# EQIPP Helping You Improve Care for Children

#### **Judicious Use of Antibiotics for Viral Upper Respiratory Infections**

#### **Potential Barriers and Suggested Ideas for Change**

#### Key Activity: Diagnose Infection Accurately—Viral Upper Respiratory Infection

**Rationale:** Judicious antibiotic use requires distinguishing between viral and bacterial infections, since viral infections do not benefit from antibiotic therapy. Therefore, it is important to diagnose viral URIs accurately and rule out bacterial infections using evidence-based clinical guidelines. The careful application of strict diagnostic criteria has the potential to mitigate overuse of antibiotics for common pediatric infections.

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Potential Barriers	Suggested Ideas for Change	Still Not Seeing Results?
G	ap: Viral URIs are not consistently diagnosed accurately based on patier	nt's symptoms.
Practitioners and/or staff may not recognize the importance of using strict criteria to diagnose viral URIs and to distinguish between viral and bacterial URIs.	<ul> <li>Review the guidelines and articles that discuss the importance of accurately diagnosing infections to avoid misuse of antibiotics:         <ul> <li>✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections</li> <li>✓ CDC highlights threats posed by antibiotic resistance calls for action</li> <li>✓ Antibiotic Resistance Threats in the United States, 2013. Centers for Disease Control and Prevention</li> <li>✓ Centers for Disease Prevention (CDC) Program. Get Smart: Know When Antibiotics Work</li> </ul> </li> </ul>	Meet with staff to discuss 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.     ✓ Criteria must be used to diagnose viral URIs and to distinguish between viral and bacterial URIs.
Strict diagnostic criteria are not being routinely used because of lack of knowledge of the criteria (signs and symptoms).	<ul> <li>Review the clinical guidelines and articles that outline the diagnostic criteria to be used to accurately distinguish between viral URI and common pediatric bacterial infections:         <ul> <li>✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections</li> <li>✓ AAP Clinical Practice Guideline: The Diagnosis and Management of Acute Otitis Media</li> <li>✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America.</li> </ul> </li> </ul>	Conduct a "Lunch and Learn" session with fellow clinicians and review the following to ensure that all clinicians are aware of the criteria to distinguish between viral and bacterial URIs. Use the following resources:     ✓ Clinical Guidelines for each condition     ✓ Principles of Judicious Antibiotic           Prescribing for Bacterial Upper Respiratory Tract Infections     ✓ Flowcharts developed for this course:



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	<ul> <li>✓ AAP Clinical Practice Guideline for the Diagnosis and         Management of Acute Bacterial Sinusitis in Children Aged 1 to 18     </li> <li>✓ Viral URI criteria include one or more of the following signs and symptoms:</li> </ul>	
	<ul> <li>Cough         <ul> <li>Rhinorrhea</li> <li>Congestion</li> <li>Conjunctivitis</li> <li>Sore Throat</li> <li>Hoarseness</li> </ul> </li> <li>Distribute and review the flowcharts created for this course that summarize the essential criteria for diagnosing common bacterial pediatric infections:         <ul> <li>Judicious Use of Antibiotics for Viral URI flowchart,</li> <li>✓ Judicious Use of Antibiotics for Acute Otitis Media flowchart,</li> <li>✓ Judicious Use of Antibiotics for Acute Bacterial Sinusitis Flowchart</li> <li>✓ Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart</li> </ul> </li> </ul>	
The practice does not have a systematic approach or tool for applying diagnostic criteria.  - Lack of a clear tool for diagnosis  - Lack of ready access to diagnosis information or tool	<ul> <li>Institute use of diagnostic flowcharts for common illnesses:         <ul> <li>✓ Utilize flowcharts created for this course:</li> <li>– Judicious Use of Antibiotics for Acute Otitis Media Flowchart</li> <li>– Judicious Use of Antibiotics for Acute Bacterial Sinusitis</li></ul></li></ul>	Survey the practice to ensure that every clinician has easy access to strict diagnostic criteria.     Conduct a Lunch and Learn session with fellow clinicians to review:     ✓ Principles of Judicious Antibiotic     Prescribing for Bacterial Upper Respiratory Tract Infections     ✓ The Clinical Guidelines for each common pediatric illness.     ✓ Flowcharts developed for this course:



