SA20- Antibiotic Stewardship, Infection Prevention and Control: Three Perspectives on the Reform of Requirements from the Centers for Medicare & Medicaid Services

Saturday, March 24
4:00 PM- 5:30 PM

Session Description

The Center for Medicare & Medicaid Services (CMS) issued a comprehensive reform of the requirement for LTC facilities to participate in Medicare and Medicaid programs. This session will review the changes relevant to infection prevention and control and antibiotic stewardship, from the perspectives of an infection preventionist, a consultant pharmacist, and an infectious disease physician.

Learning Objectives

Discuss the infection preventionist's role and responsibilities indicated in the 2016 Reform of Requirements of Participation.

Review the pharmacy services and the consultant pharmacists' expanded role in infection prevention and control and antibiotic stewardship programs.

Describe basic components of an antibiotic stewardship program, including an antibiotic stewardship policy and antibiotic use protocols appropriate for PA/LTC settings.

Presenter(s): Robin Jump, MD, PhD; Joseph Marek, RPh, CGP; Deborah Burdsall, PhD, RN

Presenter(s) Disclosures: All speakers have reported they have no relevant financial relationships to disclose.
Antibiotic Stewardship Policy & Protocols

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Speaker Disclosures

- No direct conflicts of interest.
- Dr. Jump has research support from Steris and Pfizer. She has previously consulted for Pfizer and Merck.

The opinions presented herein are my own and do not represent those of the Veterans Affairs system or the federal government.

Learning Objectives

By the end of the session, participants will be able to:

- Review the Center for Medicare & Medicaid Conditions of Participation for an antibiotic stewardship program in long-term care facilities (LTCFs).
- Discuss successful antibiotic stewardship interventions in LTCFs.
- Describe strategies for implementing antibiotic stewardship in LTCFs.

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185 pages; search for specific terms using Ctrl-F or ⌘-F

§ 483.80 Infection control.

The facility must establish and maintain an infection prevention and control program designed to provide a safe, sanitary, and comfortable environment and to help prevent the development and transmission of communicable diseases and infections.

(3) An antibiotic stewardship program that includes antibiotic use protocols and a system to monitor antibiotic use.

CMS Manual System

State Operations Manual
Pub. 100-07 State Operations Provider Certification

Effective November 28, 2017

State Operations Manual
Appendix PP - Guidance to Surveyors for Long Term Care Facilities
Table of Contents
CDC’s Core Elements (page 657)
- Leadership commitment
- Accountability
- Drug expertise
- Action
- Tracking
- Reporting
- Education

Protocols Must Monitor Use... (page 658)
Incorporate monitoring of antibiotic use, including the frequency of monitoring/review.
Review when the resident is
- new to the facility
- returns or is transferred from a hospital or other facility
- during each monthly medication review

Protocols Must Also... (page 658)
- Assess residents for any infection using standardized tools and criteria
- Contain a system of reports related to monitoring antibiotic usage and resistance data.
- Educate prescribing practitioners and nursing staff on antibiotic use (stewardship) and the facility’s antibiotic use protocols.
  Record how it’s done (verbal, online etc.)
  Record how often

Protocols Must Give Feedback... (page 658)
Give feedback to prescribing practitioners regarding
- antibiotic resistance data
- their antibiotic use and
- their compliance with facility antibiotic use protocols

Record how and when feedback is given

Investigative Summary... (page 659)
Do protocols address antibiotic prescribing practices?
- Documentation of the indication, dose, and duration of the antibiotic
- Review of laboratory reports to determine if the antibiotic is indicated or needs to be adjusted;
- An infection assessment tool or management algorithm is used when prescribing
Is there a system to monitor antibiotic use (i.e., antibiotic use reports, antibiotic resistance reports)?

Examples of Deficiencies... (page 659-60)
Immediate Jeopardy:
- Results of microbiological culture (indicating resistant bacteria) not communicated to practitioner; antibiotic not changed; resident hospitalized for complications

Actual Harm:
- No protocols or monitoring system. 2 residents on antibiotics without appropriate indication. Both developed C. difficile infection.
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Review of Antimicrobial Stewardship in LTCFs

• 20 studies with quantitative outcomes
  • 5 randomized controlled trials
  • 15 quasi-experimental analyses
  • Quality: 11 good, 7 fair, 2 poor
• 14 with measurable changes
  • Reduced antibiotic starts
  • Reduced total antimicrobial use
  • Increased adherence to guidelines
  • Reduce incidence of C. difficile infection and rates of drug-resistant bacteria

Work System

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools &amp; Technology</td>
<td>Objects that individuals use to carry out their work</td>
<td>Alert on an electronic health record</td>
</tr>
<tr>
<td></td>
<td>Pocket card with antibiotic prescribing guidelines</td>
<td></td>
</tr>
<tr>
<td>Tasks</td>
<td>Specific actions within a larger work process</td>
<td>Act of administering a medication</td>
</tr>
<tr>
<td></td>
<td>Daily checklist of antibiotic monitoring criteria</td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>Culture</td>
<td>Incentive program for following antibiotic prescribing guidelines</td>
</tr>
<tr>
<td></td>
<td>Communication between individuals.</td>
<td>Support from stakeholders for promotion of antibiotic stewardship program</td>
</tr>
<tr>
<td>Person(s)</td>
<td>Characteristics of people within the work system</td>
<td>Knowledge, expertise or training of nursing home staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outside consultants</td>
</tr>
<tr>
<td>Environment</td>
<td>Physical internal or external environment</td>
<td>Placing commitment posters in a high traffic work area</td>
</tr>
</tbody>
</table>

Two Additional Components

• Involvement of Nurses (14 studies)
• Structured Education (16 studies)
• Primary intervention for 7 studies

• Sustained Changes
  • Compared local policy to published guidelines
  • Individualized feedback to providers
  • Focus on UTIs (vs. asymptomatic bacteriuria)

So what works?

