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OUTPATIENT ANTIBIOTIC STEWARDSHIP: FIRST DO NO HARM

Key Messages:

- **Unnecessary antibiotic prescribing in the US leads to the development of antibiotic resistance, poor health outcomes and increased healthcare costs.**
- **Up to 30% of all antibiotics prescribed in outpatient settings in the US are unnecessary; when looking at antibiotics prescribed for respiratory conditions in outpatient settings the number increases to 50%.**
- **The following report provides tools, strategies and evidence-based guidelines to improve outpatient antibiotic prescribing and patient communication, contributing to effective antibiotic stewardship.**

Antibiotic Overprescribing – An urgent public health threat

The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) have declared inappropriate antibiotic prescribing an urgent public health threat.[i, ii, iii] Both unnecessary antibiotic prescribing and antibiotic misuse lead to poorer health outcomes and increased costs of care.[vi,vii] More than 2 million antibiotic-resistant illnesses and 23,000 deaths occur each year in the US with a cost of 30 billion dollars.[viii] Even with appropriate use, antibiotic effectiveness decreases over time due to the development of resistant organisms which negatively impact individuals and the community.[iv,v] Antibiotic use, appropriate or not, leads to alteration of the gut flora placing individuals at increased risk for infections including traveler's diarrhea, foodborne illnesses, *C. difficile*, candida infections and sepsis.[iv, ix]

Antibiotic Overprescribing - How much is too much?

The CDC estimates that approximately 30 % of **all** outpatient antibiotic prescriptions are unnecessary and that rate increases to 50% when restricting analysis to respiratory conditions.[ix] While the ideal rate of antibiotic prescribing is elusive, US prescribing rates are 1 ½ times that of low prescribing developed nations such as Sweden.[iv, x] In 2016, US pharmacies dispensed approximately 270 million antibiotic prescriptions for a national prescribing rate of 836/1000.[xi] Southern states have the highest rates (937/1000) and Mississippi ranked third overall in the US with a rate of 1235/1000 or a fill rate of 1.23 prescriptions for every man, woman and child in the state![xi] The National Action Plan for Antibiotic Resistance calls for a 50% reduction in inappropriate antibiotic prescribing by 2020.[xii]

Antibiotic Limitation – Does it improve care?

Antibiotic stewardship is "the effort to measure how antibiotics are prescribed by clinicians and used by patients"[vii, ix] These programs are effective in promoting better evidence-based use. Decreased

antibiotic use means fewer adverse events, decreased rates of resistant organisms, decreased costs of care and ultimately an improved quality of care.[ix, xiii, xvi, xvii] Even small changes in antibiotic prescribing have demonstrated a positive an impact. In one study, a mere 10% reduction in prescribing can decrease *C. difficile* infections by 17%.[xiv]

Antibiotic Choice – Which is the right antibiotic?

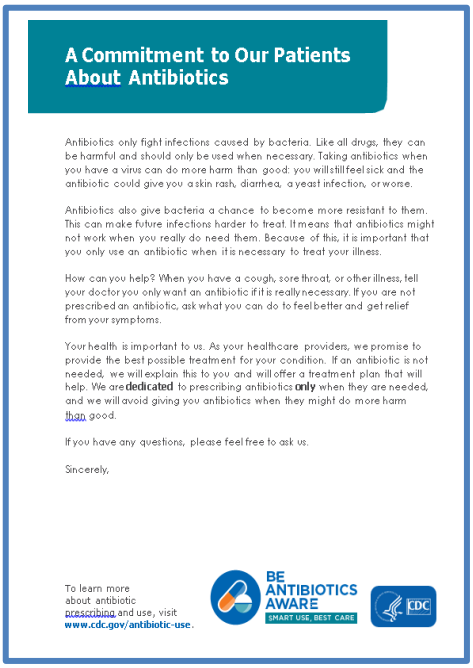
Equally important to only prescribing when indicated is making the right antibiotic choice. First line agents are prescribed only 52% of time for patients with sinusitis, suppurative otitis media or pharyngitis.[xiii] This percentage is even lower for adults (37%). Inappropriate use of azithromycin, especially in adults, is common despite the fact that it is **not** a recommended treatment for sinusitis or otitis media and is only indicated for pharyngitis in penicillin allergic patients.[xiii]

