



DEPARTMENT OF PUBLIC HEALTH
CITY OF CHICAGO

Dear Providers,

We are the Healthcare-Associated Infection / Antimicrobial Resistance (HAI/AR) Unit within the Communicable Disease Program of the Chicago Department of Public Health (CDPH).

This binder is a compilation of the Illinois Department of Public Health (IDPH) Antibiotic Stewardship Toolkit for Dental Providers and some additional supplemental resources that you can use to grow your antimicrobial stewardship program.

In this binder, you'll find suggestions on how to optimize the tracking and reporting of your facility's antimicrobial consumption, avoid fluoroquinolones and clindamycin, clarify penicillin allergies, and review updated iterations of American Dental Association (ADA) guidelines.

Additionally, we encourage you to reach out to your local academic hospital and/or educational affiliations to enhance your facility's antimicrobial stewardship opportunities across the spectrum of care.

A digital version of this toolkit and links to additional resources are available on the CDPH Health Alert Network Website at: www.chicagohan.org/antimicrobialstewardship/dentaltoolkit.

If you have any additional questions regarding the contents of this binder, your antimicrobial stewardship program, or about the CDPH HAI/AR Unit please reach out to CDPHHAIAR@cityofchicago.org!

Sincerely,

Amy Hanson, PharmD, BCPS AQ-ID
Project Administrator, Antimicrobial Stewardship
Chicago Department of Public Health, Communicable Diseases Program
West Side CDC, Chicago, IL 60612
Email: Amy.Hanson@cityofchicago.org and CDPHHAIAR@cityofchicago.org
Website: www.chicagohan.org/antimicrobialstewardship



ANTIBIOTIC STEWARDSHIP TOOLKIT

FOR DENTAL PROVIDERS

Antibiotics Stewardship Toolkit for Dental Providers

The purpose of this toolkit is to provide Illinois dentists with resources to support appropriate antibiotic prescribing as part of the Illinois Precious Drugs & Scary Bugs Campaign. The campaign aims to promote the judicious use of antibiotics in the outpatient setting. Antibiotic resistance is among the greatest public health threats today, leading to 2 million infections and 23,000 deaths each year¹. In community settings in the United States, dentists are the fourth highest prescribers of antibiotics and have an important role to play to ensure that antibiotics are prescribed only when needed, at the right dose, for the right duration, and at the right time.²

The Centers for Disease Control and Prevention (CDC) recommends that all outpatient health care providers, including dentists, take steps to measure and improve how antibiotics are prescribed using the Core Elements of Outpatient Antibiotic Stewardship as a framework. The four core elements include:

- **Commitment:** Demonstrate dedication to optimizing antibiotic prescribing and patient safety.
- **Action for Policy and Practice:** Implement a practice change to improve antibiotic prescribing.
- **Tracking and Reporting:** Monitor antibiotic prescribing practices.
- **Education and Expertise:** Provide educational resources to healthcare providers and patients.

This toolkit is organized around these core elements and includes provider and patient resources. It is intended to be used as a practical action planning guide. For more information please visit www.cdc.com/antibiotic-use or e-mail DPH.DPSQ@Illinois.gov.

Funding for this toolkit was made possible by the Centers for Disease Control and Prevention. The views expressed in this document do not necessarily reflect the official policies of the US Department of Health and Human Services, nor does the mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

¹ Centers for Disease Control and Prevention. (2017). *Antibiotic/Antimicrobial Resistance*. Available at: <https://www.cdc.gov/drugresistance/index.html>

² Roberts, et. al. (2013). *Antibiotic prescribing by general dentists in the United States*. Available at: [http://jada.ada.org/article/S0002-8177\(16\)30942-4/fulltext](http://jada.ada.org/article/S0002-8177(16)30942-4/fulltext)

