EVIDENCE-BASED INTERVENTION: PAYERS

1. Require antibiotic stewardship programs in all hospitals and skilled nursing facilities, in alignment with CDC’s Core Elements of Hospital Antibiotic Stewardship and The Core Elements of Antibiotic Stewardship for Nursing Homes.

2. Improve outpatient antibiotic prescribing by using incentives to providers to encourage them to closely follow CDC’s Core Elements of Outpatient Antibiotic Stewardship. An effective intervention includes audit and feedback (monitoring clinician antibiotic prescribing and providing data to providers on their own antibiotic prescribing practices).

CDC’S CORE ELEMENTS OF ANTIBIOTIC STEWARDSHIP

Antibiotic stewardship is the effort to measure and improve how antibiotics are prescribed by clinicians and used by patients. Improving antibiotic use through antibiotic stewardship can lead to decreased antibiotic resistance and prevent avoidable antibiotic adverse events, such as allergic reactions and Clostridium difficile infections, a sometimes-deadly diarrheal infection. Effective antibiotic stewardship can also help decrease healthcare costs.

In 2014, CDC recommended in the Core Elements of Hospital Antibiotic Stewardship Programs that all acute care hospitals implement antibiotic stewardship programs in response to the urgent need to improve antibiotic use. Since then, CDC has developed Core Elements specific to other settings in The Core Elements of Antibiotic Stewardship for Nursing Homes and Core Elements of Outpatient Antibiotic Stewardship. Additionally, CDC has issued guidance for small and critical access hospitals: Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals. These frameworks complement existing guidelines and standards from key healthcare partner organizations, including the Infectious Diseases Society of America, Society for Healthcare Epidemiology of America, American Society of Health System Pharmacists, and The Joint Commission.

CDC recognizes that there is no “one size fits all” approach to optimize antibiotic use for all settings. The complexity of medical decision-making surrounding antibiotic use and the variability in the size and types of care in U.S. healthcare settings require flexible programs and activities. CDC’s Core Elements of Antibiotic Stewardship offer providers and facilities a set of key principles to guide efforts to improve antibiotic use and, therefore, advance patient safety and improve outcomes.
WHAT IS CDC’S 6|18 INITIATIVE?

The CDC is partnering with health care purchasers, payers, and providers to improve health and control health care costs. CDC provides these partners with rigorous evidence about high-burden health conditions and associated interventions to inform their decisions to have the greatest health and cost impact. This initiative aligns evidence-based preventive practices with emerging value-based payment and delivery models.

KEY HEALTH AND COST INFORMATION FOR PAYERS AND PROVIDERS

PAYERS

HOSPITAL ANTIBIOTIC STEWARDSHIP PROGRAMS

Payers have begun to promote the adoption of hospital antibiotic stewardship programs in alignment with CDC’s Core Elements of Hospital Antibiotic Stewardship Programs. Antibiotic stewardship programs have been shown to improve antibiotic use in hospitals, prevent Clostridium difficile infections, prevent antibiotic resistance, improve patient safety, and save money. For example, the Anthem, Blue Cross (CA): Quality-In-Sights®, Hospital Incentive Program (Q-HIP®), a national hospital quality and value-based payment initiative, ties hospital payments to quality care. One of the Q-HIP® quality care metrics is for hospitals to have antibiotic stewardship programs that comply with CDC’s Core Elements of Hospital Antibiotic Stewardship Programs.

