Welcome to

CDC’s Core Elements of Outpatient Antibiotic Stewardship

The audio for today’s webinar will be coming through your computer speakers. Please ensure your speakers are turned on with the volume up.

Thank you!
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- CDC is an approved provider of CPH Recertification Credits by the National Board of Public Health Examiners. Effective October 1, 2013, the National Board of Public Health Examiners (NBPHE) accepts continuing education units (CEU) for CPH recertification credits from CDC. Please select CEU as your choice for continuing education when registering for a course on TCEOnline. Learners seeking CPH should use the guidelines provided by the NBPHE for calculating recertification credits. For assistance please contact NBPHE at [http://www.NBPHE.org](http://www.NBPHE.org).
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Content will not include any discussion of the unlabeled use of a product or a product under investigational use.

*CDC did not accept commercial support for this continuing education activity.*
CONTINUING EDUCATION INFORMATION

PROGRAM DESCRIPTION:

Antibiotic stewardship is the effort to measure and improve how antibiotics are prescribed by clinicians and used by patients. This webinar features a discussion regarding CDC’s Core Elements of Outpatient Antibiotic Stewardship, which provides a framework for implementing antibiotic stewardship in outpatient settings.

OBJECTIVES:

- Describe infection control techniques that reduce the risk and spread of healthcare-associated infections (HAI).
- Identify unsafe practices that place patients at risk for HAIs.
- Describe best practices for infection control and prevention in daily practice in healthcare settings.
- Apply standards, guidelines, best practices, and established processes related to safe and effective medication use.
Featured Speaker

- Katherine Fleming-Dutra, MD, Medical Officer, Office of Antibiotic Stewardship, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention
  - Implementing Antibiotic Stewardship into Your Outpatient Practice
Before We Get Started...

- To submit a question:
  - Use the “Chat” window, located on the lower left-hand side of the webinar screen.
  - Questions will be addressed at the end of the webinar, as time allows.

- To ask for help:
  - Please press the “Raise Hand” button, located on the top left-hand side of the screen.

- To hear the audio:
  - Please ensure your speakers are turned on with the volume up — the audio for today’s conference should be coming through your computer speakers.

*The speakers’ slides will be provided to participants in a follow-up email.*
Core Elements of Outpatient Antibiotic Stewardship:
Implementing Antibiotic Stewardship Into Your Outpatient Practice

Katherine Fleming-Dutra, MD

Office of Antibiotic Stewardship
Division of Healthcare Quality Promotion
National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention

November 15, 2016
Objectives

- Review importance of antibiotic stewardship in outpatient settings
- Identify four core elements of antibiotic stewardship across various outpatient settings
- Discuss evidence-based strategies to implement the core elements
Life-Saving Benefits of Antibiotics

- Once deadly infectious bacterial diseases are treatable, substantially reducing deaths compared to pre-antibiotic era

- Important adjunct to modern medical advances
  - Surgeries
  - Transplants
  - Cancer therapies
Antibiotic Resistance

Estimated minimum number of illnesses and deaths caused annually by antibiotic resistance*:

At least 2,049,442 illnesses,
23,000 deaths

*bacteria and fungus included in this report

$20 billion in excess direct healthcare costs annually

Antibiotic Use Drives Resistance

**Date of antibiotic introduction**

- Penicillin: 1943
- Methicillin: 1960
- Vancomycin: 1972
- Levofloxacin: 1996
- Ceftaroline: 2010

**Date of resistance identified**

- 1940: Penicillin-R *Staphylococcus*
- 1962: Methicillin-R *Staphylococcus*
- 1988: Vancomycin-R *Enterococcus*
- 1996: Levofloxacin-R *Streptococcus*
- 2011: Ceftaroline-R *Staphylococcus*

[http://www.cdc.gov/drugresistance/about.html](http://www.cdc.gov/drugresistance/about.html)
It’s a Matter of Patient Safety

- Adverse events from antibiotics range from minor to severe
  - Side effects like rash or antibiotic-associated diarrhea
  - Allergic reactions, including anaphylaxis (life-threatening)

- 1 in 1000 antibiotic prescriptions leads to an emergency department (ER) visit for an adverse event
  - 142,000 ER visits per year for antibiotic-associated adverse events
  - Antibiotics are most common cause of drug-related emergency department visits for children