Antibiotic Overprescribing: Be part of the solution

I. Take the Pledge

The CDC has put together a number of valuable resources for those interested in improving antibiotic stewardship in their practices, including the commitment pledge to patients about antibiotics. The pledge poster is to be signed and posted in your clinic as an important step in highlighting your clinic's commitment to antibiotic stewardship. Available for download at https://www.cdc.gov/antibiotic-use/community/downloads/A-Commitment-to-Our-Patients-about-Antibiotics-poster-version-1.pdf

Commitment Pledge


A Commitment to Our Patients About Antibiotics

Antibiotics only fight infections caused by bacteria. Like all drugs, they can be harmful and should only be used when necessary. Taking antibiotics when you have a virus can do more harm than good: you will still feel sick and the antibiotic could give you a skin rash, diarrhea, a yeast infection, or worse.

Antibiotics also give bacteria a chance to become more resistant to them. This can make future infections harder to treat. It means that antibiotics might not work when you really do need them. Because of this, it is important that you only use an antibiotic when it is necessary to treat your illness.

How can you help? When you have a cough, sore throat, or other illness, tell your doctor you only want an antibiotic if it is really necessary. If you are not prescribed an antibiotic, ask what you can do to feel better and get relief from your symptoms.

Your health is important to us. As your healthcare providers, we promise to provide the best possible treatment for your condition. If an antibiotic is not needed, we will explain this to you and will offer a treatment plan that will help. We are **dedicated** to prescribing antibiotics **only** when they are needed, and we will avoid giving you antibiotics when they might do more harm than good.

If you have any questions, please feel free to ask us.

Sincerely,

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

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CDC

II. Follow the Guidelines

1. Use evidence-based diagnostic criteria outlined in guidelines to determine if an antibiotic is appropriate;
2. If warranted, choose the right antibiotic and the right duration, using first line antibiotics as appropriate; and
3. Provide patients with symptomatic treatment recommendations when antibiotics are not indicated.

Begin with prescribing for common respiratory conditions. Summaries of current evidence-based treatment guidelines for common adult and pediatric respiratory conditions can be found at:

- https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/adult-treatment-rec.html [xviii]
- https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/pediatric-treatment-rec.html [xix]

III. Communicate Effectively

Take time to discuss your diagnosis with your patient, why antibiotics are not indicated, the expected course of the illness, and discuss when to follow-up, if needed. Communication skills training has been shown to be effective in improving rates of antibiotic prescribing.[xx] Two proposed models for improving patient communication include *"**GET SMART**"*[xxi] and **The Four Es**.[xxii]

IV. Use the Tools

Exam/Waiting Room Posters indicate your commitment to only prescribing antibiotics when indicated and allow you to share critical information about antibiotic stewardship with your patients.

Watchful waiting is a good approach when antibiotics are unlikely to help (e.g. suspected viral illness). Provide guidance on symptom relief and ask them to wait on other treatment for 72 hours. Instruct the patient to come back if symptoms do not improve or if symptoms worsen.

