Texas Medicaid

Appropriate Use of Antibiotics

Educational RetroDUR Mailing	☑Initial Study ❑Follow – up /Restudy

Executive Summary

Purpose:	To discourage antibiotic use for viral infections, limit the inappropriate use of broad-spectrum antibiotics, and provide prescribers with educational tools to better communicate with their patients regarding treatment of viral infections and antibiotic resistance (see Appendix).
Why Issue was Selected:	The Centers for Disease Control and Prevention (CDC) estimates that tens of millions of antibiotic prescriptions are written each year in the outpatient setting, with at least 28% of those prescriptions being unnecessary.[1] Unfortunately, the occurrence of resistance to antibiotics (especially with *S. pneumoniae,* a common respiratory tract infection pathogen) has increased, while the pharmaceutical pipeline for new classes of antibiotics has continually declined.[2] Patient understanding on the use of antibiotics is lacking, with 48% of patients expecting an antibiotic prescription for a common cold, and 58% of patients unaware of potential health dangers associated with antibiotic use.[3] However, studies have shown that patients are receptive to delaying or deferring antibiotic treatment if they are educated about why antibiotics would be ineffective for their illness.[4]

Performance indicators	Exceptions
• High percentage of broad-spectrum antibiotic use	~1,200 letters historically

Setting & Population:	All patients
Types of Intervention:	Cover letter which includes recommendations from current treatment guidelines for select upper respiratory tract infections.
Main Outcome Measures:	Outcome assessment deferred due to anticipated unavailability of claims data post intervention.
Anticipated Results:	Overall decrease in antibiotic prescribing, particularly broad-spectrum antibiotics.

Performance Indicator #1: High percentage of broad-spectrum antibiotic use

Why has this indicator been selected?	The excessive use of antibiotics is related to the growing emergence of antibiotic-resistant bacteria. Provider education has been shown to be effective in decreasing the use of antibiotics in cases where they are not warranted.
Candidates (denominator):	Patients receiving outpatient antibiotics in the past 365 days **without** a history of the following conditions (submitted ICD-10 codes) in the past 2 years: • Asthma

	• Chronic obstructive pulmonary disease (COPD) • Chronic bronchitis • Heart failure • Renal failure • Diabetes mellitus • Tuberculosis • Cystic Fibrosis • Immunocompromised patients (i.e., HIV+, cancer, history of organ transplantation)
Exception criteria (numerator):	Providers of candidates in the upper percentage of the plan for broad-spectrum antibiotic use during the past 365 days. Infectious disease, pulmonology, and hematology/oncology specialists are excluded if specialist data is available.

References:

1. CDC. Measuring Outpatient Antibiotic Prescribing. Last reviewed October 5, 2022. Available at https://www.cdc.gov/antibiotic-use/data/outpatient-prescribing/index.html. Accessed on October 26, 2022.
2. Arnold SR, Straus SE. Interventions to improve antibiotic prescribing practices in ambulatory care. Cochrane Database Syst Rev. 2005 Oct 19;2005(4).
3. Vaden JE, Marcus R, Hadler JL, et al. Consumer attitudes and use of antibiotics. Emerg Inf Dis Sept 2003;9(9):1128-35.
4. Pontes MC, Pontes NM. Debiasing effects of education about appropriate antibiotic use on consumers' preferences for physicians. Health Care Manage Rev. 2005 Jan-Mar;30(1):9-16.
5. CDC. Adult Outpatient Treatment Recommendations. Last reviewed October 3, 2017. Available at: https://www.cdc.gov/antibiotic-use/clinicians/adult-treatment-rec.html. Accessed on October 26, 2022.
6. DeGeorge KC, Ring DJ, Dalrymple SN. Treatment of the Common Cold. Am Fam Physician. 2019 Sep 1;100(5):281-289.
7. CDC. Pediatric Outpatient Treatment Recommendations. Last reviewed February 1, 2017. Available at: https://www.cdc.gov/antibiotic-use/clinicians/pediatric-treatment-rec.html. Accessed on October 26, 2022.
8. Chow AW, Benninger MS, Brook I, et al. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. Clin Infect Dis 2012;54(8):e72-e112.
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10. Shulman ST, Bisno AL, Clegg HW, et al. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: A 2012 update by the Infectious Disease Society of America. Clin Infect Dis 2012;55(10):e86-e102.
11. Kinkade S, Long NA. Acute Bronchitis. Am Fam Physician. 2016 Oct 1;94(7):560-565.
12. CDC. Recommended antimicrobial agents for the treatment and post exposure prophylaxis of pertussis. Last reviewed November 30, 2005. Available at https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm. Accessed on October 26, 2022.
13. Lieberthal AS, Carroll AE, Chonmaitree T, et al. The Diagnosis and Management of Acute Otitis Media. Pediatrics March 2013; 131 (3): e964–e999. 10.1542/peds.2012-3488.
14. Harmes KM, Blackwood RA, Burrows HL, Cooke JM, Harrison RV, Passamani PP. Otitis media: diagnosis and treatment. Am Fam Physician. 2013 Oct 1;88(7):435-40.

