

Precious Drugs & Scary Bugs



ANTIBIOTIC STEWARDSHIP TOOLKIT FOR OUTPATIENT PROVIDERS



**BE
ANTIBIOTICS
AWARE**
SMART USE, BEST CARE

Antibiotics Stewardship Toolkit for Primary Care Providers

The purpose of this toolkit is to provide Illinois primary care providers with resources to support appropriate antibiotic prescribing as part of the Illinois Precious Drugs & Scary Bugs Campaign. Launched originally in March 2015, the campaign aims to promote the judicious use of antibiotics in the outpatient setting. At least 28% of antibiotic courses prescribed in the outpatient setting are unnecessary.¹ Antibiotic resistance is among the greatest public health threats today, leading to 2.8 million infections and 35,000 deaths each year². In community settings, primary care physicians, account for 36% of all antibiotic prescriptions while physician assistants and nurse practitioners account for 29% of all prescriptions, highlighting the important role these providers play to ensure that antibiotics are prescribed only³:

- when needed;
- at the right dose;
- for the right duration; and
- at the right time.

The Centers for Disease Control and Prevention (CDC) recommends that all outpatient health care providers 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 health care 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.gov/antibiotic-use or e-mail Antibiotic.Stewardship@Hektoen.org.

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¹ Hersh AL, King LM, Shapiro DJ, Hicks LA, Fleming-Dutra KE. [Unnecessary Antibiotic Prescribing in US Ambulatory Care Settings](#), 2010-2015. Clin Infect Dis. 2021;72(1):133-137.

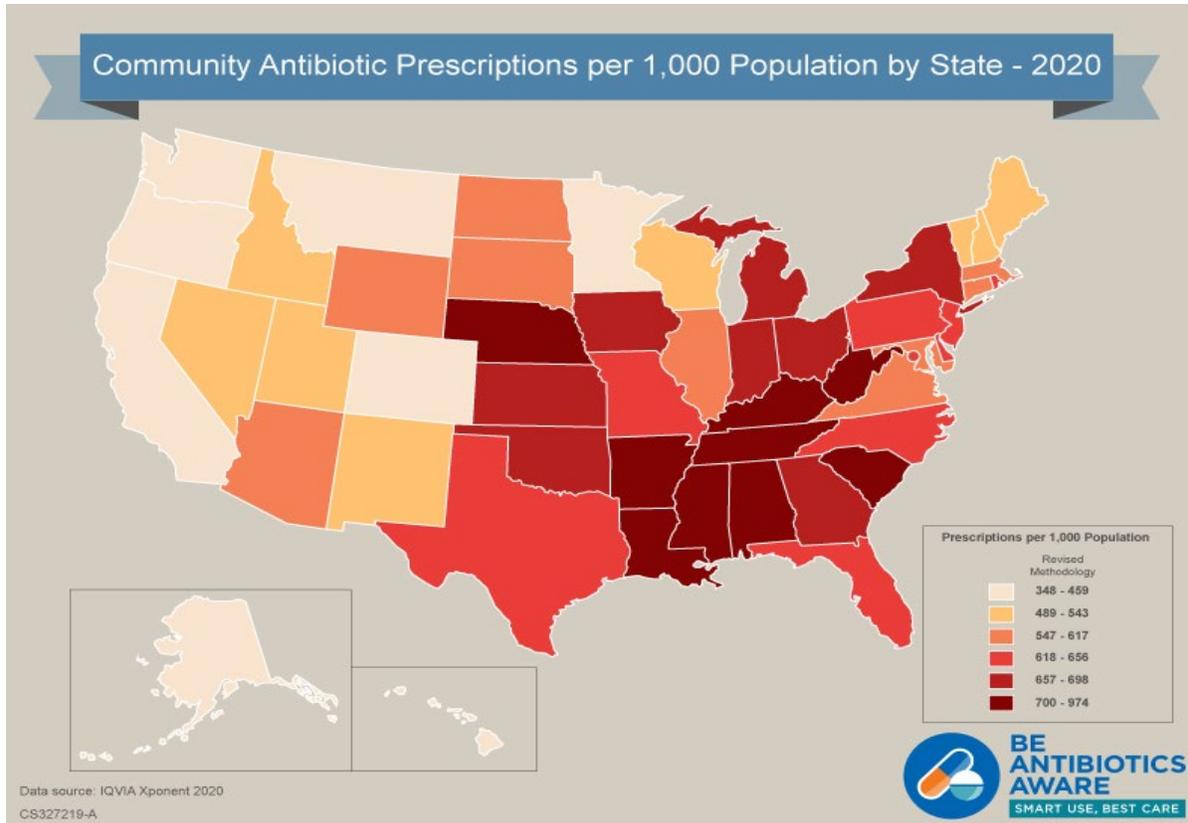
² Centers for Disease Control and Prevention. (2017). *Antibiotic/Antimicrobial Resistance*. Available at: <https://www.cdc.gov/drugresistance/about.html>