INTRODUCTION

- Defining Antimicrobial Stewardship
- Entities that are Intended Audiences for Core Elements of Outpatient Antibiotic Stewardship
- Initial Steps for Antibiotic Stewardship
- Potential Partners for Outpatient Antibiotic Stewardship Activities
- Gubernatorial Proclamation
- The Need
- What You Can Do: Core Elements of Outpatient Antibiotic Stewardship

INTRODUCTION SUPPLEMENTAL MATERIAL

- Clinician Checklist for Core Elements
- Facility Checklist for Core Elements

1. MAKE A COMMITMENT Tab 1

You can demonstrate commitment to optimizing antibiotic prescribing and patient safety by:

- Submitting a letter of commitment to IDPH
- Displaying a customizable commitment poster

CHAPTER 1 SUPPLEMENTAL MATERIAL

- CDC Commitment Poster
- IDPH Commitment Poster

2. ACT Tab 2

Use evidence-based diagnostic criteria and treatment recommendations to improve antibiotic prescribing with the resources provided.

Evidence-based Practices

- Checklist for Antibiotic Prescribing in Dentistry
- Combatting Antibiotic Resistance
- Antibiotic Prophylaxis Update 2017

Treatment Guidelines

- Use of Antibiotic Therapy for Pediatric Patients
- Management of Patients with Prosthetic Joints – Chairside Guideline
- Nonsurgical Treatment of Chronic Periodontist by Scaling and Root Planing

CHAPTER 2 SUPPLEMENTAL MATERIAL

- CDC Handout: 7 Ways Dentists Can Act Against Antibiotic Resistance
- BC CDC Handout: Management of Penicillin/Amoxicillin Allergic Patients in Dental Practice
- BC CDC Handout: Penicillin/Amoxicillin Allergy Reference List
- Successful Implementation of an Antibiotic Stewardship Program in an Academic Dental Practice (2019)

3. TRACK AND REPORT Tab 3

Implement at least one system to track and report antibiotic prescribing. Page 24 includes resources for outcome tracking and continuing medical education. Complete a self-evaluation of your prescribing practices using the survey provided.

- Illinois Dental Provider Survey
- Participate in continuing medical education and quality improvement activities to track and improve prescribing practices
- Implement at least one antibiotic prescribing tracking and reporting system

4. EDUCATE Tab 4

Educate patients about appropriate antibiotic use and the potential harms of antibiotic treatment with these resources:

- Antibiotic Safety : Do's & Don'ts at the Dentist
- What is Antibiotic Prophylaxis?
- What is Infective Endocarditis?
- Improving Antibiotic Use

CHAPTER 4 SUPPLEMENTAL MATERIAL

- CDPH Brochure: Do You Need Antibiotics From Your Dentist?
- CDPH Brochure: Antibiotics Aren't Always the Answer
- BC CDC Handout: Do Bugs Need Drugs?
- CDC Handout: Is it Really a Penicillin Allergy
- CDPH Poster: Using the Right Tool (English, Spanish)

5. REFERENCES Tab 5

CHAPTER 5 SUPPLEMENTAL MATERIAL

- Additional Information: IDPH and CDPH Links
- Article: An Evaluation of Dental Antibiotic Prescribing Practices in the United States (2017)
- CDC Report: 2017 Antibiotic Use in the United States
- CDC Core Elements Appendix A



Antibiotic stewardship is the effort

- to measure antibiotic prescribing**
- to improve antibiotic prescribing by clinicians and use by patients so that antibiotics are only prescribed and used when needed**
- to minimize misdiagnoses or delayed diagnoses leading to underuse of antibiotics**
- to ensure that the right drug, dose, and duration are selected when an antibiotic is needed**

Box 1. Entities that are intended audiences for *Core Elements of Outpatient Antibiotic Stewardship*

Entities that are intended audiences for this report are outpatient health care professionals and leaders of their respective clinics, departments, facilities, and health care systems.