OUTPATIENT ANTIBIOTIC STEWARDSHIP

Payers have promoted appropriate outpatient antibiotic prescribing by providing data to healthcare providers on providers’ own antibiotic prescribing practices compared with their peers, particularly on quality measures related to appropriate outpatient antibiotic prescribing. Quality measures are often used by payers to track health care quality, and measures are available related to the appropriateness of outpatient antibiotic prescribing. For example, the National Committee for Quality Assurance (NCQA) administers the Healthcare Effectiveness Data and Information Set (HEDIS) measures. In 2017, there are three antibiotic-related HEDIS measures: appropriate testing for children with pharyngitis (Quality ID 066), appropriate treatment for children with upper respiratory infections (Quality ID 065), and avoidance of antibiotic treatment in adults with acute bronchitis (Quality ID 116). These and other antibiotic prescribing measures are used in a variety of provider reporting systems for accountability and quality measurement purposes and can be used as part of payment-based initiatives as well. However, not all providers receive feedback on their quality measurement performance. By providing data on antibiotic prescribing practices, payers are helping providers fulfill a key component of CDC’s Core Elements of Outpatient Antibiotic Stewardship.

Payers are also incentivizing providers to participate in appropriate antibiotic prescribing continuing medical education and quality improvement practices that are offered through health professional societies, public health agencies, and other organizations.
FAST FACTS
Antibiotic resistance is a public health threat. Antibiotic resistance impacts modern medicine and undermines health outcomes related to other chronic diseases. Many of these infections occur in healthcare and are preventable. Improving antibiotic use can also help contain this public health threat and ensure antibiotics are available for patients when they are needed.

- At least 2 million illnesses and 23,000 deaths can be attributed each year to antibiotic-resistant infections.4
- Annual excess direct healthcare costs approximate $20 billion and annual costs of lost productivity can be attributed to antibiotic resistant infections.5
- 20-50% of antibiotics prescribed in hospitals may be unnecessary or inappropriate.6
- 40-75% of antibiotics prescribed in nursing homes may be unnecessary or inappropriate.7
- At least 30% of antibiotics prescribed in outpatient settings are unnecessary.8
- Expenditures for antibiotics were $56.0 billion in 2010–15, of which 59% occurred in outpatient settings, 29% occurred in non-federal hospitals, and 12% occurs in long-term care and federal facilities.9
- Viral upper respiratory infections never require antibiotic therapy but lead to more than 3 million avoidable antibiotic prescriptions annually in children in the United States.10, 11
- National guidelines for pharyngitis recommend testing for group A Streptococcus to confirm the diagnosis of streptococcal pharyngitis before treatment with antibiotics.12 An estimated 2 to 3 million antibiotic prescriptions for children per year could be avoided by appropriate testing for group A Streptococcus before antibiotic treatment.13, 14, 15
- Acute uncomplicated bronchitis does not warrant antibiotic therapy.16 However, more than 70% of visits for acute bronchitis in adults aged 20–64 years nationally lead to antibiotic prescriptions17, resulting in 4 million avoidable antibiotic prescriptions in adults annually.18

PROVIDERS
Hospital and nursing home providers have worked with antibiotic stewardship programs to optimize antibiotic use in these healthcare facilities. This can decrease antibiotic resistance and significantly reduce deadly diarrheal infections from Clostridium difficile.

Providers have improved outpatient antibiotic prescribing by implementing CDC’s Core Elements of Outpatient Antibiotic Stewardship within their outpatient practices.

In terms of provider payment considerations related to outpatient antibiotic stewardship, the Merit-based Incentive Payment System (MIPS) contains two areas where participating providers have the option to receive positive performance-based payment adjustments.28 The first area is under Quality Measurement where antibiotic prescribing quality measures are currently weighted as “high-priority measures” under the MIPS payment track, including the following measures related to outpatient antibiotic prescribing:29

- Adult sinusitis: Antibiotic prescribed for acute sinusitis (overuse): Quality ID 332
- Adult Sinusitis: Appropriate choice of antibiotic: amoxicillin with or without clavulanate prescribed for patients with acute bacterial sinusitis (appropriate use): Quality ID 331
- Appropriate testing for children with pharyngitis: Quality ID 066
- Appropriate treatment for children with upper respiratory infection: Quality ID 065
- Avoidance of antibiotic treatment in adults with acute bronchitis: Quality ID 116

