PADONA'S 29th ANNUAL CONVENTION

How to Prioritize and Implement Antibiotic Stewardship Strategies

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Pennsylvania Patient Safety Authority
Objectives

• Recall the factors influencing the antibiotic prescribing decision making process

• Select interventions that target phases of the antibiotic prescribing process

• Identify methods to overcome stewardship barriers at provider, clinician, family and resident levels
Antibiotic Use in Long Term Care

4.1 MILLION
Americans are admitted to or reside in nursing homes during a year

UP TO 70%
of nursing home residents received antibiotics during a year

UP TO 75%
of antibiotics are prescribed incorrectly

(Source: CDC newsroom)

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Antimicrobial Misuse

• Unnecessary
• No longer necessary
• Wrong dose
• Wrong antibiotic
• Broad spectrum agents used on very susceptible bacteria

(CDC Get Smart for Healthcare)
Antibiotic Usage

(Adkins)

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Adverse Drug Effects from Antibiotics

• 1:1000 risk that taking an antibiotic will result in an Emergency Department (ED) visit

• 1:5 annual ED visits due to antibiotic reactions
  – 4:5 ED visits for allergic reactions
  – 5%-25% of patients will develop antibiotic-associated diarrhea

• Common
  – Rash, nausea, vomiting, diarrhea, stomach pain, fungal infections, drug fever

• Serious
  – Anaphylaxis, C. difficile, central nervous system and kidney toxicity, abnormal liver function

(CDC medication safety)

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Antibiotic Misuse Warning

“The thoughtless person playing with penicillin treatment is morally responsible for the death of the man who succumbs to infection with the penicillin-resistant organism.”

https://commons.wikimedia.org/wiki/File:Synthetic_Production_of_Penicillin_TR1468.jpg#filehistory

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Multi-drug Resistant Organisms

- Risk increased by inappropriate antibiotic usage
- Difficult to treat
- Incur greater morbidity, mortality, cost
- Pennsylvania April 2014-April 2015
  - 2% of all healthcare associated infections (HAI) in LTCF are multi-drug resistant organisms (MDRO)
  - 20% of all MDRO are bloodstream infections
  - 54% of gastrointestinal infections are *Clostridium difficile* (*C. difficile*)

(SHEA, IDSA, CDC Core elements, Bradley)

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Antibiotic Resistance

(Source: CDC- Get Smart Know When Antibiotics Work)

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Mechanisms of Resistance

1. Donor
   - Chromosomal DNA
   - F Plasmid
   - Pili

2. Recipient
   - Chromosomal DNA

3. DNA Polymerase
   - Relaxosome Transferosome

4. Old Donor
   - F Plasmid
   - Pili

5. New Donor
   - F Plasmid
   - Pili

*Bacteria mating or conjugation plasmid transfer*

National Action Plan for Combating Antibiotic-Resistant Bacteria

• Slow emergence and prevent the spread of resistant organisms
• Strengthen national health surveillance efforts to combat resistance
• Advance development and use of rapid and innovative diagnostic tests
• Accelerate research and development for new antibiotics, other therapeutics, and vaccines
• Improve international collaboration and capacities for prevention, surveillance, control, research and development

(White House: National Action Plan)
What is Antimicrobial Stewardship?

• Uses coordinated interventions

• Improves and measures the appropriate use of antimicrobial agents

• Promotes the selection of the optimal drug regimen
  – Dosing
  – Duration of therapy
  – Route of administration

(SHEA)
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### Rationale for Stewardship

**Optimal Use**
- Increases infection cures
- Improves pathogen susceptibility profiles
- Reduces adverse effects of antibiotics
- Increases appropriate, cost-effective prescribing for therapy and prophylaxis

**Suboptimal Use**
- Increases treatment failures
- Increases morbidity, mortality, hospitalization
- Increases adverse effects of antibiotics
- Higher costs for treatment
CMS Long-Term Care Final Rule

