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Getting Kids Through Winter's Infections

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First, it's the runny nose and cough. Then, they start to get a little crabby. Next thing you know, they are tugging at their ears and have a sore throat. It's a full on melt-down. Oh, and it is 0200 am on a Friday night. No sleep for you. To anyone with kids, this is all too familiar. Is it just a cold? Teething? Strep throat? Ear infection? Sinusitis? Your first thought may be to find a provider to get the little one started on an antibiotic ASAP so you (and they) can start to feel better and get some sleep, right? Well, it turns out that may not be the go-to answer we have long thought. There are new guidelines that no longer recommend antibiotics routinely. According to the American Academy of Pediatrics, it is estimated that as many as 10 million antibiotic prescriptions per year are directed toward respiratory conditions for which they are unlikely to provide benefit.

Before delving into that touchy topic, we should look at upper respiratory infections (includes the ears, nose, and throat) on a scientific level. Most people, unless they are medical providers or nurses, do not learn about this in school.

Upper respiratory infections (URIs) can be categorized into bacterial infections and viral infections.

A viral infection, caused by a virus, can include a wide variety of upper respiratory illnesses. Symptoms of a viral URI can include but are not limited to cough, nasal congestion that can start clear but change to yellowish green, sore throat, ear pain, and fever. Symptoms of the common cold can be caused by viruses which include rhinovirus, corona virus, respiratory syncytial virus (RSV), influenza and many more. Viruses can make it very difficult to accurately diagnose the cause of an upper respiratory infection. Viruses also are frustrating because they can cause symptoms that last up to 10 days or longer and, aside from supportive care, there is not much available to treat a virus. A virus does not respond to an antibiotic. An antibiotic works to stop a bacterial infection by actually targeting the bacteria and preventing the bacteria from reproducing or by killing the bacteria. Since a virus infects the body differently than bacteria, an antibiotic is completely ineffective in stopping or killing the virus. Using an antibiotic for a viral infection can actually be dangerous. Unnecessary antibiotic use can contribute to the growing problem of antibiotic resistance, a situation where antibiotics are no longer effective against bacterial "superbugs" like common staph. Also, as with all medications, antibiotics can cause side effects. Side effects of antibiotics include antibiotic associated diarrhea, nausea, abdominal cramping, rashes, hepatitis (liver problems), cardiac (heart) problems, and allergic reactions that can be deadly. (Anaphylaxis is the deadly form of an allergic reaction).

A bacterial infection, caused by bacteria, can cause symptoms similar to that of the viral URI. In fact, fever or color of the nasal drainage are not reliable indicators of a bacterial infection. Bacterial URIs include infections caused by strep pneumoniae, haemophilus influenza (this is a bacteria that is different from influenza, a virus), or other bacteria. Bacterial infections such as these do respond to antibiotics. However, with the increasing emergence of antibiotic resistant bacteria, it can become

difficult to treat a simple bacterial URI. Because of this, pediatricians now rely more on vaccinations to help prevent some of these bacterial infections and further reduce the need for antibiotics. Children are routinely vaccinated against strep pneumonia (Prevnar 13), haemophilus influenzae (HIB), pertussis (DTap / TDaP). Some vaccines are only necessary in childhood and some vaccines require periodic booster shots. You should check with your healthcare provider to make sure you and your children are up to date and adequately vaccinated to prevent some of these infections. Vaccination against these bacteria helps to reduce the likelihood of serious, invasive infection caused by the particular bacteria.

There are newly updated guidelines by the American Academy of Pediatrics, published in the fall of 2013, that help a healthcare provider decide when antibiotics are necessary and when it is probably safe to hold off.[1]

Upper Respiratory Infections (URI) - Symptoms can include cough, nasal congestion, sore throat, ear pain, and fever. Upper respiratory infections are responsible for millions of office visits per year, according to the American Academy of Pediatrics (Dec. 2013). When you look at the statistics regarding an upper respiratory tract infection, it is estimated that on average a child will experience 7-10 colds per year that will last approximately 10 days each and will typically occur between the months of October to April. Ask any day care provider or elementary school teacher their personal opinion, and they may say the number is even higher.