³ Centers for Disease Control and Prevention. Outpatient antibiotic prescriptions — United States, 2018. Available at: <https://www.cdc.gov/antibiotic-use/community/pdfs/Annual-Report-2018-H.pdf>

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The Need



Antibiotic Prescribing in Outpatient Settings

- Over 60% of all antibiotic expenditures are associated with the outpatient setting.
- At least 28% of antibiotics prescribed in the outpatient setting are unnecessary.¹
- In 2020, Illinois outpatient providers dispensed 606 antibiotic prescriptions per 1,000 people.²

Unintended Consequences of Antibiotic use

- Adverse events from antibiotics include rashes, diarrhea, and severe allergic reactions. These lead to an average of 200,000 emergency department visits each year and contribute to excess health care costs.⁴
- 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 physician's office or dentist in the preceding four months.⁵

⁴ Shehab N, Lovegrove MC, Geller AI, Rose KO, Weidle NJ, Budnitz DS. [US emergency department visits for outpatient adverse drug events, 2013-2014](#). JAMA 2016;316:2115-25.

⁵ 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



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>

1. MAKE A COMMITMENT



A commitment from your office to prescribe antibiotics appropriately and engage in antibiotic stewardship is critical to improving antibiotic prescribing.

Here are some ways your office can demonstrate commitment:

- Submit a statement of commitment to the Hektoen Institute by completing this [form](#). Providers making a commitment can choose to be recognized on Hektoen’s website at <https://www.hektoen.org/antibiotic-stewardship/>.
- Display public commitment to antibiotic stewardship in your office (see sample templates on page 7).
- Identify a single leader to direct antibiotic stewardship activities in your facility.
- Include antibiotic stewardship-related duties in position descriptions or job evaluation criteria.
- Communicate with all clinic staff members to set patient expectations.

Sample Commitment Poster Template

**Safe Antibiotic Use:
An Important Message From Your Providers**

Antibiotics only fight infections caused by bacteria.

Antibiotics will NOT help you feel better if you have a viral infection like:

Cold or runny nose
Bronchitis or chest cold
Flu

If you take antibiotics when you don't really need them, they can cause more harm than good:

- You can get diarrhea, rashes, or yeast infections
- Antibiotic overuse can lead to bacterial resistance

- **What can you do as a patient?**
 - Talk with me about the treatment that is best for you. Follow the treatment plan that we discuss.
- **As your healthcare provider, I will commit to giving you the best care possible. I am dedicated to avoiding prescribing antibiotics when they are likely to do more harm than good. If you have any questions, please ask me, your nurse, or your pharmacist. Sincerely,**

Signature *Signature* *Signature* *Signature*

Signature *Signature* *Signature* *Signature*

Download the customizable template by visiting:

<https://bit.ly/3CJv157>

Tip Sheet for Leadership and Quality Improvement Lead: Maximizing Utility of the Commitment Poster

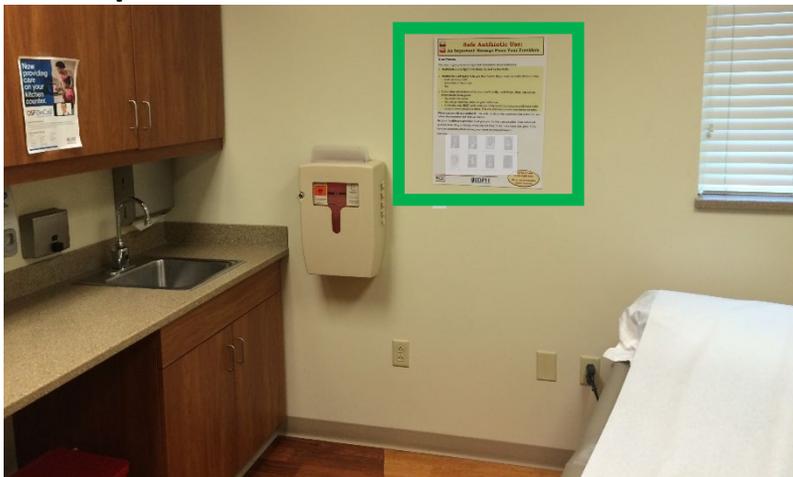
1. Discuss your facility's participation in the Precious Drugs & Scary Bugs Campaign.

Educate healthcare providers about the goals of the campaign and strategies for using the commitment poster.

2. Hang poster prominently in examination rooms and elsewhere

During peak flu season (October to April), display the poster where it can be easily read by the patient and serve as a reminder to the provider during patient visits. Additional posters can be displayed in high traffic areas like waiting rooms.

Example of ideal location



Poster is in clear view.

Example of less desirable location



Cords obstructing view of the poster.