Organization: Integrate change into the workflow
  • Nurses—pre-prescription
  • Prescribers—post-prescriptive; communication via electronic medical record

Persons: Involve professionals with infectious disease expertise
Intervention for Catheter-Associated Asymptomatic Bacteriuria

Intervention site: 5 acute care and 5 CLC units at a VA medical center
Control site: 3 acute and 2 CLC units
On CLC wards, targeted nurses and prescribers
Case-based audit and feedback and interactive slides. Control site given didactic slides and emailed guidelines

Outcomes for CLC residents

<table>
<thead>
<tr>
<th>Outcomes for CLC residents</th>
<th>Baseline (n = 208)</th>
<th>Intervention (n = 36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases of ASB, n (%)</td>
<td>135 (65%)</td>
<td>25 (70%)</td>
</tr>
<tr>
<td>Cases of CAUTI, n (%)</td>
<td>73 (35%)</td>
<td>11 (31%)</td>
</tr>
<tr>
<td>Overtreatment of ASB</td>
<td>70/135 (52%)</td>
<td>5/25 (20%)</td>
</tr>
<tr>
<td>Undertreatment of CAUTI</td>
<td>9/73 (12%)</td>
<td>2/11 (18%)</td>
</tr>
</tbody>
</table>

Infectious Disease Expertise: Rounds by a Consultant

- Weekly rounds by an Infectious Disease physician and NP at a VA Community Living Center (CLC)
- Communication in-person and formal recommendations, orders left in electronic medical record
- Total antibiotic use decreased by 30%
- Decreased rate of positive C. difficile tests

Infectious Disease Expertise: Chart Review

Beaulac et al. ICHE 2016 37(4): 433-9
- ID physicians & pharmacists reviewed daily pharmacy reports
- Accessed electronic medical records
- Recommendations to providers via email
- Decrease in antibiotic use and CDI rates

Pate et al. ICHE 2012 33(4): 405-8
- Physician and pharmacist reviewed charts weekly. Non-binding recommendations placed in chart; not permanent part of record.
- 21% reduction in antibiotic use

Learning Objectives

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- Discuss successful antibiotic stewardship interventions in LTCFs.
- Describe strategies for implementing antibiotic stewardship in LTCFs
Focus on common infections and
- Diagnostic criteria
- Appropriate antibiotic choices
- Length of therapy

Use standardized assessment criteria
Consider adapting from the Loeb Minimum Criteria, revised McGeer Criteria or from the AHRQ website

**Antibiotic Use Protocols**

**Measure Antibiotic Use**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Therapy (DOT): Any dose of antibiotic given on a single day per 100 (or 1000) resident days</td>
<td>Estimates total burden of antibiotic use. Tracks changes in overall use.</td>
<td>Does not measure length of treatment. Labor intensive.</td>
</tr>
<tr>
<td>Defined Daily Dose (DDD): Standardized doses of antibiotics per 100 (or 1000) resident days</td>
<td>World Health Organization standardized measures of antibiotics</td>
<td>Does not account for dose adjustments made based on age, creatinine clearance.</td>
</tr>
<tr>
<td>Antibiotic Starts: Number of new antibiotic prescriptions per month or per 100 (or 1000) resident days</td>
<td>Measures frequency of prescribing. Tracks changes in starts.</td>
<td>Does not measure total antibiotic burden or length of treatment.</td>
</tr>
<tr>
<td>Number of antibiotic prescriptions for duration &gt;7 days per month</td>
<td>Tracks efforts to reduce excessive length of prescriptions.</td>
<td>Does not measure the frequency of overall antibiotic prescriptions.</td>
</tr>
</tbody>
</table>

**Monitor Antibiotic Use and Resistance**

Leverage the Data

**Collect & Analyze**

- Compliance with Antibiotic Use Protocols
- Measure Antibiotic Use
- Monitor Antibiotic Use and Resistance

**Share**

- Feedback to Individuals
- Feedback to Whole Facility
- Education

**Example of Individualized Feedback**

- Antibiotic prescription with dose, duration & indication

  - Facility: 27 of 42 (64%)
  - Dr. A: 8 of 8 (100%)

- Urine culture ordered for residents indication of UTI

  - Facility: 16 of 20 (80%)
  - Dr. A: 2 of 4 (50%)

- Dr. A, Sign and Date: _______________
  - Medical Director, Sign and Date: _______________

**Feedback**

Written reports to all staff:
- Overall antibiotic use
- Compliance with protocols
- Surveillance data for drug-resistant bacteria and for C. difficile

Written reports to individual providers:
- Provider’s antibiotic use
- Provider’s compliance with antibiotic use protocols
- Written acknowledgement of feedback

Dr. JUMP. JAMDA. 2017 18(11): 913-920
Education
Antibiotic Stewardship
- To all staff, at least annually
  - Document mode & frequency
- To residents (and family members)

Antibiotic Use Protocols
- To all prescribers, medical & nursing staff
  - Document mode & frequency

There's help...
• Template of an Antibiotic Stewardship Policy
• Crosswalk between the policy and specific elements in the Interpretive Guidance Document
• List of (Free) Resources to help support your efforts

Antibiotic Stewardship Haiku
Do those bugs need drugs?
Antibiotic stewardship:
Only when needed

Thank you!
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