

ID Pearl: Most Common Inappropriate Use of Antibiotics

Background: The Sarasota Memorial Hospital Antimicrobial Stewardship Team has noticed an increase in the amount of antibiotics prescribed for inappropriate uses. Overuse of antibiotics creates an unnecessary risk for adverse drug events, such as *Clostridium difficile* infection, and increases the risk of antimicrobial resistance. Antibiotics cause 1 in 5 emergency department visits for adverse drug events and lead to 50,000 emergency department visits in children each year. To decrease antimicrobial resistance it is important to treat patients with antibiotics only if they meet the diagnostic criteria established in evidence-based guidelines. This pearl serves to address the most commonly prescribed inappropriate uses of antibiotics in our hospital.

Disease or Condition	Recommendation
Asymptomatic Bacteriuria	<p>When to treat:¹</p> <ul style="list-style-type: none"> Bacteriuria in pregnancy Asymptomatic bacteriuria before transurethral resection of the prostate or other urological procedures for which mucosal bleeding is anticipated. <p>When NOT to treat:¹</p> <ul style="list-style-type: none"> Pyuria (WBC in urine) with asymptomatic bacteriuria Premenopausal non-pregnant women Diabetic women Elderly patients living in the community Elderly patients living in long-term care facilities Spinal cord injury patients Catheterized patients
Acute Rhinosinusitis	<ul style="list-style-type: none"> 90–98% of cases are viral, and antibiotics are not guaranteed to help even if the causative agent is bacterial² Diagnose acute bacterial rhinosinusitis based on symptoms that are:² <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 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 Watchful waiting is encouraged for uncomplicated cases for which reliable follow-up is available Amoxicillin or amoxicillin/clavulanate is the recommended first-line therapy <ul style="list-style-type: none"> Macrolides such as azithromycin are not recommended due to high levels of <i>Streptococcus pneumoniae</i> antibiotic resistance (~40%) Alternatives for penicillin allergic patients include Doxycycline and Levofloxacin
Acute Bronchitis	<ul style="list-style-type: none"> Acute bronchitis is primarily a viral illness and routine treatment with antibiotics is not justified and vigorous efforts to curtail their use should be encouraged <ul style="list-style-type: none"> Colored sputum does not indicate bacterial infection Between 65 – 80% of patients with acute bronchitis receive an antibiotic despite evidence that, with few exceptions, they are ineffective Elderly patients are particularly likely to receive unnecessary antibiotic coverage, and more than one-half of prescriptions are for extended spectrum antibiotics²
Chronic Obstructive Pulmonary Disease	<ul style="list-style-type: none"> Exacerbations of COPD can be precipitated by several factors. The most common causes appear to be respiratory tract infections (viral or bacterial). Currently the use of antibiotics is not indicated in COPD, other than for treating infectious exacerbations of COPD and other bacterial infections. Antibiotics should be given to patients with exacerbations of COPD who:³ <ul style="list-style-type: none"> Have 3 cardinal symptoms – increase in dyspnea, sputum volume, and sputum purulence (Evidence B) Have 2 of the cardinal symptoms, if increased purulence of sputum is 1 of the 2 symptoms (Evidence C) Require mechanical ventilation (invasive or noninvasive) (Evidence B) <p>The recommended length of antibiotic therapy is usually 5 – 10 days (Evidence D).³</p>
Heart Failure	<ul style="list-style-type: none"> The use of antibiotics is not indicated in Congestive Heart Failure, other than for treating infectious exacerbations and bacterial infections⁴ Exacerbations of heart failure (i.e. pulmonary edema and dyspnea) can mimic the signs and symptoms of pneumonia It is imperative that the clinician attempt to differentiate the two disease states and only treat with antibiotics if true pneumonia is present. The risk of increased bacterial resistance and <i>Clostridium difficile</i> infection is too severe to empirically cover all CHF exacerbations with antibiotics

Physicians may be contacted by the Antimicrobial Stewardship Team for the following reasons:

- To clarify the need for continued antibiotic therapy
- To streamline antibiotic therapy
- To clarify documentation in the patients chart

If you have questions contact the Antimicrobial Stewardship Team at ext. 1217

References:

1. Nicolle, Lindsay E., et al. "Infectious Diseases Society of America guidelines for the diagnosis and treatment of asymptomatic bacteriuria in adults." *Clinical Infectious Diseases* (2005): 643-654.
2. CDC's Get Smart program website: Get Smart Resources for Healthcare Providers: <http://www.cdc.gov/getsmart/week/educational-resources/hcp.html>
3. Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015. Available from: <http://www.goldcopd.org/>.
4. Albert, Ross H. "Diagnosis and treatment of acute bronchitis." *Am Fam Physician* 82.11 (2010): 1345-50.
5. Yancy, Clyde W., et al. "2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines." *Journal of the American College of Cardiology* 62.16 (2013): e147-e239.

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