Antibiotic Stewardship and Critical Access Hospitals

Robert White, BA, PT, CPHQ
Program Manager
TMF Quality Innovation Network
Antibiotic-Resistant Bacteria
A serious threat to public health and the economy

In the U.S. each year:

2+ Million Americans develop antibiotic-resistant infections.

23,000 people die

$20 billion in added health care costs

262.5 million antibiotics are prescribed in outpatient settings each year.

That’s 5 prescriptions for every 6 people in the U.S.

Up to 50% are unnecessary.

Without intervention, antibiotics will become less effective or not work at all.
Leading Health Threat

The Centers for Disease Control and Prevention (CDC) has named antibiotic resistance one of the top five health threats in the U.S. and is a national priority for federal, state, academic, public and private entities.
47 million unnecessary antibiotic prescriptions are written each year.

Find out when antibiotics are necessary. Visit: http://www.cdc.gov/getsmtart

Antibiotic Stewardship (ABS)

- A set of coordinated interventions to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy and route of administration

- Right drug, right dose, right time, right duration
ABS, cont.

“[Antibiotic] 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.”
Need for ABS

Growing evidence suggests ABS programs:

- decrease unnecessary antibiotic exposure
- slow the development and spread of antibiotic resistance
- improve patient outcomes
- save health care dollars
National Estimate of U.S. Hospital Antibiotic Use

Use varied between ICU and non-ICU locations:

- 1,092 days of therapy (DOT)/1,000 PD vs. 720 DOT/1,000 PD
- Use of some classes went down: Quinolones (20 percent), first generation cephalosporins (7 percent)

Use of many classes went up:

- Vancomycin (32 percent), beta-lactam/inhibitor (26 percent)
- Third-/fourth-generation cephalosporins (12 percent)
- Biggest increase in carbapenem use: 37 percent
Antimicrobial Stewardship Programs – Moving Toward a National Mandate

- In 2016, the Centers for Medicare & Medicaid Services published updated Conditions of Participation (CoP) for Medicare participating providers
- This update includes direction for acute care and critical access hospitals to implement antimicrobial stewardship programs in their organizations
- A specific date for implementation of this pending requirement has not yet been published, although the National Action Plan refers to a probable start date by 2018
Within the updated CoP:

- CMS discusses the rationale and requirements for implementing antimicrobial stewardship activities.
- Antimicrobial stewardship is referenced in discussion of the infection-control and prevention requirements.
- The document emphasizes that, although infection control/prevention should be developed independently, both can be utilized together toward common goals.
- The CoP update does not outline specific criteria, but encourages institutions to develop and implement an ABS program based on national guidelines.

  - The national guidelines referenced, include: recommendations by the Centers for Disease Control and Prevention (CDC), the Infectious Diseases Society of America, the Society for Healthcare Epidemiology of America, and the American Society of Health System Pharmacists.
Medicare CoP and Antibiotic Stewardship

Although general descriptions within the CoP are quite broad, certain specific requirements are mentioned, including:

- Developing antimicrobial stewardship policies and procedures and promoting evidence-based antimicrobial use
- Demonstrating an active antimicrobial stewardship program, which is implemented hospitalwide
- Improving coordination of antimicrobial use, among all of the organization’s stakeholders
- Reducing adverse effects associated with antimicrobial use, with specific focus on *C. difficile* infection and antibiotic resistance
Organizational priority

- ABS program multidisciplinary team – acceptable members include part-time or consultant staff or telehealth staff
- CDC core elements
- Use organization-approved multidisciplinary protocols, policies and procedures
The Joint Commission ABS Requirement – Key Elements

- Include CDC core elements and use multidisciplinary protocols
- Create a multidisciplinary ABS team that includes an infectious disease physician, infection preventionist, pharmacist and practitioner
- Establish an ABS program, make it an organizational priority and provide necessary resources
- Appoint a leader to be responsible for program outcomes.
- Collect and analyze ABS data
- Track antibiotic resistance and antibiotic prescribing patterns
The Joint Commission ABS Requirement – Key Elements, cont.