- 42 CFR part § 483.80 Infection Control
- Infection Prevention & Control Program (IPCP) includes:
  - Antibiotic stewardship program
  - Antibiotic use protocols
  - System to monitor antibiotic use
  - Effective as of November 28, 2017
Getting Started Strategies

• Identify champions and a team
• Use a checklist to identify targets for improvement
• Outline a plan
• Track prescribing practices
• Develop and implement an antibiogram
• Educate clinicians to national infection criteria and treatment guidelines

(Adkins, Bradley, AHRQ Toolkit)

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Identify Champions and Team

• Select members
  – Medical Director, Director of Nursing, Infection Preventionist
  – Pharmacist, Lab, Information Technology support
  – Clinical and prescriber champions

• Introduce members to antimicrobial stewardship standards
  – Core elements of stewardship
  – Antibiotic resistance

(Crnich, AHRQ toolkit)

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Checklists

(Source: CDC [http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html](http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html))

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# Assessment of Current CDI Prevention Activities

## Antibiotic Stewardship

**December 28, 2016**

<table>
<thead>
<tr>
<th>SECTION 1. KNOWLEDGE AND COMPETENCY</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Do direct care personnel understand how to recognize changes in a resident that might indicate a new infection or other concerning condition?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2 Do direct care personnel understand how to communicate information to medical personnel when a resident has a change that might indicate a new infection or other concerning condition?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3 Do nursing personnel receive any periodic training or education about appropriate antibiotic use?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4 Are medical personnel given any resources to help guide decisions about when to suspect a resident has an infection or needs an antibiotic?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q5 Do residents and family receive education about appropriate antibiotic use?</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 2. INFECTION PREVENTION POLICIES AND INFRASTRUCTURE</th>
<th>YES</th>
<th>NO</th>
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</thead>
<tbody>
<tr>
<td>Q1 Do direct care personnel document changes in a resident that might indicate a new infection or other concerning condition?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2 Do nursing personnel communicate information to medical personnel when a resident has a change that might indicate a new infection or other concerning condition?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3 Does your nursing home have a pharmacist or physician who provides guidance or expertise on antibiotic use?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4 Does your nursing home use standardized order forms for antibiotic prescriptions including documentation of indication and anticipated duration of therapy?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 3. MONITORING PRACTICES</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>Q1 Does the pharmacy service provide a monthly report of antibiotic use (e.g., new orders, number of days of antibiotic treatment) for the nursing home?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2 Does your nursing home have a process to perform a follow-up assessment 3 days after a new antibiotic start to determine whether the antibiotic is still indicated and appropriate?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3 Does your nursing home provide feedback on antibiotic prescribing practices to medical personnel?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4 Does the laboratory provide your nursing home with a report of antibiotic resistance in bacteria</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: CDC: [https://www.nhqualitycampaign.org/files/AntibioticStewardship_Assessment.pdf](https://www.nhqualitycampaign.org/files/AntibioticStewardship_Assessment.pdf))

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Outline Goals and a Plan

• **Short and long term goals**
  – Strategies based on assessment

• **Plan**
  – Statement of leadership support
  – Resources to provide education, download or develop materials
  – Timeline, responsibilities, budget, meeting schedules, meeting agenda
  – Sustainability strategies

(AHRQ Toolkit)

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Assess Optimal Prescribing Practices

- Patient symptoms match clinical criteria.
- Culture and sensitivity, quick test, or chest x-ray obtained matches clinical criteria.
- Appropriate empiric antibiotic selected based on national guidelines/facility susceptibility pattern.
- 48-hour time-out identifies culture/quick test organisms, and sensitivities assess quality of culture.
- Appropriate narrow-spectrum antibiotic ordered based on culture results, national guidelines, and facility susceptibility pattern.
- Patient asymptomatic or symptoms do not meet clinical criteria.
- Lab test not ordered, pending, or not available.
- Empiric antibiotic selection based on preference and experience. Facility susceptibility pattern not available.
- Antibiotic is not reviewed or lab tests are not available. Patient continues on inappropriate or unnecessary antibiotic.
- Antibiotic selection incorrect for site/syndrome and facility susceptibility patterns. Inappropriate broad-spectrum antibiotic used.