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	<ul> <li>The tool should have clear criteria for discerning between viral and bacterial infections, with emphasis on the detailed criteria for diagnosing and treating common pediatric infections.</li> <li>Make the diagnostic flowchart(s) available in each examining room.</li> <li>Make clinical guidelines for common pediatric infections easily accessible to all clinicians.</li> <li>✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections</li> <li>✓ AAP Clinical Practice Guideline: The Diagnosis and Management of Acute Otitis Media</li> <li>✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America.</li> <li>✓ AAP Clinical Practice Guideline for the Diagnosis and Management of Acute Bacterial Sinusitis in Children Aged 1 to 18 Years.</li> </ul>	<ul> <li>Judicious Use of Antibiotics for Acute Otitis Media Flowchart</li> <li>Judicious Use of Antibiotics for Acute Bacterial Sinusitis Flowchart</li> <li>Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart</li> <li>Judicious Use of Antibiotics for Viral URI Flowchart</li> </ul>
Practitioners may not have adequate knowledge of epidemiology and/or clinical course of viral URI that aid in diagnosis.	<ul> <li>Review that viral URI may precede secondary bacterial infection such as otitis media or sinusitis. This emphasizes the need for practitioner knowledge of the expected course of the virus:         <ul> <li>✓ The typical course of most uncomplicated URIs is on average 5–7 days. When fever is present, it typically subsides by day 3. Respiratory symptoms usually peak in severity by days 3–6 and then begin to improve. However, resolving symptoms and signs may persist in some patients after day 10. In general, the symptoms of the common cold do not vary by the specific causative virus. Also see the Illness Duration Table created for this course.</li> </ul> </li> <li>Review the epidemiology of the disease:         <ul> <li>✓ Rhinoviruses are the most common cause of URIs in children. Other viruses that cause URIs include respiratory syncytial virus (RSV), human metapneumovirus, parainfluenza viruses, adenoviruses, human coronaviruses and, more recently, enterovirus D68 (EVD-68) has emerged as a pathogen causing URI.</li> </ul> </li> </ul>	Review the following related resource:     ✓ Thompson M, Vodicka TA, Blair PS,     Buckley DI, Heneghan C, Hay AD;     TARGET Programme Team.     Duration of symptoms of respiratory tract infections in children: Systematic review. BMJ. 2013 Dec 11;347:f7027     ✓ Illness Duration Table, created for this course     Meet with practice clinicians to discuss the epidemiology of viral URIs and how this knowledge can aid diagnosis.



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	✓ In temperate climates in the northern hemisphere, the yearly epidemic of viral URIs begins in September and continues through the spring. This epidemic curve is a result of successive waves of different respiratory viruses moving through the community.	
Lack of knowledge of the signs and symptoms that indicate the possibility of bacterial otitis media or bacterial sinusitis.	Review the signs and symptoms that indicate the possibility of bacterial otitis media or sinusitis stemming from viral URI using the following:      ✓ AAP Clinical Practice Guideline: The Diagnosis and Management of Acute Otitis Media      ✓ AAP Clinical Practice Guideline for the Diagnosis and Management of Acute Bacterial Sinusitis in Children Aged 1 to 18 Years      ✓ Flowcharts developed for this course:	Hold a Lunch and Learn or similar session for staff to review the sign and symptoms that indicate the possibility of bacterial otitis media or sinusitis stemming from viral URI using the clinical guidelines and diagnostic flowcharts created for this course as resources.
Practice does not have an effective triage system to optimize an accurate diagnosis.	<ul> <li>Develop and communicate practice policies to ensure a triage system is established and used appropriately. Consider the following policies:</li> <li>✓ Diagnoses must be based on a physical examination by a physician, NP, or PA.</li> <li>✓ Do not use nurse-only visits for diagnosis or treatment.</li> <li>✓ Do not allow prescribing over the phone.</li> <li>✓ Do not depend on parental reports based on the use of a drugstore otoscope.</li> </ul>	<ul> <li>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.</li> <li>Establish a practice policy that eliminates nurse-only visits and over the phone prescribing.</li> </ul>

#### **Key Activity: Treat Infection Effectively with Judicious Use of Antibiotics**

**Rationale:** It is widely documented that antibiotics are frequently prescribed for conditions, especially upper respiratory tract infections (URIs) of viral origin, where they provide no benefit. Such overuse 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 common pediatric respiratory conditions includes using antibiotics only when they are needed to treat the infection, choosing the right antibiotics, and administering them in the correct way.





