment
- Accountability
- Drug expertise
- Action
- Tracking
- Reporting
- Education

Prepublication 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.jcrcInc.com.

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

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Medicare & Medicaid Services

42 CFR Parts 482 and 485

[CMS-3295-P]

RIN 0938-AS21

Medicare and Medicaid Programs; Hospital and Critical Access Hospital (CAH) Changes to Promote Innovation, Flexibility, and Improvement in Patient Care

AGENCY: Centers for Medicare & Medicaid Services (CMS), HHS.

ACTION: Proposed rule.

SUMMARY: This proposed rule would update the requirements that hospitals and critical access hospitals (CAHs) must meet to participate in the Medicare and Medicaid programs.
Avera Health Antimicrobial Stewardship Program (ASP)

• **Scope:**
  – Review antimicrobials for formulary / antimicrobial restrictions
  – Review/approval of infectious disease-related order sets and treatment algorithms
  – Adjustment/conversion policies (e.g. renal, IV to PO)
  – Review of antibiogram and antimicrobial utilization data
  – Provide education to providers and other staff
  – Conduct the “ASP Daily Call”
Antimicrobial Formulary

• Beta-lactams
  – PCN, aminopenicillins, Piperacillin-tazobactam
  – Cephalosporins (limited)
  – Meropenem, Ertapenem

• Fluoroquinolones
  – Levofloxacin, ciprofloxacin

• Aminoglycosides

• Antifungals
  – Fluconazole
  – Micafungin
  – Voriconazole, Posaconazole, Isavuconazole*
  – Amphotericin B products*

• MRSA+/- VRE active
  – Vancomycin
  – Trimethoprim-sulfam.
  – Clindamycin
  – Daptomycin*
  – Linezolid*
  – Tigecycline*
  – Ceftaroline*
  – Telavancin*

• Others*
  – Fidaxomicin
  – Fosfomycin
  – Colistin

*ID restricted at MCK
# Infection-Related Order Sets: Avera System

## Standard Order Sets

- **Pneumonia - CAP ICU**
- **Pneumonia - CAP Med Surg**
- **Pneumonia - HCAP**

## Medications

- **Initiate antibiotics within 6 hours of presentation to hospital**
- **2007 IDSA Consensus Guidelines for Management of CAP**

**Recommended INITIAL Therapy - Select BOTH Ceftriaxone AND Azithromycin**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftriaxone 2 Gm/D5w (Rocephin 2 Gm Ivpb)</td>
<td>250 ML IV daily 250 MLS/HR</td>
</tr>
<tr>
<td>Azithromycin 500 Mg/D5w (Zithromax 500mg Ivpb)</td>
<td>250 ML IV daily 250 MLS/HR</td>
</tr>
</tbody>
</table>

**BOTTLE COMMENT:**

- Give first dose stat

## If Beta-Lactam Allergy - Choose Both

- **Avera Health recommends reserving quinolone therapy for patients with documented beta-lactam allergy.**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>levoFLOXacin 750 MG/D5W (LEVAQUIN 750 MG IVPB)</td>
<td>150 ML IV daily 100 MLS/HR</td>
</tr>
</tbody>
</table>

**BOTTLE COMMENT:**

- Give first dose stat

## If patient has risk for infection with Pseudomonas aeruginosa, please consult

- **Consult Physician (CONS)**
  - **Reason for Consult Pneumonia**
  - **Consulting Specialty or Group: Infectious Disease**

*Related Procedures: Medications*
### Antimicrobial Renal Dosing Policy: Avera System

