Prevention & Antibiotic Stewardship: Progress and Opportunities to Improve Antibiotic Use in Human Health—Hospitals, Outpatient Settings, and Nursing Homes

Centers for Disease Control and Prevention

September 2017 PACCARB Meeting

National Action Plan- Goal 1
Significant Outcomes by 2020 for Antibiotic Use

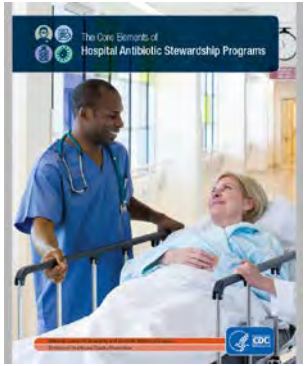
- Establishment of antibiotic stewardship programs in all acute care hospitals and improved antibiotic stewardship across all healthcare settings.
- Reduction of inappropriate antibiotic use by:
  - 50% in outpatient settings
  - 20% in inpatient settings

How Do We Improve Antibiotic Use?

- Programs
  - To ensure systems are in place to optimize use across the spectrum of healthcare
- Practices
  - Specific interventions to improve prescribing
  - Embedding stewardship in other improvement efforts (e.g. sepsis)
- Policies (led by CMS)
  - To incentivize and accelerate adoption

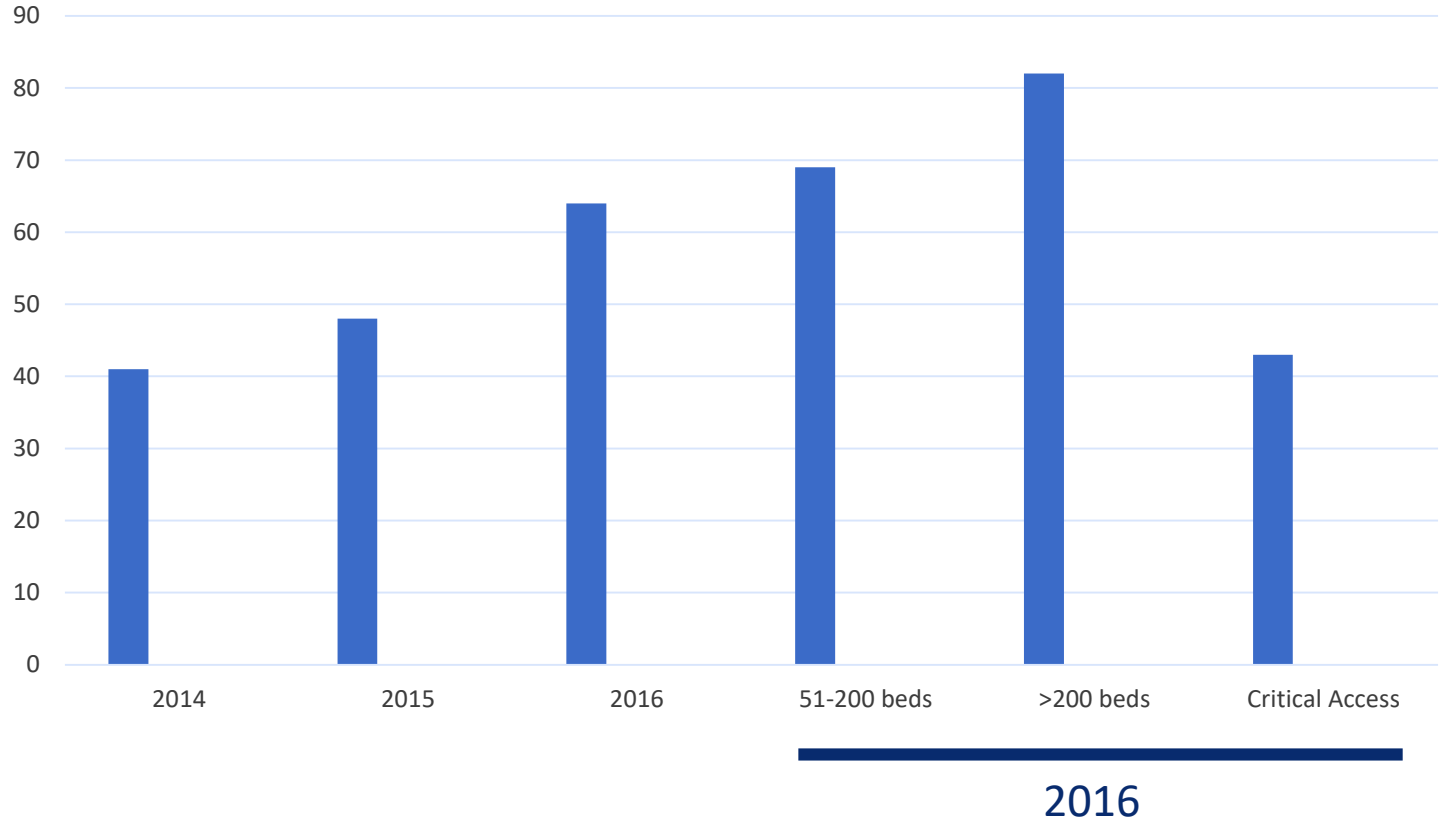
- "Core Elements" to frame programs and systems that will support improvements
  - Implementation tools
- Data for Action
- Partnerships- federal and non-federal
  - State health departments
- Innovation
  - Better ways to implement what works
  - New approaches

