

# Bronchiolitis

HILLIARD PEDIATRICS -- DR. TIM TELLER, M.D - 5/13

## Definition.

Bronchiolitis is a **viral** respiratory illness, usually caused by respiratory syncytial virus (**RSV**). Bronchiolitis is characterized by runny nose, nasal congestion, moist cough, and **wheezing**. The wheezing often sounds like a high-pitched whistling sound when the child breathes out. Although it can occur year-round, it is much more common during the **winter and early spring**. The virus infects and inflames the upper and lower respiratory tracts, causing the smallest airways to narrow. This causes the air to then make the whistling sound (wheezing). Bronchiolitis is most common in **infants and young children**. Bronchiolitis is very different from bronchitis in adults.

## Expected course.

Bronchiolitis begins a few days to a week after exposure to the virus. Bronchiolitis is **very contagious**. Mild cold or cough symptoms without wheezing occur in many persons, therefore, many children with bronchiolitis were not exposed to someone else with the same symptoms. Infants with RSV typically develop bronchiolitis, while anyone over 2 years of age usually just has cold symptoms. Bronchiolitis is usually worse for boys, formula-fed infants, infants born prematurely, infants born with heart problems, and infants exposed to cigarette smoke.

Bronchiolitis usually begins with mild cold symptoms of **runny nose** and **congestion**. A decreased appetite and a fever are often present. The **fever** is typically 100.5 to 102 degrees, but may be much higher. Children with mild cases of bronchiolitis then develop a wheezy cough and fussiness that gradually resolves over a few days. Severe cases develop over a few hours to a day. These severely effected children often **cough** at least every one to five minutes, may **wheeze** so loudly it can be heard without a stethoscope, and have signs that their body is having to do extra work to breathe: the muscles at their ribs may "suck in" when they breathe in ("retractions"), how many breaths they take each minute may increase to 50-60 or more, and their nostrils (two holes in our nose) may flare out when they breathe. The cough of bronchiolitis often sounds "mucousy" (as if there is a rattle of phlegm to the breathing or cough) because this viral infection causes increased mucous production by the child's respiratory tract. Although the coughs can sound similar, we treat this differently than bronchitis in teenagers and adults. The congestion, cough, and wheezing of bronchiolitis is often **worse at night** or with **increased activity**. Some children with bronchiolitis will develop an ear infection. A number of children will also vomit from a vigorous bout of coughing.

Although some children will have bronchiolitis once, it is quite possible to have bronchiolitis **more than once** (even during the same cold weather season). Infants born prematurely, infants with a family history of asthma and/or allergy, infants with a number of older brothers and sisters, infants exposed to second hand smoke, and infants in large daycare settings seem to be the children at most risk for having bronchiolitis more than once. About 1 in 4 of children with bronchiolitis will go on to have **recurrent wheezing** and be diagnosed with asthma. This also means, however, that many children (even with a family history for asthma/wheezing) will not develop asthma after this first episode of bronchiolitis. There is no test available that lets us know which children will go on to have recurrent wheezing and asthma. Only 1 in 100 children with bronchiolitis require a stay in the hospital. These are usually only those infants with dramatic labored breathing that does not respond to treatment in the office or at home.

## Prevention.

Because bronchiolitis is spread so easily through casual contact with the virus, it is difficult to prevent. The virus can spread to another person through sneezing or coughing. It can also be picked-up from toys, cups, door-handles, and other objects recently in contact with someone with the virus. Frequent hand washing for older children and adults is important during the cold and flu season. For most children in daycare, they will be repeatedly exposed to this virus during the cold weather season.

Infants should be kept home from daycare during days in which they have a fever, are coughing frequently, or show signs of more labored breathing (breathing 50-60 or more times a minute, having retractions or nasal flaring as discussed above).

Some infants born prematurely are eligible for a monthly injection during their first cold weather season to prevent worse cases of RSV bronchiolitis. If your child was born prematurely, discuss this with your doctor.

## Treatment.

Bronchiolitis will generally run its course without special treatment. However, for more severely effected infants, there are treatments available. Because bronchiolitis is caused by RSV and other viruses, antibiotics will not effect bronchiolitis.

-- Dry air tends to aggravate the cough of bronchiolitis. Running a **humidifier** or a **cool mist vaporizer** in the room in which your child sleeps can help break-up the mucous in the nose and chest from bronchiolitis. Although warm mist vaporizers work as well as cool mist vaporizers, it is recommended to avoid the warm mist because some older children will burn themselves on the warm mist. Newer humidifiers called "ultrasonic" are quieter and kill molds and many bacteria in their water.