Primary care clinics and clinicians

These clinics and clinicians prescribe approximately half of all outpatient antibiotics in the United States.* This includes clinicians specializing in family practice, pediatrics, and internal medicine, all of whom treat a wide variety of patients and conditions that might benefit from antibiotic treatment.



Outpatient specialty and subspecialty clinics and clinicians

These clinics and clinicians focus on treatment and management of patients with specialized medical conditions that sometimes benefit from antibiotic therapy. These specialties clinics include gastroenterology, dermatology, urology, obstetrics, otolaryngology, and others.



Emergency departments (EDs) and emergency medicine clinicians

EDs and emergency medicine clinicians are positioned between acute care hospitals and the community and encounter unique challenges, including lack of continuity of care and higher concentration of high-acuity patients, as well as unique opportunities for stewardship interventions, such as greater clinician access to diagnostic resources and the expertise of pharmacists and consultants.



Retail health clinics and clinicians

These clinics and clinicians provide treatment for routine conditions in retail stores or pharmacies and represent a growing category of health care delivery in the United States.



Urgent care clinics and clinicians

These clinics and clinicians specialize in treating patients who might need immediate attention or need to be seen after hours but might not need to be seen in EDs.



Dental clinics and dentists

Dental clinics and dentists use antibiotics as prophylaxis before some dental procedures and for treatment of dental infections.



Health care systems

Health care systems plan, deliver, and promote health care services and often involve a network of primary and specialty outpatient clinics, urgent care centers, EDs, acute care hospitals, and other facilities that provide health care services. Health care systems can use existing antibiotic stewardship programs or develop new ones to promote appropriate antibiotic prescribing practices in their outpatient facilities as well as across the system.



Nurse practitioners and physician assistants

These clinicians work in every medical specialty and subspecialty involved in antibiotic prescribing and should be included in antibiotic stewardship efforts.

*Source: CDC. Outpatient antibiotic prescriptions—United States, 2013. Atlanta, GA: US Department of Health and Human Services, CDC; 2013. http://www.cdc.gov/getsmart/community/pdfs/annual-reports/summary_2013.pdf

Box 2. Initial steps for antibiotic stewardship: recognize opportunities to improve antibiotic prescribing practices by identifying high-priority conditions, identifying barriers to improving antibiotic prescribing, and establishing standards for antibiotic prescribing



Identify one or more high-priority conditions for intervention.

High-priority conditions are conditions for which clinicians commonly deviate from best practices for antibiotic prescribing and include conditions for which antibiotics are overprescribed, underprescribed, or misprescribed with the wrong antibiotic agent, dose, or duration.

Examples of types of high-priority conditions for improving antibiotic prescribing include:

- conditions for which antibiotics are overprescribed, such as conditions for which antibiotics are not indicated (e.g., acute bronchitis, nonspecific upper respiratory infection, or viral pharyngitis).*
- conditions for which antibiotics might be appropriate but are overdiagnosed, such as a condition that is diagnosed without fulfilling the diagnostic criteria (e.g., diagnosing streptococcal pharyngitis and prescribing antibiotics without testing for group A *Streptococcus*).†
- conditions for which antibiotics might be indicated but for which the wrong agent, dose, or duration often is selected, such as selecting an antibiotic that is not recommended (e.g., selecting azithromycin rather than amoxicillin or amoxicillin/clavulanate for acute uncomplicated bacterial sinusitis).‡
- conditions for which watchful waiting or delayed prescribing is appropriate but underused (e.g., acute otitis media or acute uncomplicated sinusitis).¶
- conditions for which antibiotics are underused or the need for timely antibiotics is not recognized (e.g., missed diagnoses of sexually transmitted diseases or severe bacterial infections such as sepsis).



Identify barriers that lead to deviation from best practices.

These might include clinician knowledge gaps about best practices and clinical practice guidelines, clinician perception of patient expectations for antibiotics, perceived pressure to see patients quickly, or clinician concerns about decreased patient satisfaction with clinical visits when antibiotics are not prescribed.



