Judicious Use of Antibiotics for Group A Streptococcal Pharyngitis

Potential Barriers and Suggested Ideas for Change

Key Activity: Diagnose Infection Accurately		
Rationale: In order to achieve judicious antibiotic prescribing for bacterial infections such as group A streptococcal pharyngitis, it is important to understand and use stringent and validated clinical diagnostic criteria as established through clinical guidelines. The careful application of these criteria lead to more accurate diagnosing, resulting in the potential to mitigate overuse of antibiotics for common pediatric infections.		
Potential Barriers	**Suggested Ideas for Change**	**Still Not Seeing Results?**
Gap: Group A Streptococcal Pharyngitis is diagnosed or treated outside an office visit.		

Practice does not have procedures or an effective triage system to optimize an accurate diagnosis.	• Develop and communicate practice policies to ensure a triage system is established and used appropriately.
	• Consider the following policies:
	  ✓ Decision to test must be based on a physical examination by a physician, NP, or PA.
	  ✓ Do not use nurse-only visits for diagnosis or treatment.
	  ✓ Do not allow prescribing over the phone.
		• Brainstorm with practice staff for ideas to improve your triage system in order to reduce diagnoses without a physical exam by a physician, NP, or PA.
		• Consult with other practices about their procedures for triage.

Gap: Group A Streptococcal Pharyngitis was not consistently diagnosed accurately, based on clinical criteria.		

Practitioners and/or staff may not recognize the importance of using strict criteria to diagnose group A streptococcal pharyngitis,	• Review the guidelines and recommendations that discuss the importance of accurately diagnosing infections to avoid misuse of antibiotics:
	  ✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections
	  ✓ Zaoutis T. CDC highlights threats posed by antibiotic resistance, calls for action
	  ✓ Antibiotic Resistance Threats in the United States, 2013. Centers for Disease Control and Prevention
	  ✓ Centers for Disease Prevention (CDC) Program. *Get Smart: Know When Antibiotics Work*
		• Discuss with all staff the importance of accurate diagnoses and stress the following:
		  ✓ Inappropriate diagnosis may lead to inappropriate use of antibiotics.
		  ✓ Antibiotic overuse is a serious health threat.
		  ✓ Adverse effects can result from unnecessary antibiotics.
		  ✓ Accurate diagnoses lead to appropriate treatment and judicious antibiotic use.

Strict diagnostic criteria are not being routinely used because of	• Review the guideline and recommendations that outline the diagnostic criteria to be used to accurately diagnose group A streptococcal pharyngitis:	• Conduct a "Lunch and Learn" or similar session with fellow clinicians and review the following to ensure all clinicians are aware

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
lack of knowledge of the criteria (signs, symptoms, and severity).	✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America • Review the Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart created for this course which outlines the criteria.	of the criteria to diagnose streptococcal pharyngitis. Use the following resources: ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America ✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart, developed for this course, or your practice's diagnostic tool
The practice does not have a systematic approach for applying known diagnostic criteria. – Lack of a clear tool for diagnosis – Lack of ready access to diagnosis information or a diagnostic tool	• Institute use of an existing diagnostic tool created for this course: ✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart • Alternately, create your own diagnosis tool for group A streptococcal pharyngitis. Consider the following: ✓ The diagnostic tool should have clear criteria for (a) determining when to test and (b) discerning between viral and bacterial infections with emphasis on the detailed criteria for diagnosing streptococcal pharyngitis. • Make the diagnostic tool available in each examining room.	• Survey the practitioners to ensure that every clinician has access to strict diagnostic criteria and a diagnostic tool. • Conduct a Lunch and Learn or similar session with fellow clinicians to review: ✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America
Practice staff may not be aware of the low incidence of rheumatic fever in the United States, especially in children under the age of 3 years.	• Review the following: Prevention of rheumatic fever and diagnosis and treatment of group A streptococcal pharyngitis *Circulation.* 2009;119:1541–1551. Available at: http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.109.191959	
Gap: *A RADT or culture was not performed to confirm diagnosis for patients meeting testing criteria or quality of results are not consistent.*		
Practice does not have clear guidelines as to when testing is appropriate.	• Develop and communicate practice policies regarding: ✓ Ensuring testing is performed when appropriate: ✓ Criteria for testing include:	• Reinforce with staff the rationale behind the testing policies:

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?