Delayed prescribing is similar to watchful waiting but instead of asking the patient to come back, a prescription for an appropriate antibiotic is provided during the visit with instructions when to fill (i.e. if symptoms worsen or have not improved within a set timeframe). Note, prescriptions should be end dated so they cannot be used during future episodes of illness.[xx]

Prescribe specific symptom relief for viral illness. It is critical to address patient symptoms by giving then specific advice (i.e. drink plenty of fluids, use saline nasal spray for congestion, use ice chips, sore throat spray or lozenges for sore throat, provided specific recommendations for over the counter products to address low grade fever or pain). Written prescriptions or instructions are preferred to verbal ones. PDF versions of the tools discussed can be found at: https://www.cdc.gov/antibiotic-use/community/materials-references/print-materials/hcp/index.html [xxiii]

GETSMART Communication Guide

GETSMART: *Improving Communication and Antibiotic Prescribing*	
G	**Gain trust** Wash your hands, listen and make eye contact. Show them verbally and nonverbally that their health is your priority.
E	**Empathize** Validate patient concerns.
T	**Take time** Elicit specific expectations from your patient.
S	**Share findings** Explain reassuring findings that indicate what the diagnosis is and what it is not.
M	**Make your diagnosis specific** Tell patients they have a viral upper respiratory illness, viral pneumonia or a chest cold. Avoid dismissive statements such as "You just have a cold".
A	**Articulate next steps** Provide a contingency plan if the symptoms do not improve as expected.
R	**Resist unnecessary antibiotics** Reassure patients they will get better and explain why antibiotics are not appropriate.
T	**Treat** Give specific written instructions including information on symptom relief.

Four E's Communication Strategy

Talking to Patients about Viral Respiratory Illness

Studies have shown that patients are willing to forego antibiotics, even if they expect them, if clinicians explain why antibiotics are not needed, provide positive treatment recommendations, and suggest contingency plans.

Use The Four E's		
E's	**Strategy**	**Example**
Examine	Review physical exam findings and deliver a clear diagnosis	"Your ears look good and your lungs sound clear which is good news. Your throat is a bit red but nothing that warrants concern. It looks like you have a nasty cold."
Empathize	Validate the patient's symptoms and illness while providing reassurance	"These colds can make you feel pretty awful but thankfully, they aren't dangerous."
Explain the Treatment	Start with **negative** treatment recommendations to 'rule out' the need for antibiotics	"The strep test is negative, meaning your sore throat is caused by a virus, and antibiotics won't help."
	Then provide **positive** treatment recommendations for symptom relief*	"There are lots of things you can do to help with your symptoms…" "Taking ibuprofen and drinking plenty of fluids will help you feel better."
	Create a **contingency plan**	"Your cough may last from several more days to several weeks, and it may take a while for you to feel better. I want you to call me if you're still coughing after three weeks, or if you begin coughing blood."
Educate	If patients push for antibiotics, discuss facts about viral infections and antibiotics, including adverse effects.	"Our goal is to help your immune system fight the virus. Taking antibiotics can be harmful by destroying the good bacteria that protect your body. And when you use antibiotics when you don't need them, the next infection you get is more likely to be resistant to the medicine, so it won't work when you do need it."

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What Is Watchful Waiting?

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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 it is critical to 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.**

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What Is Delayed Prescribing?

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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 nex 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, o 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.

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Symptom Relief for Viral Illnesses

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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.**

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Viruses or Bacteria
What's got you sick?

Antibiotics are only needed for treating certain infections caused by bacteria. Viral illnesses cannot be treated with antibiotics. When an antibiotic is not prescribed, ask your healthcare professional for tips on how to relieve symptoms and feel better.

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.

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References

i. Pew Charitable Trust. The Critical Need for New Antibiotics. September 2018. https://www.pewtrusts.org/-/media/assets/2018/09/critical-need-for-new-antibiotics-infographic.pdf Accessed September 18, 2018.

ii. Center for Disease Control and Prevention, United States Department of Health and Human Services. Antibiotic Resistance Threats in the United States, 2013 [online] https://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf Accessed March 28, 2017

iii. World Health Organization. Antimicrobial Resistance: Global Report on Surveillance. June 2014. https://apps.who.int/iris/bitstream/handle/10665/112642/9789241564748_eng.pdf?sequence=1 Accessed online. October 2, 2014.

iv. Srinivasan A. Antibiotic stewardship: Why we must, how we can. Cleveland Clinical Journal of Medicine. 2017: 84(9): 673 – 679.