-- Passive exposure to cigarette, cigar, and pipe smoke always worsens bronchiolitis. **Do not let anyone smoke around your child**. Best of all is if the child is not in any home where they will be exposed to smoke or persons who do smoke.

-- For removing congestion from the nose, **saline drops and a suction bulb** work well. Unfortunately, very few children with bronchiolitis will respond to any over-the-counter or prescription cold or cough medicine. Using over-the-counter nasal saline drops (or mists or sprays but not nasal decongestant sprays) does work well. Place 2-3 drops or 1-2 sprays of the saline into each nostril and then suction the nose well with a soft rubber nasal suction bulb as often as needed. This can be quite helpful before the child eats or sleeps.

-- **Elevating the head of the bed** of your child can be helpful. The safest way to do this is to place something firm (such as books) under one end of the crib mattress to prop up your child. Often, especially with older infants, the child will then need tightly rolled up blankets or towels placed at their side to keep them in a propped-up position.

-- **Tylenol or Motrin** (acetaminophen or ibuprofen) can be given for fever.

-- Although the appetite may be decreased with bronchiolitis, it is important to **encourage fluid intake**. If your child is making at least 3 wet diapers a day and having a moist mouth, your child is very likely getting enough fluids to keep them from becoming dehydrated. Many infants will not need to change to clear fluids from breast milk, formula, or milk. However, if these seem to worsen the wheezing or cough, try using juice or Pedialyte.

-- **ASTHMA MEDICINES**. Some children with bronchiolitis have their cough and wheezing improve while taking prescription medicines usually given to those children or adults with asthma. The RSV virus and asthma both cause the lung's **air passages to narrow** and for **inflammation** to cause mucous and swelling in the air passages. Therefore, it makes sense that some children will improve with asthma medicines aimed at fighting the narrowing and inflammation. Unfortunately, it is impossible to predict which child will improve with these medicines, which child will have no effect from these medicines, and which child will have side effects while on these medicines. To help you better understand them, here is more information about the two medicines we commonly use:

#### **ALBUTEROL**

-- also called Ventolin or Proventil

-- **opens narrowed air passages** in the lungs which then decreases the cough and wheezing

-- given as either a liquid that the child drinks or as a breathing treatment ("aerosol") with a special machine that we can have delivered to your home by a home health company

-- possible side effects (which will only last as long as someone takes the medicine): wakes the child up, restlessness, fretfulness, hand tremors, hyperactivity

#### **PREDNISOLONE**

-- usually called Orapred, Prelone, or PediaPred

-- because it helps **fight inflammation** like the naturally-occurring steroids in our body, prednisolone helps reduce the cough and wheezing

-- NOT the same as those dangerous steroids that are illegally taken to build muscles

-- given as a liquid to drink; because of the poor taste, it often has to be mixed with a small amount of another liquid (such as juice) to make it taste better

-- possible side effects (which will only last as long as someone takes the medicine): headaches, grouchiness, stomachaches, increased appetite; let the doctor know if your child has never had chicken pox but has been directly exposed to it within the last 4 weeks (steroids make it worse)

#### The "What To Do When" List:

-- If your child would turn blue, pass out, or stop breathing ==> CALL 911 (the rescue squad).

-- If your child's breathing is 50-60 times a minute, retractions at the chest are worse, or you hear a loud wheeze ==> If you have an aerosol machine at home, give **another aerosol** (even if an aerosol was just given). If this does not help or you do not have an aerosol machine at home, CALL OUR OFFICE IMMEDIATELY AT #777-1800, DAY OR NIGHT.

-- If the liquid albuterol or liquid prednisolone are not helping the cough and wheeze but the child is having negative side effects ==> STOP THE MEDICINE.

-- If the liquid medicines are helping but you are noticing significant negative side effects (extreme grouchiness, hyperactivity, wide awake and cannot sleep, etc.) ==> CONTINUE GIVING THE MEDICINE BUT CUT EACH DOSE IN HALF.

-- If the breathing is not labored or difficult but the cough is every 1-5 minutes, you suspect your child has an ear infection, a fever (100.5 degrees or more) has lasted more than 3 days, or you have other concerns or questions ==> CALL DURING REGULAR OFFICE HOURS.

-- If your child has the cough and wheezing stop and then return ==> RETURN TO DOING WHAT HELPED BEFORE.

-- If your child has the cough and wheezing last more than 3 weeks ==> CALL DURING REGULAR OFFICE HOURS.

--Dr. Tim Teller, M.D. -- Hilliard Pediatrics, Inc. -- 5-13