(Adkins)

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Monitor Antibiotic Prescribing Processes Measures

• Clinical assessment
  – Signs/symptoms, vital signs, physical exam and lab findings

• Antibiotic prescribing documentation
  – Dose, duration, indication

• Facility-specific treatment recommendations
  – Broad spectrum versus narrow spectrum
  – Use of facility susceptibility patterns
## Antibiotic Use Outcome Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Formula</th>
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<tbody>
<tr>
<td>Point prevalence surveys of antibiotic use</td>
<td># of residents on antibiotics \times 100 \over \text{total residents in facility that day}</td>
</tr>
<tr>
<td>Rates of new antibiotic starts</td>
<td># of new antibiotic prescriptions \times 1000 \over \text{total number of resident days}</td>
</tr>
<tr>
<td>Rate of antibiotic days of therapy</td>
<td>\text{Total monthly days of therapy} \times 1000 \over \text{Total resident days for the month}</td>
</tr>
<tr>
<td>Antibiotic utilization Ratio</td>
<td>\text{Total monthly days of therapy} \over \text{Total resident days}</td>
</tr>
</tbody>
</table>

(CDC Core elements)
# Line Listing Elements

<table>
<thead>
<tr>
<th>Resident</th>
<th>Identifier</th>
<th>Room</th>
<th>Admit Date</th>
<th>Prescriber</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symptoms Date</th>
<th>Lab done Date</th>
<th>Lab Results Date</th>
<th>Meets Criteria</th>
<th>Antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Empiric Antibiotic</th>
<th>48 -72 hour Time out</th>
<th>Empiric Antibiotic</th>
<th>Report to PSRS</th>
<th>POA or HAI</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
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</table>

(AHRQ Toolkit)

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Why Use An Antibiogram?

• **Utilizes microbiologic data from patient specimens**
  – Identifies facility and/or unit specific antibiotic resistance patterns
  – Facilitates identification of changes in patterns

• **Helps prescribing clinicians:**
  – Select the most appropriate agents for initial empirical antimicrobial therapy
  – Improve outcomes among patients with infections
  – Identify opportunities to reduce inappropriate antibiotic use
  – Determine success of such efforts
### Sample Antibiogram

<table>
<thead>
<tr>
<th>Gram (-)</th>
<th>Aminoglycosides</th>
<th>B-Lactams</th>
<th>Cephalosporins</th>
<th>Quinolones</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of residents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highlighted rows include less than 30 isolates; interpret these results with caution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escherichia coli</td>
<td>37</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Klebsiella sp *</td>
<td>33</td>
<td>100</td>
<td>84.6</td>
<td>92.3</td>
<td>84.6</td>
</tr>
<tr>
<td>Proteus sp</td>
<td>31</td>
<td>71.4</td>
<td>57.1</td>
<td>71.4</td>
<td>57.1</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa †</td>
<td>23</td>
<td>100</td>
<td>83.3</td>
<td>92.3</td>
<td>91.7</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Gram (+)</th>
<th>Penicillins</th>
<th>Cephalosporins</th>
<th>Quinolones</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of residents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highlighted rows include less than 30 isolates; interpret these results with caution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staph aureus (all) †</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Methicillin Resistant (MRSA)</td>
<td>34</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Methicillin Susceptible (MSSA)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterococcus sp *</td>
<td>30</td>
<td>100</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

(AHRQ Toolkit)

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Antibiogram
Development and Implementation

- Engage team members
- Determine if the antibiogram will be unit or facility-based
- Use resident and culture information
- Review the antibiogram to monitor resistance trends
  - Facility wide and/or unit specific
- Distribute the antibiogram to all prescribing clinicians
- Accompany distribution with education and instructions
- Monitor the use of the antibiogram