Establish standards for antibiotic prescribing.

This might include implementation of national clinical practice guidelines and, if applicable, developing facility- or system-specific clinical practice guidelines to establish clear expectations for appropriate antibiotic prescribing

*Sources:

Shulman ST, Bisno AL, Clegg HW, et al. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: 2012 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2012;55:1279–82;

Harris AM, Hicks LA, Qaseem A; High Value Care Task Force of the American College of Physicians;

CDC. Appropriate antibiotic use for acute respiratory tract infection in adults: advice for high-value care from the American College of Physicians and the Centers for Disease Control and Prevention. *Ann Intern Med* 2016;164:425–34;

Hersh AL, Jackson MA, Hicks LA; American Academy of Pediatrics Committee on Infectious Diseases. Principles of judicious antibiotic prescribing for upper respiratory tract infections in pediatrics. *Pediatrics* 2013;132:1146–54.

†Source:

Shulman ST, Bisno AL, Clegg HW, et al. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: 2012 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2012;55:1279–82.

§Sources:

Chow AW, Benninger MS, Brook I, et al; Infectious Diseases Society of America. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. *Clin Infect Dis* 2012;54:e72–112;

Wald ER, Applegate KE, Bordley C, et al; American Academy of Pediatrics. Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. *Pediatrics* 2013;132:e262–80;

Rosenfeld RM, Piccirillo JF, Chandrasekhar SS, et al. Clinical practice guideline (update): adult sinusitis executive summary. *Otolaryngol Head Neck Surg* 2015;152:598–609.

†Sources:

Lieberthal AS, Carroll AE, Chonmaitree T, et al. The diagnosis and management of acute otitis media. *Pediatrics* 2013;131:e964–99;

Wald ER, Applegate KE, Bordley C, et al; American Academy of Pediatrics. Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. *Pediatrics* 2013;132:e262–80;

Rosenfeld RM, Piccirillo JF, Chandrasekhar SS, et al. Clinical practice guideline (update): adult sinusitis executive summary. *Otolaryngol Head Neck Surg* 2015;152:598–609.

Box 3. Potential partners for outpatient antibiotic stewardship activities



Acute care hospitals

Acute care hospitals are a critical component of the continuum of care and often share patients with outpatient clinics. Information sharing between outpatient facilities and acute care hospitals is necessary to monitor local patterns of antibiotic resistance, minimize duplicative testing, facilitate proper patient transition across different care settings, and collaborate on quality improvement initiatives. In addition, hospital-based antibiotic stewardship programs might be a resource for expertise in outpatient antibiotic stewardship initiatives.



Long-term care facilities

Long-term care facilities provide various services, such as medical and personal care, to patients who are unable to manage independently in the community. Long-term care facilities include rehabilitation facilities, nursing homes, and long-term acute care facilities. Residents of long-term care facilities also are often treated by outpatient clinicians, including medical specialists. Thus, communication between outpatient clinicians and long-term care facilities is critical to antibiotic stewardship efforts.



State and local health departments

State and local health departments play a crucial role in promoting outpatient antibiotic stewardship by sharing educational resources, connecting local stakeholders and coalitions, designating staff members to improve coordination within and across health care facilities, tracking and reporting local antibiotic resistance threats, and promoting infection prevention and vaccinations.



Health plans and payers (health insurance companies)

Health plans and payers can be a crucial source of data for clinician performance on quality measures for appropriate prescribing, including the Healthcare Effectiveness Data and Information Set (HEDIS) measures. In addition, health plans can provide incentives for antibiotic stewardship through quality-based payments.



Health care professional societies

Health care professional societies provide an important network of health care professionals and health care leaders to create and share clinical practice guidelines for diagnosis and management of common conditions, provide continuing medical education opportunities for members, and bolster national, local, and regional initiatives promoting appropriate antibiotic use.