- Long-term consequences: growing evidence that antibiotics associated with chronic disease through disruption of the microbiota and microbiome

It’s a Matter of Patient Safety: *Clostridium difficile*

More recent estimate: 453,000 infections and caused 15,000 deaths in the US annually

Lessa NEJM 2015;372(9):825-34
Antibiotic Expenditures in United States by Treatment Setting

Total 2009 cost: $10.7 billion

Estimate 80-90% of antibiotic use occurring in outpatient setting

Improve Antibiotic Use to Combat Antibiotic Resistance

70% Necessary Prescriptions (Still need to improve drug selection, dose and duration)

30% Unnecessary Prescriptions

CDC is working to reduce unnecessary antibiotic use

White House National Action Plan to Combat Antibiotic-Resistant Bacteria (CARB)

Goal: By 2020, reduce inappropriate outpatient antibiotic use by 50%

Find out when antibiotics are necessary. Visit: http://www.cdc.gov/nhsn/antibiotic-use

http://www.pewtrusts.org/~/media/assets/2016/05/antibioticuseinoutpatientsettings.pdf;
What is Antibiotic Stewardship?

- Antibiotic stewardship is the effort to:
  - Measure antibiotic prescribing
  - Improve antibiotic prescribing so that antibiotics are only prescribed and used when needed
  - Minimize misdiagnoses or delayed diagnoses leading to underuse of antibiotics
  - Ensure that the right drug, dose, and duration are selected when an antibiotic is needed

It’s about patient safety and delivering high-quality healthcare.
CDC’s Core Elements of Antibiotic Stewardship for Hospitals and Nursing Homes
Who are the Core Elements of Outpatient Antibiotic Stewardship intended for?

- **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 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.

- **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.

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

- **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.
Initial Steps for Outpatient Antibiotic Stewardship

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.

- Conditions for which antibiotics are overprescribed
- Conditions which are underdiagnosed
- Conditions for which the wrong dose, duration or agent often is selected
- Conditions for which watchful waiting or delayed prescribing is underused
- Conditions for which antibiotics are underused or the need for timely antibiotics isn’t recognized
Initial Steps for Outpatient Antibiotic Stewardship

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.
The Core Elements of Outpatient Antibiotic Stewardship

- **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 use
- **Education and Expertise:** Provide educational resources to clinicians and patients on antibiotic prescribing and ensure access to needed expertise on antibiotic prescribing

Commitment

- Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety **by doing one of the following:**

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<td>• Identify a single leader to direct antibiotic stewardship activities within a facility</td>
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Public Commitment Posters

- Simple intervention: poster-placed in exam rooms with clinician picture and commitment to use antibiotics appropriately
- Randomized-controlled trial
- Principle of behavioral science: desire to be consistent with previous commitments
- “Behavioral nudge” to make the right choice

“As your doctors, we promise to treat your illness in the best way possible. We are also dedicated to avoid prescribing antibiotics when they are likely do to more harm than good.”

- Adjusted absolute reduction in inappropriate antibiotic prescribing: -20% compared to controls, p=0.02

Commitment Posters in Illinois, Texas and New York

http://blogs.cdc.gov/safehealthcare/?p=5900
Put a Commitment Poster in Your Clinic!

- CDC worked with the authors of the study to create a poster template for download
- Will be coming in Spanish
- Add your picture and signature
- Place in your examination rooms

- Available at: https://www.cdc.gov/gets智能/community/materials-references/print-materials/hcp/index.html

Commitment

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Action

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

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

### Organizational Leadership
- 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
Get Smart: Know When Antibiotics Work

Outpatient Healthcare Professionals

Recommendations for appropriate antibiotic prescribing, including clinical practice guidelines, have been developed to improve outpatient treatment of common infections in children and adults. CDC’s Get Smart: Know When Antibiotics Work program has developed materials that outpatient healthcare professionals can use to educate their patients about when antibiotics treatment is appropriate.

ADULT TREATMENT RECOMMENDATIONS
A collection of evidence-based recommendations and clinical practice guidelines for the treatment of common outpatient infections in adults...