(IHI, AHRQ toolkit, Hirschon)
<table>
<thead>
<tr>
<th>Isolate Klebsiella pneumoniae</th>
<th>Systemic Urine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANTIBIOTICS</strong></td>
<td><strong>MIC</strong></td>
</tr>
<tr>
<td>Ampicillin</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Aztreonam</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>&gt;32 R</td>
</tr>
<tr>
<td>Ceftazidime</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Cefotaxime</td>
<td>32 I</td>
</tr>
<tr>
<td>Cefazolin</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>&gt;2 R</td>
</tr>
<tr>
<td>Cefepime</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Amikacin</td>
<td>32 I</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>&gt;16 R</td>
</tr>
<tr>
<td>Tigecycline</td>
<td>1.5 S</td>
</tr>
<tr>
<td>Ertapenem</td>
<td>&gt;4 R</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>&lt;4 S</td>
</tr>
<tr>
<td>Imipenem</td>
<td>&gt;32 R</td>
</tr>
<tr>
<td>Levofloxacin</td>
<td>&gt;4 R</td>
</tr>
<tr>
<td>Meropenem</td>
<td>&gt;8 R</td>
</tr>
<tr>
<td>Piperacillin/tazo</td>
<td>&gt;64 R</td>
</tr>
<tr>
<td>Trimethoprim/Sulfa</td>
<td>&gt;2/38 R</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>&lt;4 S</td>
</tr>
<tr>
<td>Tobramycin</td>
<td>&gt;8 R</td>
</tr>
<tr>
<td>Polymyxin B</td>
<td>64 R</td>
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</tbody>
</table>

Sample Microbiology Report:
Multi-Drug Resistant Klebsiella Culture and Sensitivity

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Infection Criteria

• Infection Control and Hospital Epidemiology: Development of Minimum Criteria for the initiation of antibiotics in residents of LTCF

• Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria

• PA-PSRS: List of Reportable Infections: Infections reportable through PA-PSRS
Treatment Guidelines

• Infectious Diseases Society of America Guidelines
  – https://www.idsociety.org/Organ_System/

• CDC Get Smart Know When Antibiotics Work: Adult Treatment Recommendations

• Society for Healthcare Epidemiology of America Position paper: Antimicrobial use in LTCF
  – https://www.shea-online.org/images/guidelines/Abx-LTCF96.PDF
Barriers to Antibiotic Stewardship

- Knowledge deficits
- Offsite physicians
- Inadequate communication
- Inaccurate assessment and diagnosis
- No formal policies, procedures, protocols
- Unclear commitment or accountability
- Lack of tracking and monitoring
- Lack of QAPI follow-up

(Crnich)

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Factors Influencing Practice

- Belief that:
  - risk of antibiotics outweighs indiscriminate use
  - appropriate antibiotic use is the expected standard of care
  - resources are available to practice good stewardship

- Providers, clinicians, administrators

- Residents and families
Education

• Provide educational resources and materials about antibiotic resistance

• Patient Safety Authority, Centers for Disease Control, AHRQ

• Clinicians
  – Physicians, nurse practitioners, pharmacists

• Nursing staff
  – RNs, LPNs, CNAs

• Residents and families

(CDC Get Smart, Bradley, CDC Core Elements, AHRQ toolkit)
Communication: SBAR

• Situation, background, assessment, request form
  – Clinical evaluation
  – Indwelling devices
  – Co-morbidities, medications
  – Signs and symptoms
  – Rule out HAI
  – Order request

(Source: AHRQ Toolkit)
Standardize Communication

• HAI specific, (e.g., suspected UTI)

• Evaluation options
  – Symptoms and lab testing - does it meet criteria
  – Change urinary catheter prior to culture if in >14 days
  – Mixed non-specific signs and symptoms
  – Watchful waiting- symptomatic treatment

• Management options
  – Send culture if symptomatic
  – Start empiric treatment for severe symptoms
  – Re-evaluate in 48 hours
    • Check culture results and organism sensitivities
    • Continue, adjust or stop empiric antibiotic selection
What is Watchful Waiting?