Antibiotic Stewardship Programs in Hospitals



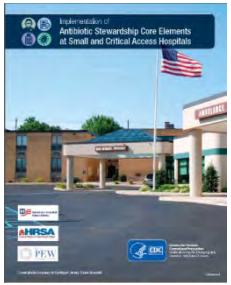
- In 2014, CDC called on all hospitals to implement an antibiotic stewardship program.
- Created the “Core Elements” to outline structures and functions associated with effective programs.
  - Core Elements adopted by The Joint Commission for their antibiotic stewardship standard.
  - HIINs and AHRQ CUSP for Stewardship both using the Core Elements.
- Worked with The National Quality Forum to develop a practical implementation “playbook”
- Assessing implementation through the annual NHSN hospital survey.
- Supporting state implementation- e.g. MO stewardship mandate

Percent of US Hospitals Reporting Implementation of All CDC Core Elements on Annual NHSN Survey



Supporting Stewardship Program Implementation

- CDC partnered with The Pew Charitable Trusts, The American Hospital Association and the Federal Office of Rural Health Policy and experts from many small and critical access hospitals to address this gap.
  - Developed a guidance document specifically on implementing stewardship programs in these settings.



- Federal Office of Rural Health Policy made implementation of the Core Elements a required component of the Medicare Beneficiary Quality Improvement Program and Flex grant program (99% of CAHs participate).
  - CDC providing expertise and data through NHSN annual survey
- New partnerships with intensivists and nurses to expand program reach.
  - CDC and American Nurses Association White Paper
  - Vermont Oxford Network- stewardship in NICUs and newborns

Data for Action: Overall Antibiotic Use in Hospitals

- Top measurement priorities to improve hospital antibiotic use:
  - Electronic system to capture antibiotic use data.
  - Creation of a benchmark measure of antibiotic use.
- CDC launched the National Healthcare Safety Network Antimicrobial Use Option to accomplish these goals.
  - 326 hospitals in 43 states enrolled.
  - Working with large health systems (VA, Healthcare Corporation of America, Ascension Healthcare) to grow enrollment.
  - Working with Anthem Quality Health Insights Program (Q-HIP) to incentivize enrollment.
  - Premier facilitating enrollment for many of its members.
  - Working with partners in MO to implement reporting mandate

Data for Action: Overall Antibiotic Use in Hospitals

- CDC developed the Standardized Antimicrobial Administration Ratio (SAAR) in collaboration with many experts.
  - Work supported by The Pew Charitable Trusts.
- SAAR measure endorsed by The National Quality Forum in 2016 for public health and quality improvement use.
  - Compares observed to predicted use for several groups of antibiotics that are high priority targets for stewardship programs.
- Stewardship programs using the SAAR to find improvement opportunities.
- CDC using data
  - Discussions with hospitals with high SAARs
  - Assessing impact of antibiotic use policies, e.g. CMS Sepsis measure

Next Steps for Hospital Antibiotic Use Data

- Continued work on exploring SAAR risk adjustment
  - Collaboration with Kaiser in California
  - Seeking to further this work through new projects
- Assessing program implementation and the impact on the SAAR measure
  - Duke Antimicrobial Stewardship Outreach Network funded to enroll a group of hospitals in NHSN AU, implement or expand the Core Elements and assess the impact on the SAAR.