Sample email template for notifying providers & staff

We are pleased to let you know that the commitment posters on judicious antibiotic use are here! As a reminder, this is part of our facility's participation in the [Precious Drugs & Scary Bugs Campaign](#). The posters have been customized with the photos and names of providers who practice at this facility and you will see them displayed in the examination rooms [list any additional locations].

[Name of Facility] is dedicated to using antibiotics wisely. We hope that you will find the poster useful in speaking with patients about antibiotic use. If you have any questions or feedback about the poster, please contact [insert name of individual].

Tip Sheet for Healthcare Providers: What to Do with the Commitment Poster

1. Prepare for crucial conversations with patients.

Review resources to build communication skills with patients, such as:

- Tips for talking to patients about [viral](#) respiratory infections
- The American Academy of Family Physicians' Choosing Wisely
 - Video Example: Discussion [with](#) a patient who requests antibiotics
- Dialogue [Around Respiratory Illness Treatment](#)
 - [Modules 2-7: Effectively managing patients' expectations for antibiotic usage](#)

Role-play provider-patient conversations.

2. Talk to patients about appropriate use of antibiotics and explain how inappropriate use can be harmful.

Reinforce key messages on the commitment poster:

- Antibiotics only fight infections caused by bacteria.
- Antibiotics will NOT help you feel better if you have a viral infection like a cold, runny nose, or flu.
- If you take antibiotics when you don't really need them, they can cause more harm than good. For instance, you might feel worse, get diarrhea, rashes, or yeast infections. Also, each time people take antibiotics, they are more likely to carry resistant germs in their body.
- Assure patients that their bodies will fight viral illnesses that cause most ARIs



3. Encourage symptomatic treatment for viral syndromes.

These free and downloadable prescription pads can be used to indicate symptomatic relief for a viral illness diagnosis:

- [Symptomatic relief prescription pad](#)
- [Delayed prescribing prescription pad](#)
- [Watchful waiting prescription pad](#)
- [Taking your antibiotics prescription pads](#)

2. Act



Primary care providers can implement policies and interventions to promote appropriate antibiotic prescribing practices.

- Use evidence-based diagnostic criteria and treatment recommendations
 - [Adult Treatment Recommendations](#)
 - [Pediatric Treatment Recommendations](#)
- Use delayed prescribing or watchful waiting, when appropriate.
 - View examples of prescription pads for delayed prescribing, watchful waiting, and symptomatic relief on page 11
- Provide communication skills training for prescribers
 - View a list of communication skills trainings on page 9
- Require explicit written justification in the medical record for non-recommended antibiotic prescribing
- Provide support for clinical decisions

Sample Delayed Prescribing, Watchful Waiting, and Symptomatic Relief Prescription Pads

What Is Delayed 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. Continue to monitor your own symptoms over the next few days.

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

If you **do not feel better** in ____ days/hours or **feel worse**, go ahead and fill your prescription.

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

Waiting to see if you really need an antibiotic can help you take antibiotics only when needed. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.

What Is Watchful Waiting?



WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may go away 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 own symptoms over the next few days.

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

If you **feel better**, no further action is necessary. You don't need antibiotics.

If you **do not feel better**, experience new symptoms, or have other concerns, call your healthcare professional _____. Discuss whether you need a recheck or antibiotics.

It may not be convenient to visit your healthcare professional multiple times, but only when needed. When antibiotics aren't needed, side effects could still hurt you. Common side effects include rash, dizziness, nausea, diarrhea, and yeast infections.

When a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.



Symptom Relief for Viral Illnesses



1. DIAGNOSIS

- Cold or cough
- Middle ear fluid (Otitis Media with Effusion, OME)
- Flu
- Viral sore throat
- Bronchitis
- Other: _____

You have been diagnosed with an illness caused by a virus. Antibiotics do not work on viruses. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. The treatments prescribed below will help you feel better while your body fights off the virus.

2. GENERAL INSTRUCTIONS

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

3. SPECIFIC MEDICINES

- Fever or aches: _____
- Ear pain: _____
- Sore throat and congestion: _____

Use medicines according to the package instructions or as directed by your healthcare professional. Stop the medication when the symptoms get better.

4. FOLLOW UP

- If not improved in ____ days/hours, if new symptoms occur, or if you have other concerns, please call or return to the office for a recheck.
- Phone: _____
- Other: _____

Signed: _____

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.



Download these free resources by visiting [here](#).