− Testing occurs when <u>not</u> appropriate.
− Testing is not consistently used to confirm a diagnosis.
− Treatment is given without testing.
	− Age of the patient is over 3 years of age.
	− Patient must have a sore throat
	− Patient displays one or more symptoms that indicate pharyngitis:
	  • Pharyngeal erythema
	  • Tonisillar exudate
	  • Palatal petechiae
	  • Tender cervical nodes
	  • Scarlatiniform rash
	  • Swollen red uvula
	Patient does <u>not</u> have clear viral symptomology:
	  • Cough
	  • Hoarseness
	  • Coryza, conjunctivitis
	  • Viral exanthem (maculopapular rash)
	  • Mouth ulcers
	  • Diarrhea
	• Antibiotic treatment should <u>not</u> occur without positive results from testing (either RADT or throat culture).
	• If RADT result is negative, treatment should <u>not</u> occur unless there is a positive throat culture.
	  ✓ Review the flowchart created for this course to assist in testing, diagnosing, and treating group A streptococcal pharyngitis: Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart
	• The use of a serologic assays for group A streptococcus is not recommended to diagnose group A streptococcal pharyngitis.
		✓ There is potential for a missed alternative diagnosis if testing is obtained unnecessarily.
		✓ Treatment without positive test result is an inappropriate use of antibiotics and may result in adverse effects and antibiotic resistance.

Staff may not have skills or knowledge to obtain an adequate throat sample for rapid diagnostic testing (RADT).	• Identify and read literature that describes proper technique:
	  ✓ Brien JH, Bass JW. Streptococcal pharyngitis: Optimal site for throat culture. *J Pediatr.*1985;106(5):781–783
	  ✓ Tanz RR, Gerber MA, Shulman ST. What is a throat culture*? Adv Exp Med Biol*. 1997;418:29–33
		• Conduct a workshop to demonstrate correct technique to relevant staff.

Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
	✓ Optimal site for throat culture: Tonsillar surface versus posterior pharyngeal wall.(Pubmed Abstract)	
There is a lack of knowledge regarding quality control issues and specificity of RADTs.	• Provide education regarding specific details of the test you are using in your office and the specificity of RADTs: ✓ The specificity of RADTs is generally high. The sensitivity (false negative rate) can vary considerably. Negative RADTs should always result in a back-up throat culture. ✓ As with throat cultures, the sensitivity of the test is highly dependent on the quality of the throat specimen and the experience of the person performing the test. • Review the proper technique (see resources above). • Establish a protocol of how to address parental use of home tests and be aware of that the American Academy of Pediatrics (AAP) discourages use of such testing. ✓ Although the Food and Drug Administration has approved a variety of rapid tests for use in home settings, their use by parents is discouraged because of the possibility of poor sensitivity.	• Conduct a workshop to explain quality control issues and demonstrate correct technique to relevant staff.
The practice may not have an effective triage system to optimize accurate diagnosis and approved treatment.	• Develop and communicate practice policies to ensure a triage system is established and used appropriately. Consider the following policies: ✓ Diagnosis, testing, and treatment must be based on a physical examination by a physician, NP, or PA. ✓ Do not use nurse-only visits for diagnosis, testing, or treatment. ✓ Do not allow prescribing over the phone.	• Brainstorm with practice staff for ideas to improve your triage system in order to reduce diagnosis, testing, or treatment without a physical exam by a physician, NP, or PA. • Consult with other practices about their procedures for triage.
Gap: *A throat culture was not performed when the RADT was negative.*		
The practice does not have clear guidelines as to when and what testing is appropriate to accurately diagnose acute group A streptococcal pharyngitis.	• If RADT result is negative, a throat culture should be performed and treatment should <u>not</u> occur unless there is a positive throat culture. ✓ Review the flowchart created for this course to assist in diagnosing and treating group A streptococcal pharyngitis to help determine when to test: Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart.	•

Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
	✓ Also see guidelines in Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America.	

