**Pediatric Respiratory Case Management**

Managing pediatric respiratory conditions requires an understanding of those illnesses and their normal course and how they manifest in children of different ages. Managing them with herbs alone is totally possible but you also have to know when conventional medical intervention is warranted.

Respiratory conditions are defined roughly by their location as well as by their complexity:

Upper - sinsusitis, nasal congestion, hayfever, pharyngitis

Lower – bronchitis, bronchiolitis, asthma, pneumonia

The most common respiratory conditions in children tend to be the upper respiratory conditions and bronchiolitis. This depends a little bit on the age of the child, their constitution and their health status. For example – bronchiolitis is an inflammatory response to a virus (in most cases) that causes the bronchioles to swell and the mucosal coating to become irritated. This can cause difficulty breathing. In an infant whose immune system is still immature and who have more difficulty expelling mucus from their lungs, this can be more severe than in a 3 year old who is generally healthy.

Each age group may have similar symptoms but express them differently or have different meanings at those stages. You will also see constitutional differences manifest and change the picture a bit. A Kapha child (most children are in the Kapha stage of life but some are more individually Kapha) will suffer more with mucus accumulation with ear and/or lung issues. A Vata child will have more issues with rapidly developing symptoms of all kinds and often accompanied by stomach issues. A Pitta child will have more issues with fever, sore throats, asthma, restlessness and sometimes digestion. There are many more constitutional effects but those are some examples.

Age-related Symptom pictures that tend to come with the common respiratory illnesses:

* Infants – loud congestion heard all over or snorting nasal congestion and eye discharge
* Toddlers – loud congestion, mouth breathing, worse in morning, ear pain
* School age children – coughs and drainage, ear pain, eye irritation/discharge
* Adolescents – wheezing, coughs, sinus pain, sore throat

Whether the respiratory illness is viral or bacterial is not always obvious but there are some clues. Most of the common childhood respiratory illnesses are viral – Croup, RSV (Respiratory Syncytial Virus), Influenza, Enteroviruses, etc. These tend to be self-limiting in healthy kids but can be problematic depending on age and immune or organ health status. They tend to have fevers initially, followed by a ramping up of mucus production and expectoration then resolve. A normal cold, for example, starts off with the characteristic nasal inflammation and malaise followed by increasing mucus production and sneezing. Then the cough begins and is generally a productive cough slowly resolving over a day or two. The total time from beginning to end is usually 7-10 days.

Bacterial infections tend to have more severe symptoms. They also tend to be more opportunistic. For example, a child who is experiencing a cold virus, who on day 3 develops a high fever and ear pain, has likely developed an additional bacterial ear infection on top of the viral illness. The fever that starts later in an illness is typically a concerning sign. This is the case with pneumonia too. I have seen some bacterial infections start on their own without a prior illness as well and it is generally sudden with a high fever and more intense symptoms (cough, sore throat, chest congestion) than with a viral illness. Though there are always exceptions. Whooping Cough, for example, starts out looking like the common cold but instead of gradually resolving around day 5-7 it starts to get much worse.

This is all complicated further if the child has a weak immune system or weak lungs, or no tonsils, etc.

Types of conditions – what they look/sound like:

Colds

* The common cold is caused by rhinoviruses or parvoviruses. May or may not start with a fever (usually does not). Characterized by nasal inflammation, mucus production, sneezing and coughing and lasting approximately 7-10 days. The majority of the malaise is in the first 2-3 days, then they feel better but they are expelling mucus.

Coughs – Influenza, Asthma, Croup, RSV, pneumonia

* Respiratory syncytial virus (RSV) is a very common childhood illness. It's even more common than seasonal flu.

Most people have had exposure to RSV (respiratory syncytial virus) by the time they were 2 years old. RSV causes some of the same symptoms as cold and flu, such as fever, runny nose, malaise and cough.

For infants less than 1 year old, RSV is the most common cause of bronchiolitis and pneumonia. Wheezing is a telltale symptom of bronchiolitis, which sometimes has to be treated in the hospital. Only about 25% to 40% of young children with their first RSV infection will have any noticeable wheezing, however, and 2% or less, will be hospitalized. Preterm babies or infants with prior lung issues or infants with family history of Atopia (eczema, asthma and allergies) can be particularly vulnerable to RSVand it can trigger an ongoing lung issue like early stages of asthma or continued lung infections.

* Croup is a childhood illness usually caused by a group of viruses called human parainfluenza viruses, which can also cause the common cold. The main symptom of croup is a "barking" cough, like the barking sound a seal makes. They can also have a fever in the beginning and malaise. Croup can be serious enough to require treatment in a hospital but that is very unlikely (only 6% are hospitalized). For severe cases, treatment is aimed at keeping the sick child breathing normally until the infection ends. A case of croup typically lasts about one week. Children who get it tend to be younger than 6 years old, and it's seen most frequently in 2-year-old children.
* Influenza is an acute viral infection caused by the Influenza virus and is characterized by a sudden onset of high fever, dry cough, headache, muscle and joint aches, severe malaise (feeling unwell), sore throat and runny nose. Cough can be severe and can last 2 or more weeks. Most people recover from fever and other symptoms within a week without requiring any further intervention. However, if the immune system is compromised or if the lungs are weak in some way a secondary bacterial infection can start or the symptoms can be so severe as to require hospital intervention..
* Pertussis, or "whooping cough," is a contagious bacterial infection. Adults and children can get the disease, but infants and children under 3 tend to become more severely ill with it. It's called whooping cough because it can cause a child to cough so hard and so rapidly that he runs out of breath and must inhale deeply, making a "whooping" sound. According to the CDC, more than half of babies under 12 months old who get pertussis have to be treated in the hospital. The symptoms start off like a regular cold with runny nose, congestion, coughing, malaise but instead of resolving by around day 5-7 the cough gets worse and can last for up to 12 weeks. The cough is severe, often causing vomiting. The concern is that the mucus will cause secondary pneumonia infection or trouble breathing. This is more likely with children under the age of 3.