Provider Communication Skills Training

[To Prescribe or Not to Prescribe? Antibiotics and Outpatient Infections](#)

- **Description:** Sponsored by Stanford University, this free continuing medical education (CME) module provides a practical approach for treating outpatient infections and navigating patient interactions through a “Choose your own adventure” experience.
- **Length:** 1.75 hours
- **CME credits offered:** Yes

[CDC Training on Antibiotic Stewardship](#)

- **Description:** Developed by the Centers for Disease Control and Prevention (CDC), this free module encourages open discussion among physicians and patients and informs health care professionals about appropriate antibiotic prescribing.
- **Length:** 8 hours
- **CME credits offered:** Yes

[Primary Care Office Visits: Antibiotic](#)

- **Description:** Sponsored by the Robert Wood Johnson Foundation, this role play simulation was created to assist healthcare providers and their patients in improving their communication skills.
- **Length:** 30 minutes
- **CME credits offered:** No

[Dialogue around Respiratory Illness Treatment: Optimizing Communication with Parents](#)

- **Description:** This learning module was created by interactive Medical Training Resources at the University of Washington evaluating how doctor-parent communication influences antibiotic prescribing for acute respiratory illness in patients.
- **Length:** 15 minutes
- **CME credits offered:** No

[Choosing Wisely Communication Modules](#)

- **Description:** Developed by Drexel University College of Medicine, these interactive modules are designed to enhance physician and patient communication and address patient attitudes and beliefs that more care is better care. The modules are based on medical society recommendations from the *Choosing Wisely* campaign.
- **Length:** 1 hour
- **CME Credits offered:** No

3.Track and Report



Tracking and reporting antibiotic prescribing can guide changes in practice and be used to assess progress in improving antibiotic prescribing. Primary care providers can track and report antibiotic prescribing practices by doing the following:

- Self-evaluate antibiotic prescribing practices
 - Self-assess prescribing behavior by completing the survey found at <https://redcap.link/PDSB2022>
- Participate in continuing medical education and quality improvement activities to track and improve prescribing practices.
 - Attend the annual Illinois Summit on Antimicrobial Stewardship
- Implement at least one antibiotic prescribing tracking and reporting system.
- Assess and share performance on quality measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers

Track and Report Antibiotic Prescribing

1. Monitor performance on HEDIS measures.

The [Healthcare Effectiveness Data and Information Set \(HEDIS\)](#) is a performance measurement tool used by most health plans in the United States. HEDIS includes the following clinical quality measures related to antibiotic use:

- ***Appropriate testing for children with pharyngitis***
Percent of children ages 3 to 18 years who were diagnosed with pharyngitis, prescribed antibiotics and received group A streptococcus (strep) test for the episode.
- ***Appropriate treatment for children with upper respiratory infection, URI***
Percent of children ages 3 months to 18 years who were diagnosed with URI and were not dispensed an antibiotic prescription on or within three days after the episode date.
- ***Avoidance of antibiotic treatment in adults with acute bronchitis***
Percent of adults ages 18-64 years diagnosed with acute bronchitis who were not dispensed an antibiotic prescription.

2. Give providers and staff feedback about collected data

When possible, the preferred approach, is to track antibiotic prescribing at the individual clinician level. Individualized feedback provided to clinicians on antibiotic prescribing is an effective way to promote adherence to evidence-based guidelines.^{6,7,8,9}

Effective feedback interventions have included comparison of clinicians' performance with that of their peers,⁶ particularly with peers who perform in the top 10% on quality measures or in adherence to evidence-based guidelines (i.e., top-performing peers).¹⁰

- [Improving Outpatient Antibiotic Use Through Audit and Feedback](#)
- [Example Feedback Letter to Providers About Number of Antibiotics Prescribed](#)

⁶ Gerber JS, Prasad PA, Fiks AG, et al. Effect of an outpatient antimicrobial stewardship intervention on broad-spectrum antibiotic prescribing by primary care pediatricians: a randomized trial. JAMA 2013;309:2345–52. <http://dx.doi.org/10.1001/jama.2013.628>

⁷ Metlay JP, Camargo CA Jr, MacKenzie T, et al; IMPAACT Investigators. Cluster-randomized trial to improve antibiotic use for adults with acute respiratory infections treated in emergency departments. Ann Emerg Med 2007;50:221–30. <http://dx.doi.org/10.1016/j.annemergmed.2007.03.02>

⁸ Finkelstein JA, Huang SS, Kleinman K, et al. Impact of a 16-community trial to promote judicious antibiotic use in Massachusetts. Pediatrics 2008;121:e15–23. <http://dx.doi.org/10.1542/peds.2007-0819>

⁹ Butler CC, Simpson SA, Dunstan F, et al. Effectiveness of multifaceted educational programme to reduce antibiotic dispensing in primary care: practice based randomised controlled trial. BMJ 2012;344:d8173. <http://dx.doi.org/10.1136/bmj.d8173>

¹⁰ Meeker D, Linder JA, Fox CR, et al. Effect of behavioral interventions on inappropriate antibiotic prescribing among primary care practices: A randomized clinical trial. JAMA 2016;315:562–70. <http://dx.doi.org/10.1001/jama.2016.027>

4. Educate



Primary care providers can educate patients about the potential harms of antibiotic treatment with the following tools:

- Improving Antibiotic Use (page 16)
 - Download [here](#)
- Antibiotics Aren't Always the Answer (page 17)
 - Download [here](#)
- Preventing and Treating Ear Infections (page 18)
 - Download [here](#)
- Are Antibiotics Needed for My Child's Runny Nose? (page 19)
 - Download [here](#)
- Preventing and Treating Bronchitis (page 20)
 - Download [here](#)

Improving Antibiotic Use

Download [here](#):

IMPROVING ANTIBIOTIC USE



Do I really need antibiotics?