Good news! Your healthcare professional believes your illness will likely resolve on its own.

You should watch and wait for ___ days/hours before deciding whether to take an antibiotic.

In the meantime, follow your healthcare professional’s recommendations to help you feel better and continue to monitor your own symptoms over the next few days.

- Rest
- Drink extra water and fluids
- Use cool mist vaporizer or saline nasal spray to relieve congestion
- For sore throats in older children and adults, try ice chips, sore throat spray, or lozenges
- Use honey to relieve cough. Do not give honey to an infant less than 1 year of age.

If you feel better, no further action is necessary — you don’t need antibiotics.

If you do not feel better, experience new symptoms, or you have other concerns, call your healthcare professional to discuss if you need a recheck or if you need antibiotics, which may be prescribed over the phone.

It may not be convenient to visit your healthcare professional multiple times, but it is critical to make the right choice. Antibiotics can cause side effects like a skin rash, diarrhea, a yeast infection, or worse.

Antibiotics can also make future bacterial infections stronger and harder to treat. You can protect yourself and others by learning when antibiotics are and aren’t needed.

CDC - Diagnosis and Treatment

• Use established criteria for infection diagnosis
  – Target empiric therapy to likely pathogens
  – Target definitive therapy to known pathogens
  – Obtain appropriate cultures and interpret results with care
  – Consider *C. difficile* in patients with diarrhea and antibiotic exposure

(CDC Campaign)
CDC-Use Antimicrobials Wisely

- Stop antimicrobial treatment
  - When cultures are negative
  - When infection is unlikely
  - When infection has resolved

Source: AHRQ Nursing Home Antimicrobial Stewardship Guide
CDC - Use Antimicrobials Wisely

• Treat infection not colonization or contamination
  – Perform proper antisepsis with culture collection
  – Re-evaluate the need for continued therapy after 48-72 hours
  – Do not treat asymptomatic bacteriuria
CDC - Use Antimicrobials Wisely

• Know when to say “NO”
  – Minimize use of broad-spectrum antibiotics
  – Avoid chronic or long-term antimicrobial prophylaxis
  – Develop a system to monitor antibiotic use
  – Provide feedback to appropriate personnel

(CDC Campaign)
Leadership Commitment

• Distribute written statement of expectations
  – Include antibiotic stewardship duties in job descriptions
• Monitor and enforce antibiotic stewardship policies
• Quality assurance meeting agenda
  – Antibiotic use and resistance data
• Promote stewardship culture
  – Messaging
  – Education
  – Celebration of improvement

(CDC Core elements)

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Action- Policies

• Require prescribers to document dose, duration, and indication for all antibiotic prescriptions

• Develop facility-specific algorithm for assessing residents

• Develop facility-specific algorithms for appropriate diagnostic testing

• Develop facility-specific treatment recommendations for infections

(CDC Core elements)
Accountability

• Identify, empower, and support antibiotic stewardship leaders and activities
  – Medical director
  – Director or assistant director of nursing services
  – Consultant pharmacist

• Utilize existing resources
  – Infection Prevention Designee
  – Consultant Laboratory
  – State and Local Health Department
  – Pennsylvania Patient Safety Authority

(CDC Core elements)

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Monitor Outcomes

• Monitor Rates of Adverse events
  – Antibiotic-resistant organisms
  – Diarrhea, *C. difficile* infection
  – Allergic reactions
  – Drug toxicity

• Monitor costs

(CDC Core Elements)
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Actions - Pharmacist

- Review antibiotic courses for appropriateness of administration and/or indication
- Establish standards for clinical/laboratory monitoring for adverse drug events from antibiotic use
- Review microbiology culture data to assess and guide antibiotic selection
- Partner with antibiotic stewardship leaders at local hospitals