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	Gap: Patients with viral URI are prescribed antibiotics unnecess	arily.
Practitioners may not understand that viral URIs do not benefit from antibiotics.	Review publications that outline the appropriate use of antibiotics and the dangers of unnecessary use or misuse of antibiotics:	Conduct a Lunch and Learn session for your practice to review the following:
Practitioners may not understand	<ul> <li>✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections</li> <li>✓ Antibiotic Resistance Threats in the United States, 2013. Centers</li> </ul>	✓ Issues and risks associated with prescribing antibiotics for viral infections
that overuse or misuse of antibiotics causes serious health	for Disease Control and Prevention  ✓ CDC highlights threats posed by antibiotic resistance, calls for	✓ Most effective use of antibiotics when treating common pediatric bacterial
consequences.	action ✓ Centers for Disease Prevention (CDC) Program. Get Smart: Know	<ul><li>infections</li><li>Work with practice staff to develop practice</li></ul>
	<ul> <li>When Antibiotics Work</li> <li>✓ Committee on Infectious Diseases. Policy statement: Clostridium difficile infection in infants and children</li> </ul>	policies regarding appropriate treatment of viral infections and judicious use of antibiotics for common pediatric infections.
	✓ Why's and how's of judicious use of antibiotic prescribing for URI's	Devote part of your practice policy that all practitioners must understand risks, discuss risks with the patient/family, and document
	✓ This course's summary of <u>Drug-Related Adverse Effects</u>	that discussion in the patient's record.
Antibiotics are prescribed because there is not a clear determination if infection is	<ul> <li>Review the guidelines and recommendations that outline the diagnostic criteria to be used to accurately distinguish between viral URI and common pediatric bacterial infections:</li> </ul>	Conduct a Lunch and Learn or similar staff education to review the following:
bacterial or viral.	<ul> <li>✓ Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections</li> </ul>	✓ Issues and risks associated with prescribing antibiotics for viral infections
	✓ Viral URI criteria include one or more of the following signs and symptoms:	<ul> <li>Diagnostic criteria for both viral and bacterial infections</li> </ul>
	<ul><li>Cough</li><li>Rhinorrhea</li></ul>	<ul> <li>✓ Your practice policy for prescribing antibiotics</li> </ul>
	<ul><li>Congestion</li><li>Conjunctivitis</li></ul>	✓ The flowcharts for diagnosing infections accurately
	<ul><li>Sore Throat</li></ul>	
	<ul> <li>Hoarseness</li> <li>Review the guidelines for diagnosing common bacterial pediatric URIs:</li> </ul>	



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	<ul> <li>✓ AAP Clinical Practice Guideline: The Diagnosis and Management of Acute Otitis Media</li> <li>✓ Clinical Practice Guide for Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America.</li> <li>✓ AAP Clinical Practice Guideline for the Diagnosis and Management of Acute Bacterial Sinusitis in Children Aged 1 to 18 Years.</li> <li>✓ Review the diagnosis and treatment flowcharts developed for this course:         <ul> <li>Judicious Use of Antibiotics for Acute Otitis Media Flowchart</li> <li>Judicious Use of Antibiotics for Acute Bacterial Sinusitis Flowchart</li> <li>Judicious Use of Antibiotics for Acute Streptococcal Pharyngitis Flowchart</li> <li>Judicious Use of Antibiotics for Viral URI flowchart</li> </ul> </li> </ul>	
Practitioners may have a lack of knowledge of the appropriate treatment (symptoms relief) for viral URI.	<ul> <li>Review the appropriate treatment for viral URI.</li> <li>✓ Antibiotics should not be prescribed for viral URI.</li> <li>✓ Explicitly plan treatment of symptoms with parents; symptomatic relief including:         <ul> <li>Use of bulb syringe</li> <li>Use of nasal saline</li> <li>Use of antipyretics</li> <li>Discussing the pros and cons of cool mist humidifier use</li> <li>Recommending against using decongestants in young children</li> <li>Instructing families on the importance of adequate sleep</li> <li>Discussing smoking avoidance</li> <li>Encouraging fluid intake</li> <li>Informing when to return if symptoms persist/develop</li> </ul> </li> </ul>	Obtain scripts to address symptomatic care for viral URI. For example:      Get Smart: Symptomatic Relief for Viral Illnesses Prescription Pads from the CDC Get Smart materials (scroll down the linked page to see Prescription Pads).  Prescription Pads).