Assessing Appropriate Antibiotic Use

- CDC national antibiotic use prevalence survey (2011) and follow up, pilot assessments of appropriate prescribing provided a foundation for methods to assess appropriate use in hospitals
- CDC worked with The Pew Charitable Trusts and stewardship experts to identify key targets to support the goal of reducing inappropriate hospital antibiotic use by 20% by 2020.
  - Two agents: Vancomycin, Quinolones
  - Two infections: Community acquired pneumonia, urinary tract infections
- Appropriateness being assessed through the 2016-17 Emerging Infections Program hospital healthcare associated infections and antibiotic use survey in ~200 hospitals in 10 states.

CDC Data on U.S. Outpatient Antibiotic Use

- Antibiotic prescribing in the outpatient setting has improved (largely driven by improvements in pediatrics), but more work is needed.
  - At least 30 percent of outpatient antibiotics are unnecessary.
  - Urgent care clinics are an important setting for improvement.
- Antibiotic selection needs to be improved.
  - Just over 50% of patients receive first-line therapy for otitis media, pharyngitis, and sinusitis.
  - Adult providers frequently mis-prescribe fluoroquinolones.
- Adverse events are an underappreciated consequence of antibiotic use.
  - 1 in 1000 antibiotic prescriptions leads to an ER visit for an adverse event ~200,000 estimated ER visits/year in United States- *excluding C. diff*
  - Antibiotics are the most common cause of drug-related ER visits in children.

What We Are Working to Address

- Making antibiotic use data available to state partners for local action
- Working with partners to improve antibiotic use in dental offices, retail clinics, and urgent care centers (expanding focus)
- Identifying the best targets (specific antibiotics, patient and provider populations) for implementation
- Guiding improvements by working with partners to implement interventions
  - HICPAC guidance on incorporating stewardship into treatment guidelines (spans all settings)

Outpatient Stewardship Implementation

- CMS Quality Innovation Network and Quality Improvement Organizations (QIN-QIOs) recruiting outpatient facilities to implement CDC's Core Elements.
  - CDC hosting educational webinars to support effective implementation.
- CDC funding University of Utah to implement and evaluate CDC's Core Elements of Outpatient Antibiotic Stewardship

Outpatient Stewardship Implementation

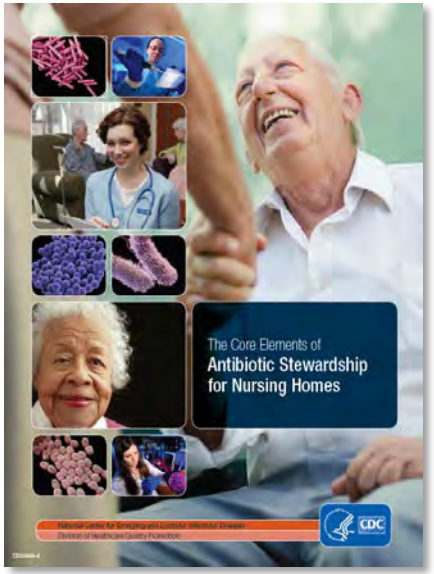
- CMS Merit-Based Incentive Payment System–
  - Several antibiotic use measures are included as options for clinical performance improvement activities (e.g. three current HEDIS measures-pharyngitis testing, avoiding antibiotics for bronchitis and URI).
  - CDC developing an online antibiotic stewardship training course which CMS will provide to clinicians meet improvement activity requirement
- CDC working with National Committee for Quality Assurance to expand antibiotic use HEDIS (Healthcare Effectiveness Data and Information Set) quality measures