SAY YES TO ANTIBIOTICS
when needed for certain infections caused by **bacteria**.



SAY NO TO ANTIBIOTICS
for **viruses**, such as colds and flu, or runny noses, even if the mucus is thick, yellow or green. Antibiotics also won't help for some common bacterial infections including most cases of bronchitis, many sinus infections, and some ear infections.



Antibiotics are only needed for treating certain infections caused by bacteria.

Antibiotics do **NOT** work on viruses.

Do antibiotics have side effects?

Anytime antibiotics are used, they can cause side effects. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. Common side effects of antibiotics can include:



Rash



Dizziness



Nausea



Yeast Infections



Diarrhea

More serious side effects include *Clostridium difficile* infection (also called *C. difficile* or *C. diff*), which causes diarrhea that can lead to severe colon damage and death. People can also have severe and life-threatening allergic reactions.

Antibiotics save lives. When a patient needs antibiotics, the benefits outweigh the risks of side effects.

1 out of 5

medication-related visits to the ED are from reactions to antibiotics.

What are antibiotic-resistant bacteria?

Antibiotic resistance occurs when bacteria no longer respond to the drugs designed to kill them. Anytime antibiotics are used, they can cause antibiotic resistance.



Bacteria, not the body, become resistant to the antibiotics designed to kill them.



When bacteria become resistant, antibiotics cannot fight them, and the bacteria multiply.



Some resistant bacteria can be harder to treat and can spread to other people.

Each year in the United States, at least **2 million people** get infected with antibiotic-resistant bacteria. At least **23,000 people** die as a result.

Can I feel better without antibiotics?

Respiratory viruses usually go away in a week or two without treatment. To stay healthy and keep others healthy, you can:



Clean Hands



Cover Coughs



Stay Home When Sick



Get Recommended Vaccines

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.



Antibiotics Aren't Always the Answer

Download [here](#):

ANTIBIOTICS AREN'T ALWAYS THE ANSWER.



Antibiotics save lives. Improving the way healthcare professionals prescribe antibiotics, and the way we take antibiotics, helps keep us healthy now, helps fight antibiotic resistance, and ensures that these life-saving drugs will be available for future generations.



The Facts:

When a patient needs antibiotics, the benefits outweigh the risks of side effects or antibiotic resistance.

When antibiotics aren't needed, they won't help you, and the side effects could still hurt you.

Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, or yeast infections. More serious side effects include *Clostridium difficile* infection (also called *C. difficile* or *C. diff.*), which causes diarrhea that can lead to severe colon damage and death. People can also have severe and life-threatening allergic reactions.

Antibiotics do not work on viruses, such as colds and flu, or runny noses, even if the mucus is thick, yellow, or green.

Antibiotics are only needed for treating certain infections caused by bacteria. Antibiotics also won't help for some common bacterial infections including most cases of bronchitis, many sinus infections, and some ear infections.

Taking antibiotics creates resistant bacteria. Antibiotic resistance occurs when bacteria no longer respond to the drugs designed to kill them.

Each year in the United States, at least 2 million people get infected with antibiotic-resistant bacteria. At least 23,000 people die.

If you need antibiotics, take them as prescribed. Talk with your doctor if you have any questions about your antibiotic or if you develop any side effects, especially since that could be a *C. difficile* (*C. diff.*) infection, which needs to be treated.

Reactions from antibiotics are the most common cause of medication-related emergency department visits. 1 out of 5 medication-related emergency department visits are caused by reactions from antibiotics.



Questions to Ask Your Healthcare Professional

If your child is sick, here are three important questions to ask your healthcare professional:

1. What is the best treatment for my child's illness?

Your child can feel better without an antibiotic. Respiratory viruses usually go away in a week or two without treatment. Ask your healthcare professional about the best way to feel better while your child's body fights off the virus.

Common Condition	Common Cause			Are Antibiotics Needed?
	Bacteria	Bacteria or Virus	Virus	
Strep throat	✓			Yes
Whooping cough	✓			Yes
Urinary tract infection	✓			Yes
Sinus infection		✓		Maybe
Middle ear infection		✓		Maybe
Bronchitis/chest cold (in otherwise healthy children and adults)*		✓		No*
Common cold/runny nose			✓	No
Sore throat (except strep)			✓	No
Flu			✓	No

* Studies show that in otherwise healthy children and adults, antibiotics for bronchitis won't help you feel better.