- Report metrics monitored to relevant health care providers
- Act on improvement opportunities identified in the ABS program
- Educate patients and their families, as needed, on the appropriate use of antimicrobial medications including antibiotics
- Educate staff and licensed independent practitioners involved in antimicrobial ordering, dispensing, administration and monitoring about antimicrobial resistance and antimicrobial stewardship practices
ABS at the State Level – Missouri SB 579

“This act provides that no later than Aug. 28, 2017, each hospital and ambulatory surgical center, excluding mental health facilities, shall establish an antibiotic stewardship program for evaluating the judicious use of antibiotics, especially antibiotics that are the last line of defense against resistant infections. The stewardship program procedures shall be made available to the Department upon inspection. Hospitals shall meet specified national standards for reporting antimicrobial usage or resistance and shall authorize the National HealthCare Safety Network, or its successor, to disclose to the Department facility-specific reported data. Such data shall not be disclosed to the public except under specific circumstances. Beginning January 1, 2018, and every year thereafter, the Department shall report the General Assembly on the incidence, type, and distribution of antimicrobial-resistant infections in the state.”
Missouri SB 579, cont.

- When Federal Stage 3 “meaningful use” regulations take effect, hospitals and ambulatory surgical centers will report through the NHSN Antimicrobial Use (AU) and Resistance Module.

- Hospitals can learn more about establishing an effective antibiotic stewardship program by reviewing resources from the Centers for Disease Control and Prevention.
Tracking Antibiotic Use –
The NHSN AU Option

The CDC’s National Healthcare Safety Network (NHSN) Antibiotic Use (AU) Module option is the centerpiece of CDC’s measurement approach for hospitals

- Captures electronic data on antibiotics administered and patient days
- Reporting to NHSN AU will be incentivized by Meaningful Use Stage 3
Standard Antibiotic Administration Ratio (SAAR)

- CDC’s first attempt at developing a risk-adjusted benchmarking measure for hospital antibiotic use
- SAAR expresses observed antibiotic use compared to predicted use
- CDC working with many partners to develop the SAAR measure to try and make it most useful for stewardship
CDC Core Elements for Hospital ABS

- Leadership commitment: Dedicating necessary human, financial and information technology resources.
- Accountability: Appointing a single leader responsible for program outcomes. Experience with successful programs show that a physician leader is effective.
- Drug Expertise: Appointing a single pharmacist leader responsible for working to improve antibiotic use.
- Action: Implementing at least one recommended action, such as systemic evaluation of ongoing treatment need after a set period of initial treatment (e.g., “antibiotic time out” after 48 hours).
CDC Core Elements for Hospital ABS, cont.

- Tracking: Monitoring antibiotic prescribing and resistance patterns.
- Reporting: Regular reporting information on antibiotic use and resistance to doctors, nurses and relevant staff.
- Education: Educating clinicians about resistance and optimal prescribing.
CDC Core Elements for Outpatient ABS

- **Commitment:** Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.

- **Action for policy and practice:** Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working and modify as needed.

- **Tracking and Reporting:** Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves.

- **Education and expertise:** Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.
Implementing ABS Core Elements at Small and Critical Access Hospitals

Core Elements 1 & 2: Leadership Commitment, Accountability

“Leadership commitment by hospital executives and board trustees in small and Critical Access Hospitals is important to ensuring allocation of the necessary resources to support antibiotic stewardship programs. Obtaining leadership commitment from the chief medical officer (CMO), pharmacy director, and nursing leaders can facilitate physician, pharmacist, infection preventionist, and nurse engagement to implement stewardship initiatives to create a strong and sustainable program.”
Core Element 3: Drug Expertise

“In most Critical Access Hospitals, a pharmacist, usually one who is on-site, provides the leadership and expertise for the antibiotic stewardship program. When possible, having a physician leader is helpful to support the pharmacist. Leaders of stewardship programs can expand their knowledge and experience through a variety of educational programs and through participation in multi-hospital stewardship collaboratives. External expertise via remote or on-site consultation has also been helpful in some Critical Access Hospitals.”
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 4: Action

- “There are a number of evidenced-based interventions that can improve antibiotic use. Decisions on which one(s) to implement should be based on local needs, which are best determined through discussions with providers and review of local information on antibiotic use.”

- “The majority of all antibiotic use in hospitals is driven by just three conditions: community-acquired pneumonia (CAP), urinary tract infections (UTIs) and skin and soft tissue infections (SSTIs). Studies have demonstrated a number of interventions to improve antibiotic use for each of these and hence these are often high-yield targets for improvement.”
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 4: Action, cont.

- “There are also key stewardship actions that can be implemented by other team members in small and Critical Access Hospitals. Indeed, experts working on stewardship in these hospitals emphasize the value of a team-based approach.”

Pharmacist:

- Review antibiotics for unnecessary duplicative antibiotic therapy
- Review for opportunities for intravenous to oral conversion
- Monitor for medication safety, though these represent general pharmacy practices and are not specific to stewardship
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 4: Action, cont.