Outpatient Stewardship Innovation

- Collaboration with Private Payers and Professional Organizations
  - Aetna audit and feedback intervention: tracking provider prescribing and sending a letter providing feedback to providers (CDC providing subject matter input)
  - Anthem, American Academy of Pediatrics and CDC pilot program
    - Primary care pediatric practices recruited through AAP's Chapter Quality Network (CQN)
    - Anthem providing incentives to providers via Anthem's Enhanced Personal Health Care program to participate in antibiotic stewardship activity
- CDC funding University of Pennsylvania to develop an approach to assess appropriateness of antibiotic use by utilizing electronic health records

We Have Strong Levers to Improve Nursing Home Antibiotic Use, but Know Little about Antibiotic Use

- CDC released Core Elements for Nursing Homes in 2015.
- CMS finalized long term care requirements of participation in October 2016 requiring antibiotic stewardship to become part of infection prevention and control programs and pharmacy services.
  - CDC working with CMS to help develop interpretative guidance
- CMS Quality Innovation Network and Quality Improvement Organizations (QIN-QIOs) recruiting nursing homes to implement CDC's Core Elements.
  - CDC supporting implementation through expert input and tools.

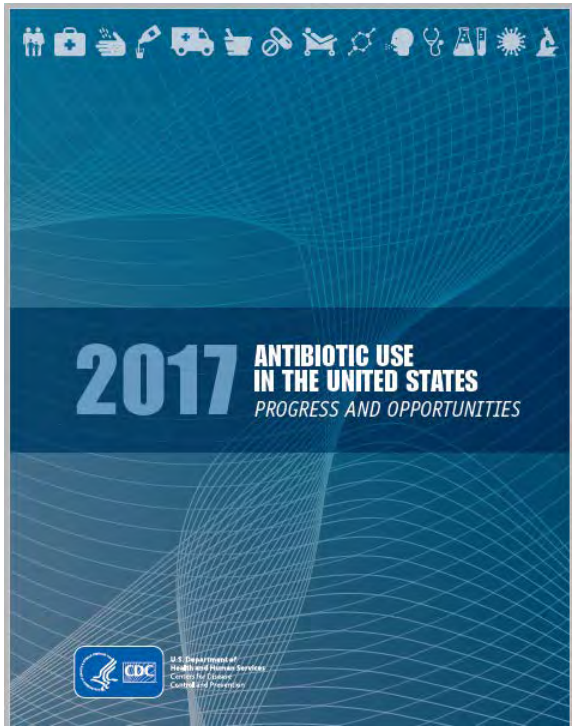


What We Are Working to Address

- Determining the best approaches to implementation
  - Supporting Brown University to assess implementation approaches of the Core Elements for Nursing Homes
- Assessing antibiotic use at the national, state and facility level
  - Analyzing proprietary datasets
  - Conducting a national point prevalence Survey of antibiotic use through a multistate recruitment of 200 NHs within the CDC's Emerging Infections Program underway
- Identifying the best metric(s) to track antibiotic use in nursing homes
  - Working with experts in collaboration with The Pew Charitable Trusts

Improving Education on Antibiotic Use: CDC Antibiotic Stewardship Report

- Summarizes current status of human antibiotic use in the US across the spectrum of care.
  - Audience: patients, providers and policy makers
- Highlights the harms of excess antibiotic use and the benefits of improving.
- Provides examples of improvement opportunities.
- Sets forth key suggestions for various groups: government, providers, patients and families, insurers, health systems and facilities, professional organizations.



Improving Education on Antibiotic Use: Presenting "U.S. Antibiotic Awareness Week" November 13-19, 2017

- Addresses key need to provide information on antibiotic use, especially to patients.
- Aligns with the World Health Organization's World Antibiotic Awareness Week and the European Centre for Disease Prevention and Control's European Antibiotic Awareness Day
- Will feature the launch of new educational effort: Refining messaging and expanding to new target audiences.
  - Focus on patient safety- unnecessary antibiotics cause preventable harm.
  - Increased messaging for adult patients
  - New effort to reach hospitalists, NPs, PAs