2. What do I need to know about the antibiotics you're prescribing for my child today?

The antibiotic prescribed should be the one most targeted to treat the infection, while causing the least side effects. Some types of antibiotics, such as fluoroquinolones, have a stronger link to severe side effects such as life-threatening *C. diff* infections. The Food and Drug Administration (FDA) warns healthcare professionals to only prescribe fluoroquinolones when another treatment option is unavailable. These powerful antibiotics are often prescribed even when they are not the recommended treatment.

3. What can I do to help my child feel better?

Pain relievers, fever reducers, saline nasal spray or drops, warm compresses, liquids, and rest may be the best ways to help your child feel better. Your healthcare professional can tell you how to help relieve your child's symptoms.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.



Preventing and Treating Ear Infections

Download [here](#):

Preventing and Treating Ear Infections



What is an ear infection?

Ear infections can affect the ear canal or the middle ear.

Acute otitis externa (AOE) is the scientific name for an infection of the ear canal, which is also called swimmer's ear.

Middle ear infections are called *Otitis Media*, and there are two types of middle ear infections:

- **Otitis Media with Effusion (OME)** occurs when fluid builds up in the middle ear without pain, pus, fever, or other signs and symptoms of infection.
- **Acute Otitis Media (AOM)** occurs when fluid builds up in the middle ear and is often caused by bacteria, but can also be caused by viruses.



How are ear infections caused and how can they be prevented?

Bacteria

AOM is often caused by bacteria, and *Streptococcus pneumoniae* is a common bacterial cause of AOM.

- Ensure your child is up to date on vaccinations, including the pneumococcal vaccination which protects against *Streptococcus pneumoniae*. Breast feeding exclusively until your baby is 6 months old and continuing to breastfeed for at least 12 months can protect your baby from infections, including AOM.

Cold and Flu Season

AOM often occurs after a cold. Viruses cause OME (fluid in the middle ear), and then bacteria cause the fluid leading to AOM.

- Ensure your child is up to date on vaccinations and gets a flu vaccine every year.

Injury to the Ear

Foreign objects, like cotton swabs and bobby pins, can cause cuts and bruises in the ear canal, causing acute otitis external AOE.

- Avoid putting foreign objects in the ear.

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

CS281322A



Cigarette Smoke

Exposure to cigarette smoke can lead to more colds and more AOM.

- Avoid smoking and exposure to secondhand smoke.

Family History

The tendency to develop AOM can run in families.

- Family history is not preventable. Instead, focus on other prevention methods, like staying up to date on vaccinations, breast feeding, and avoiding smoke.

How are ear infections treated?

- AOE is usually treated with antibiotic ear drops.
- OME usually goes away on its own and does not benefit from antibiotics but sometimes antibiotics are needed.
- AOM may not need antibiotics in many cases because the body's immune system can fight off the infection without help from antibiotics, but sometimes antibiotics are needed.

Watchful Waiting

- Mild AOM often will get better on its own without antibiotic treatment, so your healthcare professional may recommend *watchful waiting* before prescribing antibiotics to you or your loved one. This means that your provider may wait a few days before deciding whether to prescribe antibiotics, while treating the symptoms of AOM. Watchful waiting gives your or your child's own immune system time to fight off the infection first before starting antibiotics. If you or your child don't get better in 2-3 days or get worse, your healthcare professional can recommend starting antibiotics.
- Another form of watchful waiting is *delayed prescribing*. This means that your healthcare professional may give you an antibiotic prescription, but ask you to wait 2-3 days to see if you or your child are still sick with fever, ear pain, or other symptoms before filling the prescription.

Symptom Relief

There are ways to relieve symptoms associated with ear infections – like ear pain – whether or not antibiotics are needed. Consider using acetaminophen or ibuprofen to relieve pain or fever. Ask your healthcare professional or pharmacist what medications are safe for you or your loved one to take.

Antibiotics, such as amoxicillin, are used to treat severe ear infections or ear infections that last longer than 2-3 days.

If your child has a fever of 102.2°F (39°C) or higher, discharge or fluid coming from the ear, symptoms are much worse, or symptoms last for more than two or three days for AOM, you should contact your healthcare professional. If your child has symptoms of OME for more than one month or hearing loss, contact your healthcare professional.



Page 2 of 2

Are Antibiotics Needed for My Child's Runny Nose?

Download [here](#):

Accessible version: <https://www.cdc.gov/antibiotic-use/colds.html>

Are Antibiotics Needed For My Child's Runny Nose? Q & A Guide for Parents

Are antibiotics needed for a runny nose?

No. Antibiotics do not work on viruses that cause colds or runny noses, even if the mucus is thick, yellow, or green.

A runny nose is a normal part of a cold. Your child's doctor or nurse may prescribe other medicine or give you tips to help with symptoms like fever and cough.

What causes a runny nose during a cold?