Community pharmacies and pharmacists

Community pharmacies and pharmacists are a trusted source of health care information and provide patient recommendations for nonprescription medications to alleviate symptoms, facilitate medication therapy management, screen patients for drug interactions and allergies, and educate patients regarding appropriate antibiotic use and anticipated side effects. Pharmacies frequently are located near clinics in which patients are seen for management of common infections.



Local microbiologic laboratories

Local microbiologic laboratories can produce regional or local antibiograms (i.e., tables displaying selected antibiotic sensitivities of bacterial species identified from clinical specimens) relevant to the setting of care, streamline testing and reporting of clinical samples, support rapid diagnostic testing, and provide expertise for interpretation of microbiologic tests.

Other important partners in outpatient stewardship include academic institutions, health professional training programs, information technology and electronic medical record software personnel, consumer advocacy groups, pharmaceutical companies, and health sciences education programs.



WHEREAS, the Illinois Department of Public Health seeks to promote the health of the people of Illinois through the prevention and control of disease and injury; and,

WHEREAS, antibiotics are lifesaving when used correctly for bacterial infections, but can cause individuals unnecessary and significant harm when used incorrectly or when not needed; and,

WHEREAS, nationwide, one out of every three prescriptions for antibiotics are unnecessary or incorrectly prescribed; and,

WHEREAS, antibiotics become less effective for everyone as bacteria become resistant to them; and,

WHEREAS, antibiotic resistance is a public health crisis, causing more than two million illnesses and at least 23,000 deaths in the United States each year; and,

WHEREAS, all health care facilities are required to develop programs to improve antibiotic use; and,

WHEREAS, everyone has a role to play to improve antibiotic use and fight antibiotic resistance; and,

WHEREAS, working in partnership, the Illinois Department of Public Health, local organizations, and stakeholders seek to raise awareness and educate health care workers and the general public about the appropriate use of antibiotics;

THEREFORE, I, Bruce Rauner, Governor of the State of Illinois, do hereby proclaim November 13-19, 2017, as ANTIBIOTIC AWARENESS WEEK in Illinois, and encourage all Illinoisans to educate themselves, their families, and their communities about best practices regarding the appropriate use of antibiotics.

In Witness Whereof, I have hereunto set my hand and caused the Great Seal of the State of Illinois to be affixed.



Done at the Capitol in the City of Springfield,
this EIGHTEENTH *day of* OCTOBER, *in*
the Year of Our Lord, two thousand and
SEVENTEEN, *and of the State of Illinois,*
one hundred and NINETY-NINTH.

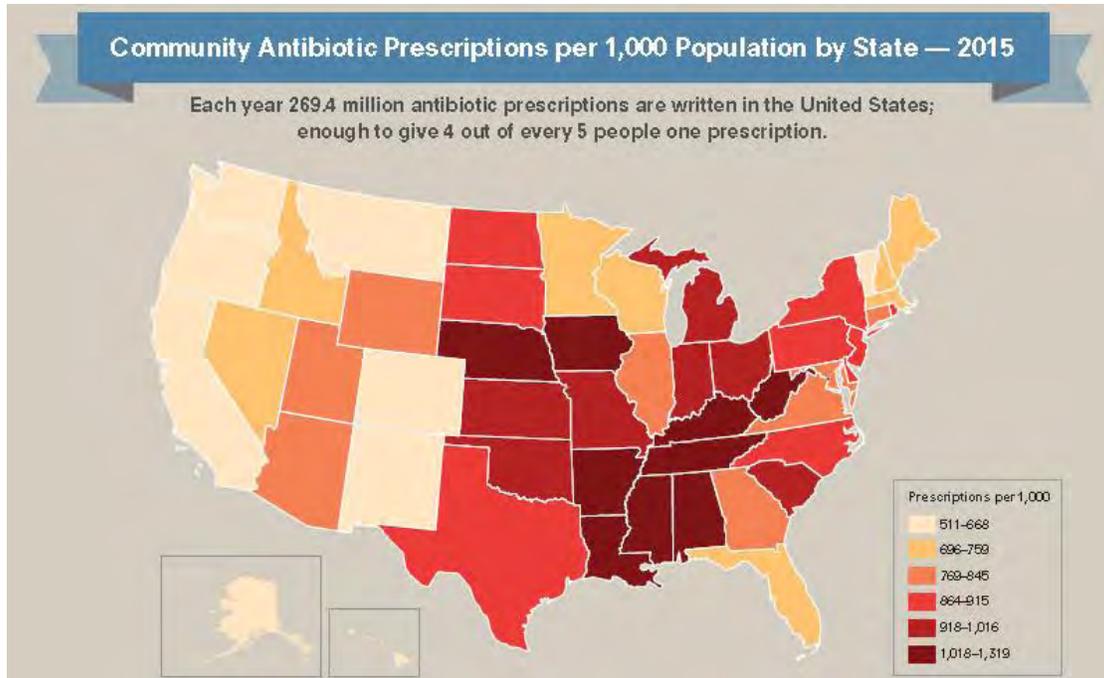
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SECRETARY OF STATE