**Avera Health System Antimicrobial Dosing Guideline for Patients with Impaired Renal Function**

_Avera ID Subcommittee **Update March 2016**_

**Weight Key:** TBW = Total Body Weight, IBW = Ideal Body Weight

**NOTE:** THIS IS A RENAL DOSING GUIDELINE ONLY. THIS GUIDELINE IS NOT INTENDED TO GUIDE AGENT SELECTION. ANY LISTING OF POSSIBLE INDICATIONS IS NOT ALL INCLUSIVE, AND CLINICAL JUDGMENT IS NECESSARY WHEN SELECTING THE BASE DOSE FOR THE SUSPECTED INFECTION. DISCUSSION WITH THE ANTIMICROBIAL STEWARDSHIP TEAM / ID CONSULT MAY BE WARRANTED TO ENSURE SELECTION OF THE APPROPRIATE BASE DOSE AND SUBSEQUENT RENAL ADJUSTMENTS.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Route</th>
<th>Typical Base Doses</th>
<th>CrCl (mL/min)</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir</td>
<td>IV</td>
<td>Use lesser of TBW vs IBW</td>
<td></td>
<td>Dose for CrCl &lt; 10, dose after HD on dialysis days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 – 0 mg/kg q8h</td>
<td>25-50: 100% of dose q12h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10-24: 100% of dose q24h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt; 10: 50% of dose q24h</td>
<td></td>
</tr>
<tr>
<td>Ampicillin</td>
<td>IV</td>
<td>2 gm q4h</td>
<td></td>
<td>Dose for CrCl &lt; 10, give one of the doses after HD on dialysis days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Suggested for CNS infections, Endocarditis, Osteomyelitis)</td>
<td>If base dose 2 gm q4h :</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30-50 : 2 gm q8h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 – 29: 2 gm q8h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt; 10: 2 gm q12h</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>2 gm q8h</td>
<td></td>
<td>Dose for CrCl &lt; 10, give one of the doses after HD on dialysis days</td>
</tr>
<tr>
<td>Ampicillin-Sulbactam</td>
<td>IV</td>
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<td></td>
<td>Dose for CrCl &lt; 10, dose after HD on dialysis days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 gm q8h</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>If base dose 3 gm q8h :</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>30-50 : 3 gm q8h</td>
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<tr>
<td></td>
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<td></td>
<td>10 – 29: 3 gm q12h</td>
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<tr>
<td></td>
<td></td>
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<td>&lt; 10: 3 gm q24h</td>
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<tr>
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<td></td>
<td>1.5 gm q8h</td>
<td></td>
<td>Dose for CrCl &lt; 10, dose after HD on dialysis days</td>
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<td></td>
<td></td>
<td></td>
<td>If base dose 1.5 gm q8h :</td>
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<td>30-50 : 1.5 gm q8h</td>
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<td></td>
<td>10 – 29: 1.5 gm q12h</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>&lt; 10: 1.5 gm q24h</td>
<td></td>
</tr>
</tbody>
</table>
## Annual Antibiogram Review

### 2015 Cumulative Antimicrobial Susceptibility Summary

Values Represent % Susceptible

| Gram-negatives:          | Ampicillin/Subactam | Amoxicillin | Cotrimoxazole | Ceftazolin | Cefepime | Ciprofloxacin | Ceftriaxone | Gentamicin | Cefoxitin | Daptomycin | Tobramycin | Vancomycin | Minocycline | Linezolid | Gentamicin | 
|--------------------------|---------------------|-------------|---------------|------------|----------|--------------|-------------|------------|-----------|------------|------------|------------|------------|-------------|----------|------------| 
| Citrobacter freundii (31) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Enterobacter cloacae (44) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Escherichia coli - not ESBL (914) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Klebsiella pneumoniae - not CRE (113) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Proteus mirabilis (63)   | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Pseudomonas aeruginosa (93) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Haemophilus influenzae (81) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Anaerobes:               |                      |             |               |            |          |              |             |            |           |            |            |            |             |            |            |           |
| Bacteroides fragilis grp.* (632-3981) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Fusobacterium nucleatum/necrophorum (15) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Prevotella (106-306)     | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |

| Gram-positives:          | Ampicillin/Subactam | Amoxicillin | Cotrimoxazole | Ceftazolin | Cefepime | Ciprofloxacin | Ceftriaxone | Gentamicin | Cefoxitin | Daptomycin | Tobramycin | Vancomycin | Minocycline | Linezolid | Gentamicin | 
|--------------------------|---------------------|-------------|---------------|------------|----------|--------------|-------------|------------|-----------|------------|------------|------------|------------|-------------|----------|------------|
| Enterococcus faecalis (127) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Enterococcus faecium (32) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Staphylococcus aureus (226) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Staphylococcus aureus, MRSA (186) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Streptococcus pneumoniae, invasive (12) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Anaerobes:               |                      |             |               |            |          |              |             |            |           |            |            |            |             |            |            |           |
| Anaerobic Gram pos cocci (148-614) | 75                  | 53          | 54            | 90         | 86       | 100          | 100         | 100        | 100       | 100        | 100        | 100        | 100         | 100       | 100        | 100       |
| Clostridium perfringens (69-348) | 100                 | 99          | 98            | 96         | 96       | 96           | 96          | 96         | 96        | 96         | 96         | 96         | 96          | 96        | 96         | 96        |
| Clostridium difficile (24-494) | 100                 | 99          | 98            | 96         | 96       | 96           | 96          | 96         | 96        | 96         | 96         | 96         | 96          | 96        | 96         | 96        |
| Other Clostridium sp. (20-266) | 100                 | 99          | 98            | 96         | 96       | 96           | 96          | 96         | 96        | 96         | 96         | 96         | 96          | 96        | 96         | 96        |

( ) Denotes number of isolates tested
In vitro activity does not necessarily correlate with clinical results.

*Data with <30 isolates tested are statistically less valid
*Tested on urine isolates only
*Rifampin should not be used alone for antimicrobial therapy
*Anaerobe data collected 2010-2012 / Reported in 2015 CLSI Performance Standards for Antimicrobial Susceptibility Testing document
** Haemophilus influenzae data obtained from Avera McKennan for 2014: AGOP tested isolates — Beta-lactamase positive = 35%
Avera Health Antimicrobial Stewardship Program (ASP): Provider Education

Jawad Nazir, MD, FACP
Brad Laible, PharmD, BCPS-AQ ID
ASP Daily Call: Avera System

- Conference call utilizing screen sharing
- Conducted Monday – Friday, 11 AM
- ID physicians and pharmacists review patient cases for potential stewardship interventions
  - Cultures/labs/diagnostics/chart notes reviewed
  - Broad spectrum antimicrobial use is targeted
    - Piperacillin-tazobactam, cefepime, meropenem, fluoroquinolones
    - Vancomycin
- Pharmacists relay the ASP recommendations to providers
Top priorities:

Any patient in which the patient’s provider requests the review

Agent – organism mismatches with complex resistance patterns based on culture report

Any patient with *Staphylococcus aureus* bacteremia (MSSA or MSSA) without an ID consult

Any patient receiving an antipseudomonal carbapenem without an ID consult

Any patient receiving daptomycin, linezolid, ceftaroline, tigecycline, micafungin or amphotericin B without an ID consult (these agents are ID restricted at Avera McKennan)

High priorities:

Patients on antibiotics > 72 hours with negative cultures

Patients with positive cultures for highly susceptible organisms but still on broad spectrum therapy

Patients on piperacillin-tazobactam, cefepime, or ceftazidime >72 hours without positive cultures for *Pseudomonas aeruginosa*

Patients on Vancomycin > 72 hours without positive cultures for MRSA

Patients on levofloxacin without a beta-lactam allergy
Pharmacy Presentation of Patient to Infectious Disease (ID) Physician During ASP Rounds

This is a (age) year old male/female admitted for (chief complaint). Discuss suspected infection, for example: We are suspecting urinary tract infection. Discuss current antimicrobial therapy, for example: The patient is currently receiving Zosyn, day 3. Discuss culture results if applicable, for example: Urine culture from (date) is positive for E. coli. Discuss resistance of organisms identified (if applicable), for example: The E. coli is only resistant to ampicillin. Discuss potential recommendation (if known), for example: I thought perhaps we could suggest de-escalation to ceftriaxone or an oral agent. I wanted to get your thoughts.