PEDIATRIC TREATMENT RECOMMENDATIONS
A collection of evidence-based recommendations and clinical practice guidelines for the treatment of common infections in children...

http://www.cdc.gov/getsmart/community/for-hcp/outpatient-hcp/index.html
**Action**

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Communication Training as an Antibiotic Stewardship Intervention

- Enhanced communication training reduces antibiotic prescribing for respiratory infections in all ages while maintaining patient satisfaction.

- Communication goals:
  - Understanding the patient’s expectations
  - Explaining why antibiotics will/will not help
  - Providing symptomatic recommendations
  - Discussing when to return if the patient is not better

- Effect appears to be sustainable over time.

Tracking and Reporting

- Monitor antibiotic prescribing practices and offer regular feedback to clinicians or have clinicians assess their own antibiotic prescribing practices themselves

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<td>• Assess and share performance on quality measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers</td>
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What Should You Track and Report in Your Outpatient Facility?

- Decisions should be made in each practice or facility based on your opportunities for improvement
- Options:
  - Antibiotic prescribing for one or more high-priority conditions (e.g. acute bronchitis)
  - Percentage of all visits leading to antibiotic prescriptions
  - At the level of a health care system
    - Complications of antibiotic use (e.g. adverse drug events, *C. difficile* infections)
    - Antibiotic resistance trends among common outpatient bacterial pathogens
Tracking and Reporting with Peer Comparisons

- Effective feedback interventions often include peer performance comparisons
  - Comparing clinician’s antibiotic selection patterns for respiratory conditions to colleagues’ performance\(^1\)
    - Led to increased use of guideline recommended agents
  
  - Comparing clinician’s percentage of inappropriate antibiotic prescribing for acute respiratory conditions to “top-performers” in their practice\(^2\)
    - Led to decreased inappropriate antibiotic prescribing for acute respiratory infections that should not be treated with antibiotics (e.g. colds and acute bronchitis)

  - Notifying clinicians that they prescribe more antibiotics than 80% of their peers, based on the percentage all visits leading to antibiotic prescriptions\(^3\)
    - Led to decreased overall antibiotic prescribing and cost-savings

Education and Expertise

- Provide educational resources to clinicians and patients on antibiotic prescribing and ensure access to needed expertise on optimizing antibiotic prescribing.

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Educating Patients Through Effective Communication

- Clinicians cite patient demand for antibiotics as a reason they prescribe inappropriately\(^1\)
  - Clinicians are not very good at correctly determining which patients want antibiotics\(^2\)
  - Clinicians are more likely to prescribe antibiotics when they think that the patient wants them\(^2\)

- Patients can be satisfied without antibiotics, even if they expect them, with effective communication
  - Combining explanations of why antibiotics are not needed with recommendations for managing symptoms have been associated with increased visit satisfaction\(^3\)
  - Providing recommendations of when to seek medical care if the patient worsens or doesn’t improve (i.e. a contingency plan) has been associated with increased satisfaction for patients who expected antibiotics but did not receive them\(^4\)

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Education and Expertise

- Provide educational resources to clinicians and patients on antibiotic prescribing and ensure access to needed expertise on optimizing antibiotic prescribing.
- Inappropriate antibiotic prescribing is rarely due to clinical knowledge gaps alone.

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Get Smart: Know When Antibiotics Work

ABOUT ANTIBIOTIC USE AND RESISTANCE
Antibiotics have transformed our ability to treat infections, but they do not work as well as they once did against some infections...

PROGRAMS AND MEASUREMENT
A look at state, national, and international efforts to track antibiotic-resistant infections and implement interventions to curb this growing threat...

FOR PATIENTS
Information on when common illnesses need antibiotics and ways to lessen your symptoms if antibiotics are not needed...

PARTNERS
CDC's Get Smart program works with a wide-range of partners to raise awareness about the threat of antibiotic resistance...

FOR HEALTHCARE PROFESSIONALS
Outpatient and inpatient healthcare providers, as well as community pharmacists, all play a role in fighting antibiotic resistance...

GET SMART ABOUT ANTIBIOTICS WEEK
An annual observance to raise awareness of the threat of antibiotic resistance and the importance of appropriate antibiotic prescribing and use...

www.cdc.gov/getsart
What is Delays in Prescribing?