Management of an upper respiratory infection is typically supportive. This means that grandma's advice of chicken noodle soup, plenty of rest, hydration, and treatment of symptoms is right on. Saline nose drops or saline nose sprays do help clear secretions and are recommended. In young children, a bulb syringe should be used with caution as damage to the inside of the nose can be caused by well-meaning but aggressive or improper suctioning. You should talk to your healthcare provider to have instruction of proper use and when it is appropriate to use a bulb syringe. You should also see your healthcare provider if the symptoms are not improving after 7-10 days, there are severe symptoms, or trouble breathing. The American Academy of Pediatrics also recommends against the use of over-the-counter cough and cold medications in children younger than 6 years of age due to the risk of accidental overdose and adverse effect. There is also evidence that suggests these medications don't work well at all.[2]

Acute Otitis Media (Middle ear infection) - Symptoms can include ear ache or pain, drainage from the ear, irritability, and fever. The CDC estimates that there are 13 million cases of acute otitis media in the US annually in children younger than age 5. Children are particularly prone to ear infections because a child's anatomy of the ear is slightly different than an adults. An adult's eustachian tube is tipped so that it drains downward and facilitates drainage of fluid and mucous. A child's eustachian tubes (connection from the middle ear to the back of the throat) are essentially flat and do not drain as easily. With this anatomy in mind, having a baby or child sleep with the head of the bed elevated can help facilitate drainage and keep the upper airways clear.

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[1] Principles of Judicious Antibiotic Prescribing for Bacterial Upper Respiratory Tract Infections in Pediatrics. A. Hersh, et al. *Pediatrics*. Nov 18, 2013. http://pediatrics.aappublications.org/content/early/2013/11/12/peds.2013-3260.

[2] The Common Cold and Decongestant Therapy. D. Pappas and J. Hendley. *Pediatrics in Review* 2011;32;47. http://pedsinreview.aappublications.org/content/32/2/47.

Newer treatment guidelines recommend a change in the way ear infections are treated. The American Academy of Pediatrics is now recommending a period of "watchful waiting" for some patients which means treating the pain with Tylenol or Motrin and pain relieving ear drops but delaying antibiotics, in some situations, for 24 to 48 hours. Numerous studies demonstrate no improvement in symptoms or the length of an ear infection with antibiotics and some studies demonstrate that most ear infection will resolve without antibiotics. It is important to see your healthcare provider to determine if your child's health history and exam show when an antibiotic is necessary or if watchful waiting would be appropriate.

There are ways to try to prevent an ear infection. It is not recommended for children to lay down with a bottle as the sucking action increases the risk of fluid being retained in the middle ear. In addition, having a child repeatedly blow their nose can cause fluid to be retained in the middle ear. Using saline drops or sprays to clear nasal congestion is recommended. Running a cool mist vaporizer in your child's sleeping environment, especially during the winter months when the air is very dry, can help the upper respiratory system clear mucous and viruses faster and help the nose function properly.

Strep pharyngitis (Strep throat) - Strep throat is a specific diagnosis that is caused by the bacteria Streptococcus. However, there are multiple bacterial and viral causes of nonspecific tonsillitis or pharyngitis. Regardless of the causative agent, the symptoms are similar with sore throat, congestion, fever, and at times, cough. Most cases of tonsillitis or pharyngitis will resolve without antibiotic treatment. There are specific guidelines for considering the possibility of strep as the cause and if strep is considered, the diagnosis should be confirmed with a rapid strep test or throat swab culture. Antibiotics are appropriate if the diagnosis of strep pharyngitis can be confirmed.

Sinusitis - Sinusitis may be bacterial or viral in nature. It can be difficult to differentiate between the two and when antibiotics should be used. In general, if symptoms have lasted for greater than 10 days, are severe or worsening, then antibiotics may be considered. Symptoms typically include nasal congestion, cough, and fever. You should discuss with your healthcare provider what would constitute severe or worsening symptoms. Otherwise, supportive care is generally recommended.

Remember, most upper respiratory infection can be prevented with good hand washing with soap and warm water and appropriate immunizations. If you smoke and can't quit, at least don't smoke in the house, car, or around the kids. It is also important to wear a smoking jacket that you take off when you come inside and to wash your hands after smoking. Exposure to cigarette smoke significantly increases the risk for respiratory infections, wheezing, asthma, ear infections and other complications in children.

If your child becomes ill, check with your healthcare provider for recommendations but keep in mind that an antibiotic is not always indicated or appropriate.

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