When the viruses that cause colds first infect the nose and sinuses, the nose makes clear mucus. This helps wash the virus from the nose and sinuses. After two or three days, the body's immune system fights back, changing the mucus to a white or yellow color. When bacteria that normally live in the nose grow back during the recovery phase, they then change the mucus to a greenish color. This is all normal and does not mean your child needs antibiotics.



Why not just try antibiotics?

When antibiotics aren't needed, they won't help and could even cause harm. Taking antibiotics creates resistant bacteria. Antibiotic resistance occurs when bacteria develop the ability to defeat the drugs designed to kill them. Any time antibiotics are used, they can cause side effects and can lead to antibiotic resistance. Side effects of antibiotics can include rash, dizziness, stomach problems, and yeast infections.

How can I help my child feel better?

Contact your child's doctor or nurse for advice on treatment appropriate for your child. In general, consider these other tips:

- Make sure they rest and drink plenty of fluids.
- Use a clean humidifier or cool mist vaporizer.
- Use saline nasal spray or drops.
- For young children, use a rubber suction bulb to clear mucus.
- Older children can breathe in steam from a bowl of hot water or shower.
- Use honey to relieve cough (if your child is at least 1 year old).
- Ask your child's doctor or pharmacist about over-the-counter medicines that can help them feel better. Always use over-the-counter medicines as directed. Remember, over-the-counter medicines may provide temporary relief of symptoms, but they will not cure your child's illness.

Improving the way we take antibiotics can help fight antibiotic resistance and ensure that lifesaving antibiotics will be available for future generations.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.



CS-322870-D



Preventing and Treating Bronchitis

Download [here](#):

Preventing and Treating Bronchitis

Cough keeping you up at night? Soreness in your chest and feeling fatigued? You could have acute bronchitis, but be aware: an antibiotic will not help you get better.



What is Acute Bronchitis?

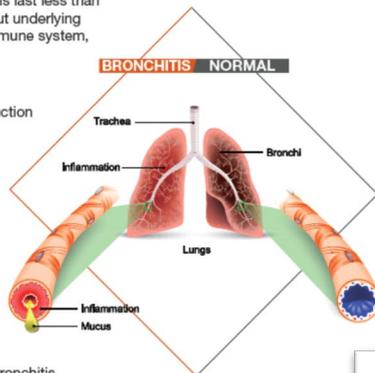
Bronchitis occurs when the airways of the lungs swell and produce mucus. That's what makes you cough. Acute bronchitis, often called a "chest cold," is the most common type of bronchitis. The symptoms last less than 3 weeks. If you're a healthy person without underlying heart or lung problems or a weakened immune system, this information is for you.

Symptoms of Acute Bronchitis:

- ◆ Coughing with or without mucus production
- You may also experience:**
- ◆ Soreness in the chest
- ◆ Fatigue (feeling tired)
- ◆ Mild headache
- ◆ Mild body aches
- ◆ Watery eyes
- ◆ Sore throat

Causes

- ◆ Acute bronchitis is usually caused by a virus and often occurs after an upper respiratory infection.
- ◆ Bacteria can sometimes cause acute bronchitis, but even in these cases antibiotics are NOT recommended and will not help you get better.



When to Seek Medical Care

- See a healthcare professional if you or your child have any of the following:
- ◆ Temperature higher than 100.4 °F
 - ◆ Cough with bloody mucus
 - ◆ Shortness of breath or trouble breathing
 - ◆ Symptoms that last more than 3 weeks
 - ◆ Repeated episodes of bronchitis



Recommended Treatment

Good news! Acute bronchitis almost always gets better on its own—without antibiotics. Using antibiotics when they aren't needed can do more harm than good. Unintended consequences of antibiotics include side effects, like rash and diarrhea, as well as more serious consequences, such as an increased risk for an antibiotic-resistant infection or *Clostridium difficile* infection, a sometimes deadly diarrhea.

To Feel Better:

- ◆ Get plenty of rest
- ◆ Drink plenty of fluids
- ◆ Use a clean humidifier or cool mist vaporizer
- ◆ Breathe in steam from a bowl of hot water or shower
- ◆ Use lozenges (*do not give lozenges to children younger than 4 years of age*)
- ◆ Ask your healthcare professional or pharmacist about over-the-counter medicines that can help you feel better

Remember, always use over-the-counter medicines as directed. **Do not use cough and cold medicines in children younger than 4 years of age** unless specifically told to do so by a healthcare professional.

Your healthcare professional will most likely prescribe antibiotics for a diagnosis of whooping cough (pertussis) or pneumonia.

Prevention

- ◆ Practice good hand hygiene
- ◆ Make sure you and your child are up-to-date with all recommended vaccines
- ◆ Don't smoke and avoid secondhand smoke, chemicals, dust, or air pollution
- ◆ Always cover your mouth and nose when coughing or sneezing
- ◆ Keep your distance from others when you are sick, if possible

And Remember:

Antibiotics will not treat acute bronchitis. Using antibiotics when not needed could do more harm than good.