Appendix

Recommendations to Consider Before Prescribing Antibiotics for Your Patients	
Upper Respiratory Tract Infections (URTI) **(in general)** [5,6]	• **Usually viral in origin with symptoms lasting 10-14 days, rarely associated with complications, and antibiotics offer no benefit.** • Antibiotics do not shorten the duration of illness or prevent complications. • Purulent nasal/throat secretions alone do not predict bacterial infection or benefit from antibiotics. • Consider influenza, pneumococcal, and COVID-19 vaccines in high-risk patients.

Acute Bacterial Rhinosinusitis[7-9] **(ABRS)**	• **Most ambulatory care cases are caused by uncomplicated viral URTIs.**
	
	Adult:
	• Antibiotics are beneficial in patients with persistent symptoms lasting > 7-10 days without improvement; severe symptoms (i.e., high fever ≥ 102°F, purulent nasal discharge, or facial pain) lasting for at least 3-4 days at the beginning of an illness; OR onset of new fever, headache, or increase of worsening nasal discharge following a typical URTI that were initially improving.
	• Standard dose amoxicillin/clavulanate is recommended first-line therapy.
	  ○ If penicillin-allergic, doxycycline or a respiratory quinolone (levofloxacin, moxifloxacin) can be used.
	• Macrolides and trimethoprim/sulfamethoxazole are no longer recommended for empiric therapy based on high rates of resistance.
	• High dose amoxicillin/clavulanate (2 grams orally twice daily) is recommended in certain patients.*
	
	Children:
	• ABRS is likely when patients with a URTI present with persistent illness (i.e., nasal discharge of any quality and/or daytime cough) for > 10 days without improvement; worsening or new onset of symptoms after initial improvement; OR severe symptom onset ≥ 3 consecutive days (i.e., fever ≥ 102.2°F and purulent nasal discharge).
	• A 3-day additional observation can be offered to children with persistent illness.
	• Antibiotics should be prescribed in patients with severe or worsening disease.
	• Amoxicillin with or without clavulanate is recommended as first-line therapy.
	  ○ If penicillin-allergic, cefdinir, cefuroxime, cefpodoxime, a combination of clindamycin (or linezolid) and cefixime, or levofloxacin can be used.
	• High dose amoxicillin clavulanate (90 mg/kg/day) is recommended in certain patients.*
	
	* Patients from regions with high endemic rates (≥ 10%) of invasive penicillin non-susceptible *S. pneumoniae*, severe infection, attend daycare, aged < 2 or > 65 years, have recent hospitalization or antibiotic exposure, or are immunocompromised.

Acute Pharyngitis[10]	• **Antibiotics should be given only to patients with Group A beta-hemolytic streptococcal (GAS) pharyngitis; only 5-15% of adult acute pharyngitis cases and 20-30% of pediatric cases are caused by GAS.** • Rapid antigen diagnostic testing and/or culture should be performed because often clinical features alone do not reliably discriminate between GAS and viral pharyngitis. • Penicillin V or amoxicillin is preferred treatment. ○ If penicillin-allergic, a first-generation cephalosporin (if no anaphylaxis), clindamycin, clarithromycin, or azithromycin are recommended. • Analgesics, antipyretics, and supportive care should be offered.

Recommendations to Consider Before Prescribing Antibiotics for Your Patients	
Acute Bronchitis (Acute Cough Illness)[11,12]	• **Most acute bronchitis cases (> 90%) are caused by viruses; antibiotics are not recommended regardless of the duration of the cough.** • Consider chest radiography if heart rate > 100 beats/minute, respiratory rate > 24 breaths/minute, temperature > 100.4°F, dyspnea, hemoptysis, or signs of consolidation on chest examination (i.e., rales). • Antibiotics are indicated for suspected or confirmed pertussis; first line agents are macrolides or trimethoprim/sulfamethoxazole.