v. Zetts RM, Stoesz A, Smith BA and Hyun DY. Outpatient Antibiotics Use and the Need for Increased Antibiotic Stewardship Efforts. *Pediatrics*. 2018: 141 (6): e20174124.

vi. Fishman N. Antimicrobial Stewardship. *AJIC. 2006* 34 (5), supplement 1: S55-S63.

vii. Sanchez, G.V., Fleming-Dutra, K.E., Roberts, R.M., Hicks, L.A. *Core Elements of Outpatient Antibiotic Stewardship.* MMWR Recomm Rep 2016;65(No. RR-6):1–12.

viii. Harris AM, Hicks LA, and Qaseem A for the High Value Care Task Force of the American College of Physicians and for the Centers for Disease Control and Prevention. *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;164:425-434. doi:10.7326/M15-1840. https://annals.org/aim

ix. CDC: Antibiotic Use in the United States, 2017: Progress and Opportunities. Atlanta, GA: US Department of Health and Human Services, CDC; 2017. (PDF)

x. Pew Charitable Trust. Trends in U.S. Antibiotic Use. March 2017. https://www.pewtrusts.org/-/media/assets/2017/03/trends-in-us-antibiotic-use.pdf

xi. Centers for Disease Control and Prevention. *Outpatient Antibiotic Prescriptions – United States, 2016.* Accessed February 14, 2019. https://www.cdc.gov/antibiotic-use/community/programs-measurement/state-local-activities/outpatient-antibiotic-prescriptions-US-2016.html.

xii. The Pew Charitable Trusts. *Antibiotic Use in Outpatient Settings.* May 2016. http://www.pewtrusts.org/~/media/assets/2016/05/antibioticuseinoutpatientsettings.pdf Accessed August 29, 2018.

xiii. The Pew Charitable Trusts, *Health Experts Establish National Targets to Improve Outpatient Antibiotic Selection.* October 2016. http://www.pewtrusts.org/~/media/assets/2016/10/health_experts_establish_national_targets_to_improve_outpatient_antibiotic_selection.pdf Accessed August 29, 2018.

xiv. Dantes R, Mu Y, Hicks LA, et al. Association between outpatient antibiotic prescribing practices and community-associated *Clostridium difficile* infection. Open Forum Infect Dis 015;2:ofv113. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4551478/pdf/ofv113.pdf

xv. Meeker D, Knight TK, Friedberg MW, et al. Nudging guideline-concordant antibiotic prescribing: a randomized clinical trial. JAMA Intern Med 2014;174:425–31.

xvi. 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.

xvii. 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.

xviii. CDC. Adult Treatment Recommendations. Online. Accessed November 1, 2018. https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/adult-treatment-rec.html

xix. CDC. Pediatric Treatment Recommendations. Online. Accessed November 1, 2018. https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/pediatric-treatment-rec.html

xx. Fleming-Dutra KE, Mangione-Smith R, and Hicks LA. How to Prescribe Fewer Antibiotics: Talking Points that Work with Patients and Their Families. *American Family Physician*. 2016; 94(3): 200 – 202.

xxi. To Prescribe or Not To Prescribe? Antibiotics and Outpatient Infections. Online CME Course. Accessed October 18, 2018. https://med.stanford.edu/cme/courses/online/improving-antibiotics-pcs.html

xxii. New England QIN-QIO, the Medicare Quality Innovation Network-Quality Improvement Organization for New England. Talking to Patients about Viral Illnesses Use the Four E's. CMSQIN_C3-10_010518_1279. Accessed February 6, 2019. https://healthcarefornewengland.org/wp-content/uploads/C3-10_TalkingPts_Final.pdf

xxiii. CDC. Antibiotic Prescribing and Use in Doctor's Offices: Print Materials for Healthcare Professionals. Web-based. Accessed December 21, 2018. https://www.cdc.gov/antibiotic-use/community/materials-references/print-materials/hcp/index.html