Key Activity: Treat Group A Streptococcal Pharyngitis Effectively with Judicious Use of Antibiotics

Rationale It is widely documented that antibiotics are frequently prescribed when not required or the incorrect antibiotic is prescribed. Such overuse and misuse of antibiotics causes avoidable drug-related adverse events, unnecessary cost, and contributes to antibiotic resistance, which is a very serious health threat. Judicious use of antibiotic for treating group A streptococcal pharyngitis includes testing only when indicated, proper testing, and using antibiotics only when they are needed to treat the infection, choosing the right antibiotics, and administering them in the correct way.

Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
Gap: *Patients are not seen by a physician, PA, or NP before being diagnosed, tested, or treated for streptococcal pharyngitis.*		
Practice does not have an effective triage system to optimize an accurate diagnosis and approved treatment.	• Develop and communicate practice policies to ensure a triage system is established and used appropriately. Consider the following policies: ✓ Diagnosis, testing, and treatment must be based on a physical examination by a physician, NP, or PA. ✓ Does not use nurse-only visits for diagnosis, testing, or treatment. ✓ Do not allow prescribing over the phone.	• Brainstorm with practice staff for ideas to improve your triage system in order to reduce diagnosis, testing, or treatment without a physical exam by a physician, NP, or PA. • Consult with other practices about their procedures for triage.
Gap: *Diagnosed patients are not prescribed antibiotics although antibiotics are indicated.*		
Lack of awareness of, or access to, the clinical guideline recommendations for the correct treatment of acute streptococcal pharyngitis.	• Obtain and review the following guideline that indicates the appropriate management of diagnosed streptococcal pharyngitis ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America – See Table 2 *Antibiotic Regimes Recommended for Group A Streptococcal Pharyngitis.*	• Survey the practitioners to ensure that every clinician has access to the guideline recommendations for treatment. • Conduct a Lunch and Learn or similar session with fellow clinicians to review the treatment recommendations using these resources: ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America

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		− See Table 2: Antibiotic Regimes Recommended for Group A Streptococcal Pharyngitis. ✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart, created for this course
Patients are not treated with the <u>correct</u> antibiotic.		
Lack of awareness of, or access to, the clinical guideline recommendations for the treatment of group A streptococcal pharyngitis: • First-line treatment • Treatment if penicillin or amoxicillin allergy • Treatments that should not be prescribed	• Obtain and review the following guideline: ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America, which lists the treatment recommendation − See Table 2, *Antibiotic Regimes Recommended for Group A Streptococcal Pharyngitis.* ✓ Pharyngitis—Principles of Judicious Use of Antimicrobial Agents • Review and use a diagnostic and treatment tool for group A streptococcal pharyngitis created for this course. ✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart • Make the diagnostic and treatment flowchart available in every examination room.	• Conduct a Lunch and Learn session to review a diagnostic tool and to discuss the evidence-based guideline behind it: ✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart created for this course ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America ✓ Initial Antibiotic Management Table created for this course
The causes of acute pharyngitis are not known or considered.	• Review the following discussion of the microbiology of acute pharyngitis: ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America, *Introduction and Table 3: Microbial Etiology of Acute Pharyngitis*	
The geographic resistance patterns for macrolide antibiotics are not understood or considered.	• Review resources that inform local geographic resistance patterns: ✓ American Academy of Pediatrics Red Book, Section 3. Group A Streptococcal Infections (subscription required) ✓ Genetic commonality of macrolide-resistant group A beta hemolytic streptococcus pharyngeal strains ✓ Villaseñor-Sierra A, Katahira E, Jaramillo-Valdivia AN, et al. Phenotypes and genotypes of erythromycin-resistant Streptcoccus pyogenes strains isolated from invasive and non-invasive	