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Practitioners may have a lack of knowledge of the clinical course of viral URI and thus prescribe antibiotics for persistent symptoms.	Review the typical course of viral URIs:     ✓ The typical course of viral URIs is 10–14 days. In general, the symptoms of the common cold do not vary by the specific causative virus.  ✓ Also see the Illness Duration Table created for this course.	<ul> <li>Review the following related resource:</li> <li>✓ Thompson M, Vodicka TA, Blair PS, Buckley DI, Heneghan C, Hay AD; TARGET Programme Team.         Duration of symptoms of respiratory tract infections in children: Systematic review. BMJ. 2013 Dec 11;347:f7027.     </li> <li>✓ Illness Duration Table, created for this course</li> </ul>
Parental pressure for antibiotics influences practitioner's decision to prescribe antibiotics.	<ul> <li>Consider the following actions:</li> <li>Agree on and establish an overall practice policy regarding prescription of unnecessary antibiotics and judicious use of antibiotics.</li> <li>Educate patients and families utilizing resources available for addressing misconceptions and biases regarding antibiotic use. (See Patient and Family Antibiotic Information Resource List. created for this course.)</li> <li>✓ Make selected resources readily available in every examination room.</li> <li>Review common misconceptions and parental resistance issues and develop responses. See the Clinical Guide Provide Guidance and Education to Patients and Families for this course for some common misconceptions.</li> <li>Establish practice policies that eliminate over-the-phone prescribing of antibiotics (ie, diagnosis must be based on a physical examination).</li> <li>Consult the Antibiotic Guidance and Education Checklist created for this course for a summary of key messages and key information to share with parents.</li> <li>Post antibiotic use information and policies in waiting rooms and on the practice Web site, patient portal, etc.</li> <li>Provide scripts to address symptomatic care for viral URI. For example:         ✓ Get Smart Prescription Pads from the CDC Get Smart materials (Scroll down the page to see Prescription Pads.)</li> </ul>	<ul> <li>Meet with practice staff to:         <ul> <li>✓ Discuss the importance of a practice policy for addressing parental pressure and the best way to communicate the policy.</li> <li>✓ Brainstorm ideas for your specific patient population to address the common concerns and misconceptions practitioners face.</li> </ul> </li> <li>Practice antibiotic stewardship in your practice. Use these resources:         <ul> <li>✓ Centers for Disease Control: Get Smart for Healthcare</li> <li>✓ Antimicrobial stewardship in pediatrics: how every pediatrician can be a steward. JAMA Pediatrics. 2013 Sep;167(9):859-66 (Pubmed Abstract).</li> </ul> </li> <li>Appoint an office Judicious Use Champion.</li> </ul>



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Resources to deal with parental misconceptions and pressure about antibiotic use are not available or not utilized.	<ul> <li>Consider using the following resources for discussion with parents:         ✓ AAP Patient Education Online (requires subscription)         <ul> <li>Antibiotics and Your Child</li> <li>Common Childhood Infections</li> <li>HealthyChildren.org articles:                 <ul> <li>Antibiotic Prescriptions for Children: 10 Common Questions Answered</li> <li>Choosing Wisely</li> <li>How Do Antibiotics Work?</li> <li>Guidelines for Antibiotic Use</li> <li>Caring for a Child with a Viral Infection</li> <li>Antibiotics for a Sore Throat, Cough or Runny Nose?</li> <li>When a Sore Throat is a More Serious Infection</li> <li>The Difference between Sinusitis and a Cold</li> <li>Centers for Disease Prevention (CDC) Program. Get Smart: Know When Antibiotics Work</li> </ul> </li> <li>Distribute the Patient and Family Antibiotic Information Resource List created for this course.</li> <li>Make selected resources readily available in every examination room.</li> <li>Post antibiotic use information and policies in waiting rooms, examination rooms, on practice Web site, on patient portal, etc.</li> </ul> </li> </ul>	<ul> <li>Provide scripts to address symptomatic care for viral URI. For example:         ✓ Get Smart Symptomatic Relief for Viral Illnesses Prescription Pads from the CDC Get Smart materials (Scroll down the page to see Prescription Pads.)</li> <li>Create a Judicious Use portal on your practice Web site with educational resources including information on your practice's approach to common clinical infections.</li> <li>Appoint an office Judicious Use Champion.</li> <li>Meet with staff to brainstorm and share strategies that have worked for responding to parental pressure and common misconceptions.</li> <li>Consult with other practices to identify education materials and strategies that have worked with their patient populations to respond to parental pressure and misconceptions and to educate parents on risks and benefits of antibiotics.</li> </ul>
Practitioners may be unaware of the cost savings related to antibiotic stewardship.	Review the following information resources:     Antibiotic Stewardship—The Ultimate Return on Investment from the Centers for Disease Control and Prevention (cdc.org)     Impact of Antibiotic Stewardship Program Interventions on Costs from the Centers for Disease Control and Prevention (cdc.org)	