Bruce Rauner

GOVERNOR

The Need



Antibiotic Prescribing in Outpatient Settings in the United States

- Over 60% of all antibiotic expenditures are associated with the outpatient setting.
- At least 30% of antibiotics prescribed in the outpatient setting are unnecessary.³

Antibiotic Prescribing Among Dentists in the United States

- Dentists account for 10% of outpatient antibiotic prescriptions, or 24.5 million prescriptions. In 2013, dentists wrote an average of 205 antibiotic prescriptions each.
- Overall, in the United States dentists prescribe 77.5 prescriptions per 1,000 people.
- Illinois dentists prescribe, on average, 79.6 prescriptions per 1,000 people (higher than the national average).
- Among dentists, the three highest prescribed types of antibiotics are penicillin (69.6%), lincosamides (14.6%), and macrolides (5.4%).⁴

Unintended Consequences of Antibiotic use

- Adverse events from antibiotics include rashes, diarrhea, and severe allergic reactions. These lead to an average of 143,000 emergency department visits each year and contribute to excess health care costs.⁵
- Antibiotic treatment is the most important risk factor for *Clostridium difficile* infection, which can cause life-threatening diarrhea. A 2013 study found that over 40% of patients with *C. difficile* infection visited a dentist or physician's office in the preceding four months.⁶

³ Centers for Disease Control and Prevention: <https://www.cdc.gov/antibiotic-use/community/programs-measurement/measuring-antibiotic-prescribing.html>

⁴ Roberts, R., Bartoces, M., Thompson, S. and Hicks, L. (2017). Antibiotic prescribing by general dentists in the United States, 2013. *The Journal of the American Dental Association*, 148(3), pp.172-178.e1.

⁵ Centers for Disease Control and Prevention: https://www.cdc.gov/medicationsafety/program_focus_activities.html

⁶ Roberts, R., Bartoces, M., Thompson, S. and Hicks, L. (2017). Antibiotic prescribing by general dentists in the United States, 2013. *The Journal of the American Dental Association*, 148(3), pp.172-178.e1.

What YOU Can Do:

Implement the Centers for Disease Control & Prevention's Core Elements of Outpatient Antibiotic Stewardship



The infographic is a dark blue rounded rectangle containing four white circular icons on the left and corresponding text on the right. The icons are: 1. A handshake (Commitment), 2. A document with a checkmark (Action for policy and practice), 3. A bar chart (Tracking and reporting), and 4. Two speech bubbles (Education and expertise).

- 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.

Read more about the Core Elements of Outpatient Antibiotic Stewardship by visiting:
<http://tinyurl.com/outpatientstewardship>

INTRODUCTION: SUPPLEMENTAL MATERIAL

These materials were compiled by CDPH to supplement the Introduction Section of the IDPH Antibiotic Stewardship Toolkit.