(CDC Core Elements)
Reporting

• Report facility antibiotic susceptibility patterns
• Personalize feedback on antibiotic prescribing practices clinical providers
• Use the Pennsylvania Patient Safety Authority Reporting System (PA-PSRS) analytic tools
• Use the CDC National Healthcare Safety Network (NHSN) MDRO module
PA-PSRS Analytics

Denominator Type

<table>
<thead>
<tr>
<th>Denominator Type</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
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<tbody>
<tr>
<td>Aggregate Urinary Catheter Related MDRO Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary Catheter Days</td>
<td>1168</td>
<td>984</td>
<td>1099</td>
<td>1015</td>
<td>1102</td>
</tr>
<tr>
<td>Total Infections</td>
<td>27</td>
<td>13</td>
<td>8</td>
<td>14</td>
<td>15</td>
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<tr>
<td>MDRO Infections</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>MDRO Infection Rate</td>
<td>0.00</td>
<td>1.02</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Proportion of MDRO Infections %</td>
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<td>7.69</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CRE Infections</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CRE Infection Rate</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

MDRO Infection Rate For Urinary Tract (Device) Infections by Month

Analyzing, Educating and Collaborating for Patient Safety

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### Laboratory-Identified MDRO or CDI Event for LTCF

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility ID</td>
<td></td>
</tr>
<tr>
<td>Resident ID</td>
<td>Event #</td>
</tr>
<tr>
<td>Medicare number (or comparable railroad insurance number)</td>
<td></td>
</tr>
<tr>
<td>Resident Name, Last, First, Middle</td>
<td></td>
</tr>
<tr>
<td>Gender: M F Other</td>
<td>Date of Birth: <strong>/</strong>/____</td>
</tr>
<tr>
<td>Ethnicity (specify)</td>
<td>Race (specify)</td>
</tr>
<tr>
<td>Resident type: Short-stay</td>
<td></td>
</tr>
<tr>
<td>Date of First Admission to Facility: <strong>/</strong>/____</td>
<td>Date of Current Admission to Facility: <strong>/</strong>/____</td>
</tr>
<tr>
<td>Event Details</td>
<td></td>
</tr>
<tr>
<td>Event Type: LabID</td>
<td></td>
</tr>
<tr>
<td>Date Specimen Collected: <strong>/</strong>/____</td>
<td></td>
</tr>
<tr>
<td>Specific Organism Type: (check one)</td>
<td></td>
</tr>
<tr>
<td>- MRSA</td>
<td></td>
</tr>
<tr>
<td>- MSSA</td>
<td></td>
</tr>
<tr>
<td>- VRE</td>
<td></td>
</tr>
<tr>
<td>- C. difficile</td>
<td></td>
</tr>
<tr>
<td>- CepH-R. Klebsiella</td>
<td></td>
</tr>
<tr>
<td>- CRE-E. coli</td>
<td></td>
</tr>
<tr>
<td>- CRE-Enterobacter</td>
<td></td>
</tr>
<tr>
<td>- CRE-Klebsiella</td>
<td></td>
</tr>
<tr>
<td>- MDR-Acinetobacter</td>
<td></td>
</tr>
<tr>
<td>Specimen Body Site/System:</td>
<td></td>
</tr>
<tr>
<td>Specimen Source:</td>
<td></td>
</tr>
<tr>
<td>Resident Care Location:</td>
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</tr>
<tr>
<td>Primary Resident Service Type: (check one)</td>
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</tr>
<tr>
<td>- Long-term general nursing</td>
<td></td>
</tr>
<tr>
<td>- Long-term dementia</td>
<td></td>
</tr>
<tr>
<td>- Long-term psychiatric</td>
<td></td>
</tr>
<tr>
<td>- Skilled nursing/Short-term rehab (subacute)</td>
<td></td>
</tr>
<tr>
<td>- Ventilator</td>
<td></td>
</tr>
<tr>
<td>- Bariatric</td>
<td></td>
</tr>
<tr>
<td>- Hospice/Palliative</td>
<td></td>
</tr>
<tr>
<td>Has resident been transferred from an acute care facility in the past 3 months? Yes/No</td>
<td></td>
</tr>
<tr>
<td>If Yes, date of last transfer from acute care to your facility: <strong>/</strong>/____</td>
<td></td>
</tr>
<tr>
<td>If yes, was the resident on antibiotic therapy for this specific organism type at the time of transfer to your facility? Yes/No</td>
<td></td>
</tr>
<tr>
<td>Custom Fields</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td></td>
</tr>
<tr>
<td>Date: <strong>/</strong>/____</td>
<td></td>
</tr>
</tbody>
</table>