**Rationale:** It is important for patients and their families to understand how overuse and incorrect use of antibiotics can contribute to avoidable adverse effects, unnecessary costs, and antibiotic resistance. Patients treated for viral URI should receive information about the expected course of the virus and that antibiotics are not beneficial for viral URIs. Education can assist the patients and families to engage in shared decision making with their pediatrician.



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Resources are not available (or not utilized) to guide patient/family discussion of the	Consult and keep on hand the <u>Antibiotic Guidance and Education</u> <u>Checklist</u> created for this course for a one-page summary of key messages and key information to share with parents.	Appoint an office Judicious Use Champion.
risks related to antibiotics.	Make selected resources readily available in every examination room.  See the Patient and Family Antibiotic Information Resource List created for this course.	
	Select and make available resources to educate patents/families.  Consider the following:	
	✓ AAP Patient Education Online (requires subscription):	
	<ul> <li>Antibiotics and Your Child</li> </ul>	
	<ul> <li>Common Childhood Infections</li> </ul>	
	<ul> <li>✓ Centers for Disease Prevention (CDC) Program. Get Smart: Know When Antibiotics Work</li> </ul>	
	✓ HealthyChildren.org articles:	
	<ul> <li>Antibiotic Prescriptions for Children: 10 Common Questions Answered</li> </ul>	
	- <u>Choosing Wisely</u>	
	- How Do Antibiotics Work?	
	- Guidelines for Antibiotic Use	
	<ul> <li>Caring for a Child with a Viral Infection</li> </ul>	
	<ul> <li>Antibiotics for a Sore Throat, Cough or Runny Nose?</li> </ul>	
	<ul> <li>The Difference between Sinusitis and a Cold</li> </ul>	
	Provide scripts to address symptomatic care for viral URI:	
	✓ Get Smart Symptomatic Relief for Viral Illnesses Prescription  Pads from the CDC Get Smart materials (Scroll down to Prescription Pads.)	
	Post antibiotic use information and policies in waiting rooms and on practice Web site, patient portal, etc.	
Gap	o: Patients are not counseled to follow up if symptoms worsen or persist	beyond 10 days.



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The sick-visit flow does not include informing patients/families of the need for follow-up if symptoms worsen or persist.	<ul> <li>Educate office staff in clinical course and under what circumstances patients should be seen.</li> <li>Devote part of your sick-visit flow to inform parents of the expected course of the illness and when follow-up is indicated.         Include the following information:             ✓ The expected course of a viral URI infection is 10–14 days.             ✓ Family should follow up if the following occurs:             – Labored breathing             – Signs of dehydration (sunken soft spot, sunken eyes) or lethargy             – URI symptoms persist longer than 10 days             – Respiratory symptoms that worsen after initial improvement             – Fever ≥39°C and purulent nasal discharge persist more than 3 days             – New onset of ear pain         </li> </ul>	Create a handout or prescription pad to provide to patients/families about the need and circumstances requiring follow-up.
	Gap: Discussion of a follow-up plan is not documented in the patient	r's record.
It is not part of the visit flow or standard practice procedure to record discussion about follow-up if symptoms worsen or persist.	Include in your practice protocol a process to record that a discussion with the patient/family took place regarding the course of viral infections and when it's necessary to follow up.	<ul> <li>Hold a staff meeting to emphasize the need to counsel patients and document the conversation.</li> <li>Make the discussion an item on a sick-visit checklist to simplify the documentation.</li> </ul>
	Gap: Patients and families are not educated about prevention tech	niques.



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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 and families 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.	