Included:

- 1. Clinician Checklist for Core Elements of Outpatient Antibiotic Stewardship**
For individual outpatient clinicians and dentists; use this checklist as a baseline assessment of policies and practices.
- 2. Facility Checklist for Core Elements of Outpatient Antibiotic Stewardship**
For outpatient and dentistry facilities; use this checklist as a baseline assessment of policies and practices.

Clinician Checklist for Core Elements of Outpatient Antibiotic Stewardship

CDC recommends that outpatient clinicians take steps to implement antibiotic stewardship activities. Use this checklist as a baseline assessment of policies and practices that are in place. Then use the checklist to review progress in expanding stewardship activities on a regular basis (e.g., annually).

COMMITMENT

1. **Can you demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety related to antibiotics?** Yes No

If yes, indicate which of the following are in place (select all that apply)

- Write and display public commitments in support of antibiotic stewardship.

ACTION

2. **Have you implemented at least one practice to improve antibiotic prescribing?** Yes No

If yes, indicate which practices which you use. (Select all that apply.)

- Use evidence-based diagnostic criteria and treatment recommendations.
 Use delayed prescribing practices or watchful waiting, when appropriate.

TRACKING AND REPORTING

3. **Do you monitor at least one aspect of antibiotic prescribing?** Yes No

If yes, indicate which of the following are being tracked. (Select all that apply.)

- Self-evaluate antibiotic prescribing practices.
 Participate in continuing medical education and quality improvement activities to track and improve antibiotic prescribing.

EDUCATION AND EXPERTISE

4. **Do you provide education to patients and seek out continuing education on antibiotic prescribing?** Yes No

If yes, indicate how you provide antibiotic stewardship education. (Select all that apply.)

- Use effective communications strategies to educate patients about when antibiotics are and are not needed.
 Educate about the potential harms of antibiotic treatment.
 Provide patient education materials

Facility Checklist for Core Elements of Outpatient Antibiotic Stewardship

CDC recommends that outpatient care facilities take steps to implement antibiotic stewardship activities. Use this checklist as a baseline assessment of policies and practices that are in place. Then use the checklist to review progress in expanding stewardship activities on a regular basis (e.g., annually).

COMMITMENT

1. **Can your facility demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety related to antibiotics?** Yes No

If yes, indicate which of the following are in place. (Select all that apply.)

- Identify a single leader to direct antibiotic stewardship activities within a facility.
- Include antibiotic stewardship-related duties in position descriptions or job evaluation criteria.
- Communicate with all clinic staff members to set patient expectations.

ACTION

2. **Has your facility implemented at least one policy or practice to improve antibiotic prescribing?** Yes No

If yes, indicate which interventions are in place. (Select all that apply.)

- Provide communications skills training for clinicians.
- Require explicit written justification in the medical record for nonrecommended antibiotic prescribing.
- Provide support for clinical decisions.
- Use call centers, nurse hotlines, or pharmacist consultations as triage systems to prevent unnecessary visits.

TRACKING AND REPORTING

3. **Does your facility monitor at least one aspect of antibiotic prescribing?** Yes No

If yes, indicate which of the following are being tracked. (Select all that apply.)

- Track and report antibiotic prescribing for one or more high-priority conditions.
- Track and report the percentage of all visits leading to antibiotic prescriptions.
- (If already tracking and reporting one of the above) Track and report, at the level of a health care system, complications of antibiotic use and antibiotic resistance trends among common outpatient bacterial pathogens.
- Assess and share performance on quality measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers.

EDUCATION AND EXPERTISE

4. **Does your facility provide resources to clinicians and patients on evidence-based antibiotic prescribing?** Yes No

If yes, indicate how your facility provides antibiotic stewardship education. (Select all that apply.)

- Provide face-to-face educational training (academic detailing).
- Provide continuing education activities for clinicians.
- Ensure timely access to persons with expertise.