The second MIPS payment area is called Improvement Activities, in which clinicians are rewarded for care focused on care coordination, beneficiary engagement, and patient safety. Implementation of an antibiotic stewardship program that measures the appropriate use of antibiotics for several different conditions (upper respiratory infection treatment in children, diagnosis of pharyngitis, and bronchitis treatment in adults) according to clinical guidelines is a type of Improvement Activity that can be considered as an option to increase provider payment.30
OUTPATIENT ANTIBIOTIC PRESCRIBING RATES (AS OF MARCH 2017)

MEDICAID

✓ For adults with acute bronchitis, the avoidance of antibiotic treatment rate in 2014 was 28.5% for Medicaid plans versus a goal of 100%.
✓ For children with pharyngitis, the appropriate testing rate before prescribing antibiotics in 2014 was 69.5% for Medicaid plans versus a goal of 100%.
✓ For children with upper respiratory infections, the appropriate treatment rate (i.e., avoidance of antibiotics) in 2014 was 87.0% for Medicaid plans versus a goal of 100%.31

COMMERCIAL

✓ For adults with acute bronchitis, the overall avoidance of antibiotic treatment rates in 2014 ranged from 25.9 to 27.7% versus a goal of 100%.
✓ For children with pharyngitis, overall appropriate testing rates prior to prescribing antibiotics in 2014 ranged from 80.4 to 82.4% versus a goal of 100%.
✓ For children with upper respiratory infections, overall appropriate treatment rates (i.e., avoidance of antibiotics) in 2014 ranged from 85.3 to 87.1% versus a goal of 100%.32

SUPPORTING HEALTH AND COST EVIDENCE:

SCIENCE BEHIND THE ISSUE

Antibiotics are life-saving medications that treat bacterial infections. Infections with antibiotic-resistant pathogens often require treatment with more toxic and expensive antibiotics since preferred antibiotics may no longer work. These resistant infections lead to more sickness and death. CDC estimates that antibiotic-resistant infections cost more than $20 billion in direct healthcare costs annually in the United States.33 A major driver of antibiotic resistance is antibiotic use, making improving antibiotic use across the spectrum of healthcare a critical public health intervention.

IMPROVE ANTIBIOTIC USE EVIDENCE: HOSPITAL ANTIBIOTIC STEWARDSHIP PROGRAMS

Within a teaching hospital, a pharmacist reviewed records of admitted patients who were prescribed two or more antibiotics to identify redundant antibiotic combinations. This review identified that 70% of the combinations that were investigated were inappropriate. The pharmacist-stewardship intervention was projected to have saved the hospital $10,800 and 584 days of redundant antibiotic combinations.34
Antibiotics are among the most frequently prescribed medications in nursing homes, with up to 70% of residents in a nursing home receiving one or more courses of systemic antibiotics when followed over a year. A study evaluating antibiotic prescribing practices in over 600 nursing homes showed that nearly 50% of antibiotics are given for a longer duration than needed and a relatively small proportion of providers (~20%) account for almost 80% of antibiotic use.25

Simple strategies may have significant impact on improving antibiotic use in nursing homes. If antibiotic courses could be shortened to 7 days for commonly identified and treated infections, the overall antibiotic days in some facilities could be decreased by at least 20%.26 Nursing homes partnering with consulting physicians and pharmacists with infectious disease training can reduce antibiotic use by 30% and experience lower rates of C. difficile.37

In 2014, 266.1 million courses of antibiotics were dispensed to outpatients in U.S. community pharmacies. This equates to more than 5 prescriptions written each year for every 6 people in the United States.38 At least 30% of antibiotics prescribed in the outpatient setting are unnecessary, meaning that no antibiotic was needed at all.39 Total inappropriate antibiotic use, inclusive of unnecessary use and inappropriate selection, dosing and duration, may approach 50% of all outpatient antibiotic use.40, 41, 42

REFERENCES
EVIDENCE SUMMARY: Improve Antibiotic Use


31 National Committee for Quality Assurance. 2015 State of Health Care Quality Table of Contents. Available at National Committee for Quality Assurance. 2015 State of Health Care Quality Table of Contents.