Nurse:

› Review culture techniques to ensure microbiology cultures are collected properly.
› Review culture results with the treating clinician and pharmacist.
› Monitor response to antibiotic therapy with feedback to the treating clinician and pharmacist.
› Assess oral intake and clinical status to alert providers and pharmacist when there are opportunities to convert antibiotics from intravenous to oral therapy.
› Educate patients about potential adverse events associated with antibiotics, especially *C. difficile* infection.
› Nurses are also well positioned to initiate “antibiotic time-outs” with the treating clinician and pharmacist, and review antibiotic therapy after 48 hours of treatment.
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 5: Tracking

“Data are essential for informing and assessing stewardship actions.” “The ultimate key is to have a measure that is useful for stewardship activities, meaningful to providers and that can be tracked over time to assess improvements.”

- Days of therapy is considered the most useful measure of antibiotic use to inform stewardship efforts. Electronically capture, analyze and benchmark days of therapy through the CDC’s NHSN – AU option.
- “Tracking adherence to treatment recommendations and performance of interventions such as antibiotic time-outs can be useful to further guide quality improvement efforts.”
- “Small and Critical Access Hospitals are well-positioned to monitor antibiotic use at the provider level.”
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 5: Tracking, cont.

- Stewardship programs can work with infection control programs to track data on *C. difficile* and antibiotic-resistant infections.

- “Antibiotic expenditures should not be used as a way to track the effectiveness of stewardship efforts as antibiotic expenditures do not always correlate with antibiotic use.”
Core Element 6: Reporting

“The reporting for Critical Access Hospitals should be consistent with the action and tracking components of the antibiotic stewardship program.” “Data on stewardship efforts should be reported not just to providers, but also to the hospital leadership and board. A key to success is to discuss reporting options with stakeholders to determine optimal timing, format and delivery method(s) for the reports.”
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 7: Education

- “The limited number of providers, along with the collaborative nature of many small and Critical Access Hospitals, create some unique advantages for providing individualized education compared to larger hospitals.”

- “The pharmacist and/or physician leader can provide stewardship education to individual providers and pharmacists.”

- “Specific education for nurses could also be very helpful, for example, criteria for intravenous to oral conversion, optimal technique for culture collection, and criteria for when to obtain a urine culture.”
Implementing ABS Core Elements at Small and Critical Access Hospitals, cont.

Core Element 7: Education, cont.

- “Patient and family education can also help drive improvements in antibiotic use and empower patients and families to help monitor for important adverse events.”

Additional resources, information and the Fact Sheet on Antibiotic Use for Hospitalized Patients are available on the CDC website: https://www.cdc.gov/getsmart/healthcare/implementation/core-elements-small-critical.html
Conclusions

- This is an unprecedented and absolutely critical time for antibiotic stewardship.
- It’s always been a good idea. Now it’s a good idea that’s required.
- We need to do it and we need to do it right.
Questions?
About the TMF QIN-QIO

TMF Health Quality Institute has partnered with the Arkansas Foundation for Medical Care, Primaris in Missouri and the Quality Improvement Professional Organization, Inc. in Puerto Rico to form the TMF Quality Innovation Network Quality Improvement Organization (TMF QIN-QIO), under contract with the Centers for Medicare & Medicaid Services. The TMF QIN-QIO works with providers across all care settings to provide quality improvement services in the states of Arkansas, Missouri, Oklahoma and Texas, and the territory of Puerto Rico.
Join the TMF QIN-QIO Website

https://www.TMFQIN.org

- Provides targeted technical assistance and will engage providers and stakeholders in improvement initiatives through numerous Learning and Action Networks (LANs)

- The networks serve as information hubs to monitor data, engage relevant organizations, facilitate learning and sharing of best practices, reduce disparities and elevate the voice of the patient
All Are Welcome

- To join, create a free account at https://www.tmfqin.org. Visit the Networks tab for more information.
- As you complete registration, follow the prompts to choose the network(s) you would like to join.
LANs

Join any of the following TMFQIN.org networks and you can sign up to receive email notifications to stay current on announcements, emerging content, events and discussions in the online forums.

- Antibiotic Stewardship
- Behavioral Health
- Cardiovascular Health and Million Hearts
- Chronic Care Management
- Health for Life – Everyone with Diabetes Counts
- Immunizations
- Medication Safety
- Nursing Home Quality Improvement
- Patient and Family
- Quality Improvement Initiative
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- Readmissions
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Contact Us

TMF Quality Innovation Network

absnetwork@tmf.org

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