Appendix

Adult Outpatient Treatment Recommendations

Available [Here](#)

Condition	Diagnosis	Management
Acute rhinosinusitis ^{1,2}	<ul style="list-style-type: none"> • Diagnose acute <u>bacterial</u> rhinosinusitis based on symptoms that are: <ul style="list-style-type: none"> ○ Severe (>3-4 days), such as a fever $\geq 39^{\circ}\text{C}$ (102°F) and purulent nasal discharge or facial pain; ○ Persistent (>10 days) without improvement, such as nasal discharge or daytime cough; or ○ Worsening (3-4 days) such as worsening or new onset fever, daytime cough, or nasal discharge after initial improvement of a viral upper respiratory infections (URI) lasting 5-6 days. • Sinus radiographs are not routinely recommended. 	<p>If a bacterial infection is established:</p> <ul style="list-style-type: none"> • Watchful waiting is encouraged for uncomplicated cases for which reliable follow-up is available. • Amoxicillin or amoxicillin/clavulanate is the recommended first-line therapy. • Macrolides such as azithromycin are not recommended due to high levels of <i>Streptococcus pneumoniae</i> antibiotic resistance (~40%). • For penicillin-allergic patients, doxycycline or a respiratory fluoroquinolone (levofloxacin or moxifloxacin) are recommended as alternative agents.
Acute uncomplicated bronchitis ³⁻⁵	<ul style="list-style-type: none"> • Evaluation should focus on ruling out pneumonia, which is rare among otherwise healthy adults in the absence of abnormal vital signs (heart rate ≥ 100 beats/min, respiratory rate ≥ 24 breaths/min, or oral temperature $\geq 38^{\circ}\text{C}$) and abnormal lung examination findings (focal consolidation, egophony, fremitus). • Colored sputum does not indicate bacterial infection. • For most cases, chest radiography is not indicated. 	<p>Routine treatment of uncomplicated acute bronchitis with antibiotics is not recommended, regardless of cough duration.</p> <p>Options for symptomatic therapy include:</p> <ul style="list-style-type: none"> • Cough suppressants (codeine, dextromethorphan); • First-generation antihistamines (diphenhydramine); • Decongestants (phenylephrine). <p>Evidence supporting specific symptomatic therapies is limited.</p>

<p>Common cold or non-specific upper respiratory tract infection (URI)^{6,7}</p>	<ul style="list-style-type: none"> Prominent cold symptoms include fever, cough, rhinorrhea, nasal congestion, postnasal drip, sore throat, headache, and myalgias. 	<ul style="list-style-type: none"> Decongestants (pseudoephedrine and phenylephrine) combined with a first-generation antihistamine may provide short-term symptom relief of nasal symptoms and cough. Non-steroidal anti-inflammatory drugs can be given to relieve symptoms. Evidence is lacking to support antihistamines (as monotherapy), opioids, intranasal corticosteroids, and nasal saline irrigation as effective treatments for cold symptom relief. <p>Providers and patients must weigh the benefits and harms of symptomatic therapy.</p>
<p>Pharyngitis^{8,9}</p>	<ul style="list-style-type: none"> Clinical features alone do not distinguish between GAS and viral pharyngitis; a rapid antigen detection test (RADT) is necessary to establish a GAS pharyngitis diagnosis Those who meet two or more Centor criteria (e.g., fever, tonsillar exudates, tender cervical lymphadenopathy, absence of cough) should receive a RADT. Throat cultures are not routinely recommended for adults. 	<ul style="list-style-type: none"> Antibiotic treatment is NOT recommended for patients with negative RADT results. Amoxicillin and penicillin V remain first-line therapy due to their reliable antibiotic activity against GAS. For penicillin-allergic patients, cephalexin, cefadroxil, clindamycin, or macrolides are recommended. GAS antibiotic resistance to azithromycin and clindamycin are increasingly common. Recommended treatment course for all oral beta lactams is 10 days.
<p>Acute uncomplicated cystitis^{10,11}</p>	<ul style="list-style-type: none"> Classic symptoms include dysuria, frequent voiding of small volumes, and urinary urgency. Hematuria and suprapubic discomfort are less common. Nitrites and leukocyte esterase are the most accurate indicators of acute uncomplicated cystitis 	<p>For acute uncomplicated cystitis in healthy adult non-pregnant, premenopausal women:</p> <ul style="list-style-type: none"> Nitrofurantoin, trimethoprim/sulfamethoxazole (TMP-SMX, where local resistance is <20%), and fosfomycin are appropriate first-line agents. Fluoroquinolones (e.g. ciprofloxacin) should be reserved for situations in which other agents are not appropriate.

Adult Outpatient Treatment Recommendations References

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