(Source: NHSN)

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Case Study

A 75 year old female with history of a CVA was sent to the emergency room with symptoms of hypotension, weakness and confusion. She was sent back to the LTCF the same day with a diagnosis of hypotension and UTI on Cipro 500 mg. od x 14 days.

1. What can you do to evaluate if this is a true UTI?

2. What information is necessary to determine if Cipro is the right drug?

3. What talking points are important when you call for approval of an antibiotic on re-admission orders?
Antibiotic Stewardship in Hospitals and Long-Term Care Facilities: Building an Effective Program

Sharon Bradley, RN, CIC
Senior Infection Prevention Analyst
Pennsylvania Patient Safety Authority

ABSTRACT

Inappropriate antibiotic use, which includes prescribing drugs that are unnecessary, no longer necessary, or incorrectly dosed or using broad-spectrum agents when narrow-spectrum agents are appropriate for susceptible bacteria, is a national patient safety and public health concern. This practice perpetuates and exacerbates antibiotic resistance and contributes to conditions such as Clostridium difficile-associated diarrhea, as well as adverse drug effects and increased morbidity and mortality. According to the Centers for Disease Control and Prevention, as much as 50% of all antibiotics prescribed in acute care hospitals in the United States are unnecessary or inappropriate. In long-term care facilities, 49% to 62% of prescriptions are estimated to meet appropriate diagnostic criteria. Control of multidrug-resistant organisms in healthcare facilities requires attention to judicious antibiotic use through adoption of an antibiotic stewardship program.

Results of Pennsylvania Patient Safety Authority surveys of Pennsylvania acute care hospitals and long-term care facilities include opportunities for improvement in all facets of antibiotic stewardship and indicate facility interest in learning more about antibiotic stewardship and participating in a statewide or regional collaboration to support antibiotic stewardship programs. This article outlines strategies for identifying existing gaps in antibiotic stewardship programs and presents strategies for instituting or enhancing antibiotic stewardship programs in acute and long-term care facilities.
Thank You – Questions?

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sbradley@ecri.org
References

• Adkins S, Bradley S, Finley E. Strategies to turn the tide against inappropriate antibiotic utilization. Pa patient Saf Advis (online) 2015 Dec


Centers for Disease Control and Prevention.

- CDC Recommends all nursing homes implement core elements to improve antibiotic use. [CDC Newsroom](http://www.cdc.gov/media/images/releases/2015/p0915-nursing-home-antibiotics.pdf)
- Medication Safety Program: Adverse Drug Events from Antibiotics [https://www.cdc.gov/medicationsafety/program_focus_activities.html](https://www.cdc.gov/medicationsafety/program_focus_activities.html)
- Get Smart: know when antibiotics work [http://www.cdc.gov/getsmtart/community/about/antibiotic-resistance-faqs.html](http://www.cdc.gov/getsmtart/community/about/antibiotic-resistance-faqs.html)
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- Society for Healthcare Epidemiology of America, Infectious Diseases Society of America, Pediatric Infectious Diseases Society. Policy statement on antimicrobial stewardship by the Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), and the Pediatric Infectious Diseases Society (PIDS) [online]. 2012 Apr [cited 2015 Sep 1]. https://www.shea-online.org/View/smid/428/ArticleID/141.aspx