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	infections from Mexico and the USA during 1999–2010. *Int J Infect Dis.* 2012;16:e178–e181 ✓ Tanz RR, Shulman ST, Shortridge VD, et al. Community-based surveillance in the United States of macrolide-resistant pediatric pharyngeal group A streptococci during 3 respiratory disease seasons. *Clin Infect Dis.* 2004;39:1794–1801 (Pubmed Abstract) ✓ Richter SS, Heilman KP, Beekman SE, et al. Macrolide-resistant Streptococcus pyogenes in the United States. *Clin Infect Dis.* 2005;41:599–608 (Pubmed Abstract)	
Lack of conceptual framework regarding broad-spectrum versus narrow-spectrum antibiotics, especially the role of broad spectrum antibiotics in promoting resistance and disrupting normal flora.	• Review the following to learn about broad-spectrum versus narrow-spectrum antibiotics: ✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections ✓ Antibiotic Resistance Threats in the United States, 2013. Centers for Disease Control and Prevention ✓ The Human Microbiome and Its Potential Importance to Pediatrics	
Lack of a clear understanding of true antibiotic allergy and the adverse effects associated with choice of antibiotic.	• Review the following: ✓ True Antibiotic Allergies discussion from this course ✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections ✓ A Review Of Evidence Supporting the American Academy of Pediatrics Recommendation for Prescribing Cephalosporin Antibiotics for Penicillin-Allergic Patients ✓ Committee on Infectious Diseases. Policy Statement: *Clostridium difficile* infection in infants and children ✓ Why's and how's of judicious antibiotic prescribing for URIs	• Conduct a Lunch and Learn or other comparable session to review the concept of true antibiotic allergies with practice clinicians. • Review the specifics and classify the antibiotic reaction for any child in whom an antibiotic allergy is reported. • Use the following resources: ✓ True Antibiotic Allergies discussion from this course ✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections ✓ Why's and how's of judicious antibiotic prescribing for URIs
Lack of understanding of the frequency of chronic carriage of group A streptococcus and the	• Educate practitioners regarding: ✓ Frequency of chronic carriage of group A streptococcal pharyngitis is 20% in late winter and spring months.	

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implications for management of a child with recurrent symptoms.	✓ Group A streptococcal pharyngitis carriers do not generally require antibiotics and are at low risk for suppurative and nonsuppurative complications and for transmitting GAS.
	✓ Most children who have asymptomatic carriage do not require therapy unless there is a:
	
	    • Local outbreak of acute rheumatic fever (ARF) or post-strep glomerulonephritis
	
	    • Outbreak in a closed community
	
	    • Family history of ARF
	
	    • Ping-pong episodes occurring over many weeks in a family
	
	        1. If treatment is recommended, treat with clindamycin.
	        2. Other regimens have been utilized.
	
	• Refer to the following resources:
	
	✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America, *Page 11*
	
	✓ American Academy of Pediatrics Red Book Section 3. Group A Streptococcal Infections (subscription required)	

Practitioners may lack knowledge regarding the impact of antibiotics on the course of pharyngitis and on the occurrence of suppurative and nonsuppurative complications.	• The average course for GAS pharyngitis without treatment is 3–5 days; patients should improve in 1–2 days with antibiotics unless a suppurative complication develops or the wrong diagnosis was made. • Review the following references: ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America ✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections ✓ Illness Duration Table, created for this course ✓ Duration of symptoms of respiratory tract infections in children: Systematic review. *BMJ.* 2013;347:f7027 doi: 10.1136/bmj.f7027 (Published 11 December 2013)	

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Misconception regarding the existence of penicillin resistance in group A streptococcus.	• Educate practitioners that penicillin-resistant group A streptococcal pharyngitis has **never** been documented.
	• Refer to the following materials:
	  ✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America, Page 11: Evidence Summary
	  ✓ American Academy of Pediatrics Red Book, Section 3. Group A Streptococcal Infections (Subscription required)	

Lack of access to and knowledge of geographic data regarding risk for macrolide-resistant group A streptococcus.	• Refer to the following for information: ✓ Genetic commonality of macrolide-resistant group A beta hemolytic streptococcus pharyngeal strains	