Pharmacy Presentation of ASP Recommendations to Provider:

First-Time Recommendation to a Specific Provider:

For the first time you make an ASP recommendation to a provider, we suggest you start with the following statement:

I am not sure if you are aware Avera Health has developed an Antimicrobial Stewardship Program in hopes of improving antimicrobial use and limiting resistance across the system. As part of this effort, we have the opportunity to review patient cases with an ID physician through a conference call each day.

Recommendation Presentation:

Your patient (name) was discussed at ASP rounds. Based on review of the patient’s chart, including documentation and culture results (if applicable), our antimicrobial stewardship physician (Name) is suggesting (recommendation). For example: Dr. Nazir suggests changing Zosyn to ceftriaxone (or an oral agent that could be specified) for this patient to complete 7 days of therapy.
Recommendations
All Facilities

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How much time does this really take?

- July 1st – August 31st, 2016
- Averaged 1 ID physician and 5 Pharmacists per call
- 90 patients presented / 33 call days (2.7 patients per call)
- 23 minutes per call
Sharing of Knowledge

• Examples of Educational Topics Discussed
  – The Joint Commission ASP standard
  – New HAP/VAP guidelines
  – Fluoroquinolone resistance trends locally and nationally
  – Clostridium bacteremia treatment
  – Evaluation of Pseudomonal susceptibility trends locally
  – Enterobacter and drugs of choice
  – Asymptomatic bacteruria treatment
  – Cefazolin and MSSA susceptibility testing
  – HCAP in nursing home patients

• Literature commonly distributed for further education
Avera Health Antimicrobial Stewardship Program

3900 West Avera Drive
Sioux Falls, SD 57108 | MAP
Phone: 322-4700 Fax: 322-4798
Outlook Group: AIDSSubComm@avera.org

Procedures

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Antibiograms

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Resources

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Contacts

Brad Laible, PharmD
Geri Voss, PharmD
Jerry Drees, PharmD

Resource Hyperlinks

- Viruses or Bacteria Education Chart
- Order Marketing Materials

AH ASP Meeting Calendar

Avera ASP: Ongoing Efforts

• Expansion of the inpatient program beyond Regional facilities
  – All 33 facilities have been invited

• Formation of outpatient ASP group

• Continue to support LTC ASP group
Questions?
MHA/OHA HIIN Contacts

**OHA**
- James Guliano, Vice President Quality Programs
- Rosalie Weakland, Senior Director Quality Programs
- Subcontractor – HSAG
  - Christine Bailey, Director, Quality Improvement and Patient Safety

**MHA**
- Tania Daniels, Vice President, Quality and Patient Safety
- Lali Silva, Senior Director Quality and Process Improvement
- Susan Klammer, Quality/Safety Project Coordinator
Thank you for joining us!

Next Webinar:
Tuesday, April 11
11:30 AM CT / 12:30 PM ET
Please complete this questionnaire and return to 614-241-2933. Thank you.

Attending 80% of the program and turning in completed evaluation forms is required to receive CE certificate.

The speaker for today’s program has indicated no conflict of interest related to this presentation.

I was able to achieve the following outcomes:

Cite ways in which existing resources might be used to enhance patient-level stewardship across the health system.

YES  NO

DID THE SPEAKER:

Brad Laible, Pharm.D., BCPS

Utilize effective teaching strategies  YES  NO
Presented material in clear & non-biased manner  YES  NO

The audio visuals were effective.  YES  NO

SUGGESTIONS FOR FUTURE PROGRAMS

COMMENTS

Thank you
**PARTICIPANT SIGN-IN SHEET**

Program Title: Leveraging Resources for Antimicrobial Stewardship  
March 14, 2017

Please fax this form AND all evaluations to 614-241-2933, or to sherric@ohanet.org. No other versions of sign-in sheets will be accepted.

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TELEPHONE: FAX: (Please Print Clearly so we can send your certificate)

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*IF NAME IS NOT PRINTED A CERTIFICATE WILL NOT BE ISSUED*


*PLEASE MAKE MORE COPIES IF MORE THAN 12 PARTICIPANTS*

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