Sinusitis

* Sinusitis is generally a prolonged inflammation of the sinus linings rather than an actual infection. It is painful in the location of the sinuses and can cause pain in the upper teeth as well. The only way to know for sure if it is an infection is to do an x-ray and, typically, a fever is present. Most children will have sinusitis as part of a cold or flu picture. It typically resolves with some simple herbal approaches.

Pharyngitis vs. Strep

* Strep throat is a [bacterial infection](http://www.webmd.com/hw-popup/bacterial-infection) in the throat and the [tonsils](http://www.webmd.com/hw-popup/tonsils-and-adenoids). The throat gets irritated and [inflamed](http://www.webmd.com/hw-popup/inflammation), causing a sudden, severe sore throat. Strep throat is caused by the streptococcal (strep) bacteria.

Although some people are quick to think that any painful sore throat is strep, a [viral infection](http://www.webmd.com/hw-popup/viral-infection) and not strep bacteria is usually the cause. A sore throat caused by a virus can be just as painful as strep throat. But if you have cold symptoms such as coughing, sneezing, or a runny or stuffy nose, you probably do not have strep throat. This would be referred to as just Pharyngitis.

The most common symptoms of strep throat are: sudden, severe sore throat; pain with swallowing; fever over 101 °F (38.3 °C), swollen tonsils and [lymph nodes](http://www.webmd.com/hw-popup/lymph-nodes-7870); white or yellow spots on the back of a bright red throat. Less common symptoms include a [red skin rash](http://www.webmd.com/hw-popup/scarlet-fever-7539), vomiting, not feeling hungry, and body aches.

As a general guide – a child is considered contagious if they have a fever, diarrhea or vomiting and should be symptom free for 24 hours before returning to school or daycare.

**Case Discussion and Formulation:**

Case #1: 9 month old infant with wet cough. Has always had a gurgly wet cough since birth. Parents were told it was because he had some fluid in his lungs when he was born but that it was not an infection, nor causing any trouble with his breathing and that he’d grow out of it. Any nasal mucus is generally clear. When he does have a cold he gets thicker mucus with more yellow-green color and is more irritable and sleeps more. He had a cold last week. Since the last cold he has had a cough and it is worse at night, but comes and goes. No fever. Mucus is clearer but still a little thick. Parents are wondering if anything can be done to improve his lungs and reduce the overall mucus production.

Case #2: 2 year old little girl with a barking cough. Started last night around bedtime. She had acting a little irritable yesterday and felt a little warm but didn’t appear to have a fever. The cough got very raspy and deep rather quickly and she seemed to struggle a bit and couldn’t sleep. Parents took her into the bathroom and ran hot water in the shower to make the room steamy and that seemed to help a little. She slept in their arms propped up in a recliner chair.

Case #3: 4 year old girl with a cough – Started 2 weeks ago with a cold. She got a mild fever of 100.1°F for a day, then developed nasal congestion and a cough. Cough was bad for about 3 days and then began to subside but never really went away. Cough is mainly in the morning, when going to bed or when she’s been running around a lot. It appears to be non-productive but sounds wet. No history of asthma or other lung problems. The cold has been going around at his preschool, some with bad coughs, some without.

Case #4: 14 year old with sore throat. Woke up this morning with a painful sore throat. Hurts to swallow. She has a mild fever of 100 °F currently. She does not have a cough but states her lungs ache and she feels bad overall with muscle and joint aches and is very tired. Her lymph nodes are mildly swollen and her ears have a mild amount of clear fluid in them. Her throat is red with signs of postnasal drip and no spots on her tonsils.

Case #5: 12 year old girl with a cough. She has had the cough for a month following a cold. The cold was fairly normal but the cough just never went away. She feels that she got better but the cough is worse when she is trying to do PE class or soccer practice. The cough is non-productive and she describes it as “tickly” and says it can be hard to breathe sometimes. Her and mom do not recall hearing any wheezing. Her family has a history of Eczema, food allergies, and asthma. Her breathing is shallow and a wheeze is heard when blowing out harder.

Case #6: 3 year old with cough. Started with a fever and runny nose. She was irritable and tired the first 2 days and now the cough sounds “bad’ and is very productive and sounds thick. Her fever is still there (103 °F). is a little higher today. Today is the 4th day of the illness. She is normally quite sweet with a smile always on her face. Today she is clinging to mom, crying off and on and clearing not feeling well. Her lungs sound raspy and she coughs frequently with a wet, productive cough.

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