Practitioners may not understand the impact of antibiotics on the course of group A streptococcal pharyngitis and on the occurrence of complications.	• Agree on, establish, and communicate a practice policy regarding prescription of recommended antibiotic only, based on group A streptococcal clinical practice guideline.
	• Prepare to respond to parents' requests and inquiries with an explanation of the benefits of the recommended amoxicillin (or penicillin) antibiotic treatment.
	• Devote part of the visit flow to share with patient/family which antibiotic is recommended for treatment and why it is recommended.
	• Establish practice policies that eliminate over-the-phone prescribing of antibiotics (ie, diagnosis must be based on a physical examination).
	• Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key messages and key information to share with parents.
		• Meet with practice staff to:
		  ✓ Discuss the importance of a practice policy for addressing parental pressure and the best way to communicate the policy.
		  ✓ Brainstorm ideas for your specific patient population to address the common concerns and misconceptions practitioners face.
		  ✓ Develop answers to parents' common questions, beliefs, and resistance.
		• Use available resources to educate parents
		  ✓ Patient and Family Antibiotic Education Resource List, created for this course
		  ✓ HealthyChildren.org articles
		  ✓ CDC Program. *Get Smart: Know When Antibiotics Work*

Patient/family requests that antibiotics or a <u>specific</u> antibiotic should be prescribed.	• Consider using selected resources for discussion with parents. Consider the following resources:
	  ✓ AAP Parent Education Online (requires subscription).
	    – Antibiotics and Your Child
	    – Common Childhood Infections
		• Meet with practice staff to:
		  ✓ Discuss the importance of a practice policy for addressing parental pressure and the best way to communicate the policy.

- HealthyChildren.org articles:
  - [Antibiotic Prescriptions for Children: 10 Common Questions Answered](#)
  - [Choosing Wisely](#)
  - [How Do Antibiotics Work?](#)
  - [Guidelines for Antibiotic Use](#)
  - [Caring for a Child with a Viral Infection](#)
  - [Antibiotics for a Sore Throat, Cough or Runny Nose?](#)
  - [When a Sore Throat is a More Serious Infection](#)
- [Centers for Disease Prevention (CDC) Program. *Get Smart: Know When Antibiotics Work*](#)

- Distribute [Patient and Family Antibiotic Information Resource List,](#) created for this course.
- Make selected resources readily available in every examination room.
- Post antibiotic use information and policies in waiting rooms examination rooms, on practice Web site, on patient portal, etc.

- ✓ Brainstorm ideas for your specific patient population to address the common concerns and misconceptions practitioners face.
- ✓ Develop answers to parents' common questions, beliefs, and resistance.
- Practice antibiotic stewardship in your practice. Use these resources:
  - ✓ [Centers for Disease Control: Get Smart for Healthcare](#)
  - ✓ [Antimicrobial stewardship in pediatrics: how every pediatrician can be a steward](#) (Pubmed Abstract)
- Create a Judicious Use portal on your practice Web site with educational resources including information on your practice's approach to common clinical infections.
- Appoint an office Judicious Use Champion.

Gap: *Patients/families are not informed to begin antibiotics if RADT was negative and throat culture results are positive*.

The practice does not have protocols to ensure patient/family is informed to begin antibiotics if RADT was negative and throat culture results are positive.	• Devote part of your visit flow to inform patient/family of the need to start antibiotics in the setting of a negative RADT and positive throat culture results. Consult the [Antibiotic Guidance and Education Checklist](#) created for this course for a summary of key information to review with patients and families.	

Key Activity: Provide Guidance and Education to Patients and Families

Rationale: It is important for patients and their families to understand how overuse or incorrect use of antibiotics can contribute to avoidable adverse effects, unnecessary costs, and antibiotic resistance. Patients also should understand both the benefits and risks of antibiotic therapy. Parental guidance should address under what conditions they should follow up with the practice. Education can assist the patients and families to engage in shared decision making with their pediatrician.

Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
Gap: *Risks of antibiotic therapy are not discussed with the patient.*		

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
Practitioners may not have complete knowledge of the range of risks and adverse events associated with antibiotic use including allergy.	• Side effects and allergic reaction should always be discussed. Antibiotic resistance should be discussed if the patient/family has concerns. Review the following: ✓ Antibiotic Resistance Threats in the United States, 2013 Antibiotic Resistance Threats in the United States, 2013 Centers for Disease Control and Prevention ✓ This course's discussion of Drug-Related Adverse Effects ✓ CDC highlights threats posed by antibiotic resistance, calls for action ✓ A Review of Evidence Supporting the American Academy of Pediatrics Recommendation for Prescribing Cephalosporin Antibiotics for Penicillin-Allergic Patients. ✓ Committee on Infectious Diseases: Policy statement: *Clostridium difficile* infection in infants and children ✓ Why's and how's of judicious antibiotic prescribing for URIs	• Make part of your practice policy that all practitioners must understand risks, discuss risks with the patient/family, and document that discussion in the patient's record.

Resources are not available (or not utilized) to guide patient/family discussion of the risks related to antibiotics.	• Make selected resources readily available in every examination room. Consider the following:
	✓ Patient and Family Antibiotic Information Resource List, created for this course
	✓ HealthyChildren.org articles including:
	  – Antibiotic Prescriptions for Children: 10 Common Questions Answered
	  – Choosing Wisely
	  – How Do Antibiotics Work?
	  – Guidelines for Antibiotic Use
	✓ AAP Patient Education Online (requires subscription):
	  – Antibiotics and Your Child
	  – Create and post a Commitment Letter in the practice waiting and/or examination rooms. A Commitment Letter is a poster-size letter to display in the practice's office which should have photographs and signatures of each provider along with their commitment to reduce inappropriate use of antibiotics.
		• Utilize information from the HealthyChildren.org articles and this course's Drug-Related Adverse Effects to create your own patient handout or talking points regarding antibiotic use.
		• Create a Judicious Use portal on your practice Web site with educational resources including information on judicious use of antibiotics.
		• Appoint an office Judicious Use Champion.

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
	✓ See CDC's Get Smart: Poster-based Interventions.	
Routine education on antibiotic use and risks are not part of the practice's standard visit flow. There is not enough time in the visit to adequately counsel patients and families regarding antibiotic risks and adverse effects.	• Consider making discussion and/or brochure about antibiotic use and risks a routine part of sick visits for respiratory conditions. • Consider making antibiotic education a routine part of designated well-child visits as part of well-child care. • Provide a handout to parents during the visit that includes a list of information sources. See this course's Patient and Family Antibiotic Information Resource List. • Post antibiotic use information and policies in waiting rooms and on practice Web site, patient portal, etc. • Create and post a Commitment Letter in the practice waiting and/or examination rooms. A Commitment Letter is a poster-size letter to display in the practice's office which should have photographs and signatures of each provider along with their commitment to reduce inappropriate use of antibiotics. ✓ See CDC's Get Smart: Poster-based Interventions. • Reserve spots for same-day sick appointments in your schedule.	• Utilize information from the HealthyChildren.org articles and this course's summary of Drug-Related Adverse Effects to create your own patient handout or talking points regarding antibiotic use and risks. • Create a Judicious Use portal on your practice Web site with educational resources including information on your practice's approach to common clinical infections. • Appoint an office Judicious Use Champion.
Gap: *Discussion of risks of antibiotic use was not documented in the medical record.*		
There is no systematic practice to document the discussion of antibiotic risks in the patient's chart.	• Devote part of the visit flow to discuss risk and possible adverse effects and to document that discussion in the patient's medical record.	• Make documentation a check box on the sick-visit flow for review of risks.
Gap: *Patients and families are not educated about effective treatment with judicious use of antibiotics.*		
The sick-visit flow does not include informing the patient/family of effective treatment options and judicious use of antibiotics.	• Devote part of the visit flow to inform patient/family of the following: ✓ When testing is necessary and appropriate ✓ Recommended antibiotic treatment (if any) and why that treatment is optimal ✓ Antibiotic dose and course	• Use selected resources to educate the patient/family about effective treatment and judicious use of antibiotics. (See resources listed in row below.) • Share with parents an article that stresses the need for adherence.

Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
	✓ The need to complete entire course • Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key information to review with patients and families.	✓ Guidelines for Antibiotic Use from Healthychildren.org • Review the following: ✓ Policy Statement—Guidance for the Administration of Medication in School
The practice does not have adequate resources to educate parents about effective treatment of group A streptococcal pharyngitis and the judicious use of antibiotics.	• Select and utilize resources to educate patents/families: ✓ AAP Patient Education Online (requires subscription): 　• Antibiotics and Your Child 　• Common Childhood Infections ✓ HealthyChildren.org articles: 　• Antibiotic Prescriptions for Children: 10 Common Questions Answered 　• Choosing Wisely 　• How Do Antibiotics Work? 　• Guidelines for Antibiotic Use 　• Caring for a Child with a Viral Infection ✓ Centers for Disease Prevention (CDC) Program. *Get Smart: Know When Antibiotics Work* • Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key information to review with patients and families. • Distribute Patient and Family Antibiotic Information Resource List created for this course. • Make selected resources readily available in every examination room. • Create and post a Commitment Letter in the practice waiting and/or examination rooms. A Commitment Letter is a poster-size letter to display in the practice's office which should have photographs and signatures of each provider along with their commitment to reduce inappropriate use of antibiotics. • See CDC's Get Smart: Poster-based Interventions..	• Create a Judicious Use portal on your practice Web site, with educational resources including information on your practice's approach to common clinical infections. • Appoint an office Judicious Use Champion. • Develop answers to parents' common questions, beliefs, and resistance for use by staff. • Provide scripts to address symptomatic care for viral URI. For example: ✓ Get Smart Prescription Pads from the CDC Get Smart materials (scroll down to Prescription Pads)

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
	• Post judicious antibiotic use information and policies in waiting rooms and on practice Web site, patient portal, etc.	
Gap: *Patients/families are not informed to begin antibiotics if RADT was negative and throat culture results are positive*.		
Practice does not have protocols to ensure the patient/family is informed to begin antibiotics if RADT was negative and throat culture results are positive.	Devote part of your visit flow to inform the patient/family of the need to start antibiotics in the setting of a negative RADT and positive throat culture results. Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key information to review with patients and families.	
Gap: *Patients and families are not educated about the expected course of pharyngitis and when to follow up.*		
The sick-visit flow does not include informing the patient/family of expected course of group A streptococcal pharyngitis and when to follow up.	• Devote part of your visit flow to inform parents of the expected course of the illness and when follow-up is indicated for each condition. • Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key information to review with patients and families. • Consult the Illness Duration Table created for this course.	

There is no systematic practice to establish, communicate, and document a follow-up plan in the patient's chart (eg, appointment, phone call) to ensure clinical improvement.	• Create a clear practice protocol for following up on patients. Consider the following in the protocol:
	  ✓ Routine discussion and selection of a follow-up plan at the patient visit
	  ✓ Parental guidance to stress importance of following up if there is no improvement
	• Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key information to review with patients and families including when patients/families should follow up.
		• Put in place a patient education campaign stressing the importance of following up when their child's symptoms do not improve.
		• Publicize the need for follow-up on your practice Web site.
		• Create a prescription-like pad that indicates when and how to follow up.

Gap: *Follow-up conversation with the family (see above) was not documented in the medical record.*		
There is no systematic practice to establish and document a follow-up plan in the patient's chart.	• Create a clear practice protocol for documenting the follow-up plan in the patient's chart.	• Make it a check box on the sick-visit flow for communicating the need for follow-up.

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
Or There is not enough time to document the follow-up plan.		
Gap: *Patients and families are not educated about prevention techniques.*		

The sick-visit flow does not include informing the patient/family of prevention techniques.	• Consider making the recommendations below a component of your practice protocols, as appropriate:
	  ✓ Recommend pneumococcal conjugate vaccine to all children based on the schedule of the Advisory Committee on Immunization Practices of the CDC, AAP, and AAFP.
	  ✓ Recommend annual influenza vaccine to all children according to schedule of the Advisory Committee on Immunization Practices of the CDC, AAP, and AAFP.
	  ✓ Encourage avoidance of tobacco smoke exposure.
	  ✓ Encourage safe food preparation practices.
	  ✓ Encourage hand washing.	

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