Acute Otitis Media (AOM)[13,14]	• **Antibiotics should be prescribed for AOM in children > 6 months with severe signs and symptoms (i.e., moderate to severe otalgia for at least 48 hours or temperature > 102.2°F) and for bilateral AOM in children 6-23 months without severe signs and symptoms.**
	  ○ Observation with close follow-up may be appropriate for patients with non-severe signs and symptoms and are 6 to 23 months with unilateral AOM or are > 24 months with unilateral or bilateral AOM.
	• High dose amoxicillin (80-90 mg/kg/day) is the first-line agent.
	  ○ High dose amoxicillin/ clavulanate should be used if the patient received amoxicillin within the last 30 days, has concurrent conjunctivitis, or if coverage for a β-lactamase positive organism is needed.
	  ○ If penicillin-allergic, cefdinir, cefpodoxime, or cefuroxime may be used.
	• Antibiotics are not indicated for otitis media with effusion in the absence of clinical symptoms.
	• Prophylactic antibiotics should not be prescribed to reduce the risk of AOM in children with recurrent AOM.

Patient education materials regarding antibiotic use and managing viral infections can be found at https://www.cdc.gov/antibiotic-use/materials-references/index.html.

TEXAS
Health and Human Services

Cecile Erwin Young
Executive Commissioner

<<DATE>>

«DEA»
«NAME»
«ADD1»
«ADD2»
«CITY», «STATE» «ZIP»

RE: Overutilization of Antibiotics

Dear Dr. <<NAME>>:

Thank you for providing quality care for Texas Fee-For-Service (FFS) Medicaid patients. The content of this letter has been approved by the Texas Drug Utilization Review (DUR) Board, whose function is to promote safe and cost-effective drug therapy and provide opportunities for continuous improvement of care.

The Centers for Disease Control and Prevention (CDC) estimates that tens of millions of antibiotic prescriptions are written each year in the United States for viral infections not treatable with antibiotics.[1] Bacterial resistance to antibiotics has increased, while the pharmaceutical pipeline for new classes of antibiotics has declined.[2] As of 2021, the outpatient prescription rates of all antibiotic classes per 1,000 population dispensed in Texas was 708, with the national average being approximately 643.[3] Studies have shown that patients are receptive to delaying or deferring antibiotic treatment if they are educated about why antibiotics would be ineffective for their illness.[3,4]

You have been selected to receive this mailing based on a percentage of your broad-spectrum antibiotic to your total antibiotic prescribing. We acknowledge that your medical specialty, such as emergency medicine or urgent care, may be a contributing factor in placing you at a higher percentage; however, you may still find the information provided useful to your practice. This analysis excludes patients with a history of asthma, COPD, chronic bronchitis, heart failure, renal failure, diabetes, tuberculosis, cystic fibrosis, or immunocompromised conditions (i.e., HIV, cancer, organ transplantation).

Total Texas Medicaid FFS Specific Data

Antibiotic Prescribing Indicator	Number of Broad-Spectrum Antibiotic Prescriptions*
• Promote prudent use of antibiotics with narrow-spectrum or no antibiotics, and provide education regarding common infections and treatment	~1,200 letters historically

*Based on data through (Date TBD), broad-spectrum antibiotics include amoxicillin/potassium clavulanate, azithromycin, clarithromycin, 2nd/3rd generation cephalosporins, linezolid, and fluoroquinolones.

We acknowledge that there may be clinical variables influencing an individual patient's management that are not apparent in claims data. However, we believe the issues identified may assist you in caring for your patient(s). It is possible that your license number may have been inadvertently assigned to the claim as an error at the pharmacy during the billing process. **Also, some prescribed medications as well as some recommended laboratory monitoring or physical examinations may not appear on the patient's profile because they may have been privately purchased or were not billable to Medicaid Services.** We thank you for reviewing this information and caring for Texas Medicaid patients, and we welcome the opportunity to discuss any comments or concerns you may have about our quality management program. Please feel free to

call our office at 1-866-923-7208 with questions or concerns. If your mailing address is incorrect, it must be updated through the Texas Medical Board online at **http://www.tmb.state.tx.us/page/change-address.**
Sincerely,

Medicaid Drug Use Review Board
Vendor Drug Program H-630

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2. Arnold SR, Straus SE. Interventions to improve antibiotic prescribing practices in ambulatory care. Cochrane Database Syst Rev. 2005 Oct 19;2005(4).
3. CDC. Antibiotic Use in the United States, 2022 Update: Progress and Opportunities. Available at https://www.cdc.gov/antibiotic-use/stewardship-report/current.html. Accessed on October 26, 2022.
4. Pontes MC, Pontes NM. Debiasing effects of education about appropriate antibiotic use on consumers' preferences for physicians. Health Care Manage Rev. 2005 Jan-Mar;30(1):9-16.
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10. Shulman ST, Bisno AL, Clegg HW, et al. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: A 2012 update by the Infectious Disease Society of America. Clin Infect Dis 2012;55(10):e86-e102.
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