WAIT. Do not fill your prescription just yet. Your healthcare professional believes your illness may resolve on its own.

First, follow your healthcare professional’s recommendations to help you feel better without antibiotics and continue to monitor your symptoms over the next few days:

- Rest
- Drink extra water and fluids
- Use cool mist vaporizer or saline nasal spray
- For sore throats in older adults and children, throat spray, or lozenges

If you do not feel better in ___ days/hours, or if your condition worsens and fill your prescription.

If you feel better, you do not need the antibiotic and risk the side effects.

Waiting to see if you really need an antibiotic and only when it is actually necessary can save lives, $$$ and is less likely to cause side effects like a skin rash, diarrhea, and/or worse.

Antibiotics can also make future bacterial infections more serious and harder to treat. You can protect yourself by learning when antibiotics are and aren’t needed.

Good news! Your healthcare professional believes your illness will likely resolve on its own.

You should watch and wait for ___ days/hours before deciding whether to take an antibiotic.

In the meantime, follow your healthcare professional’s recommendations to help you feel better and continue to monitor your symptoms over the next few days:

- Rest
- Drink extra water and fluids
- Use cool mist vaporizer or saline nasal spray to relieve congestion
- For sore throats in older children and adults, try ice chips, sore throat spray, or lozenges
- Use honey to relieve cough. Do not give honey to an infant less than 1 year of age.

If you feel better, no further action is necessary — you don’t need antibiotics.

If you do not feel better, experience new symptoms, or you have other concerns, call your healthcare professional to discuss. If you need a refill or if you need antibiotics, which may be prescribed over the phone.

It may not be convenient to visit your healthcare professional multiple times, but it is critical to make the right choice. Antibiotics can cause side effects like a skin rash, diarrhea, a yeast infection, or worse.

Antibiotics can also make future bacterial infections stronger and harder to treat. You can protect yourself and others by learning when antibiotics are and aren’t needed.

For more information visit www.cdc.gov/getsmart.
Presidential Proclamation -- Get Smart About Antibiotics Week, 2016

GET SMART ABOUT ANTIBIOTICS WEEK, 2016

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

Since their discovery nearly nine decades ago, antibiotics have transformed the world of modern medicine. They have been instrumental in combating previously deadly or debilitating illnesses and have saved countless lives. Yet the misuse of antibiotics can pose risks to public health. As antibiotics have become more...
Summary

- Antibiotic stewardship is one of the most important strategies to combat antibiotic resistance and keep our patients safe.

- The Core Elements of Outpatient Stewardship provides a framework for improving outpatient antibiotic prescribing.

- The Core Elements of Outpatient Stewardship include the following:
  - Commitment
  - Action for Policy and Practice
  - Tracking and Reporting
  - Education and Expertise

- We can all be antibiotic stewards — please implement the Core Elements in your practice!
Acknowledgements:
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www.cdc.gov/getsmart
GetSmart@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
Before We End Today’s Webinar…

- **Question and Answer Session**
  - *Please submit your questions via the chat window, located on the lower left-hand side of the webinar screen.*
Join the **global Twitter chat** on **Friday, November 18**, from 11am-1pm EST.

- Use **#AntibioticResistance** and follow **@CDCGov** throughout the chat.

Check out CDC’s new **Safe Healthcare Blog** featuring a look at how states and clinicians across the country are committing to appropriate antibiotic prescribing via personalized commitment posters in exam rooms.

Check out the newly expanded **Antibiotic Resistance Patient Safety Atlas** which now includes the most complete data currently available on the outpatient antibiotic prescribing in each state and antibiotic stewardship programs in hospitals across the country.

Use and share **Get Smart about Antibiotics Week promotional materials**.
Before We End Today’s Webinar…

- **Continuing Education**
  - Detailed instructions for taking the post-test and evaluation will appear on your screen as soon as today’s webinar concludes.
    - [www.cdc.gov/tceonline](http://www.cdc.gov/tceonline); Access Code: **WC1115**
  - If you exit out of the webinar prior to taking the post-test and evaluation, you can access the continuing education information in an email that will be sent to you following today’s webinar.

**THANK YOU**