

Bronchitis and Persistent Bronchitis in Children

What is Bronchitis?

The bronchi are the main airways or breathing tubes that lead into the lungs, shown in red in this image. In medicine 'itis' means inflammation, so bronchitis is inflammation of the bronchi. By far the commonest cause of bronchitis in humans is viral infection. The key symptom of bronchitis is a chesty, wet, productive cough (like a smoker's cough). When we have a common cold, most people have some element of bronchitis. This is very common and benign and usually goes away within days to 1-2 weeks completely. When someone has bronchitis, their chest examination will usually be normal, and a chest x-ray will usually be normal, despite what is sometimes quite an impressive cough.

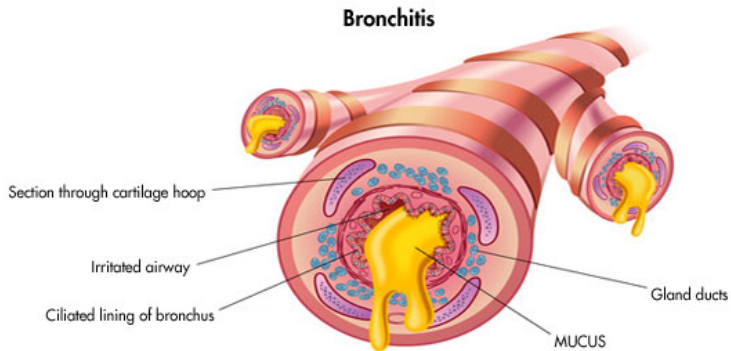


Is it in the Chest?

A common question that parents have for doctors is whether or not a respiratory tract infection is 'in the chest'. This is very simple to answer: If there is a chesty, wet productive cough then it is in the chest. A more relevant question is whether it is just in the airways or deep in the lung substance (this would be pneumonia). Interestingly, listening to the chest is often unhelpful in answering this question in young children. When we listen to the chest we are listening out for two main things: Firstly wheezing, as is seen in asthma. This is usually heard throughout both lungs and often is obvious before listening. Secondly, we are listening for localised areas where there are added sounds called crackles. Crackles signify fluid in the very smallest airways and the alveoli (the lung substance), and in adults, localised crackles suggest pneumonia. It is very uncommon to hear this in young children. When children have bacterial pneumonia, they are usually very unwell with high fevers, **but without** wheeze or symptoms of a head cold. Chest examination usually does not reveal crackles even in children with bacterial pneumonia. Examination and assessment of adolescents is similar to adults.

Listening to young children's chests to determine whether there is any evidence of bacterial respiratory infection has been found to be notoriously unreliable, even by experts, and especially in infants and toddlers. By far the best way of determining what type of infection it is and whether it needs treatment is the **history** from the parents. In the case of bronchitis, the presence of a chesty cough is all that is needed to establish the where the problem is.

Persistent Bacterial Bronchitis (PBB)



Typical bronchitis that is present with a virus will slowly clear within a few days to a few weeks. When a daily productive or chesty cough is present consistently for more than six weeks, we call it **persistent bronchitis**. Persistent bronchitis is usually caused by a bacterial infection. Unlike most bacterial infections that grow rapidly and cause pain and fever, the bacteria that cause persistent bronchitis

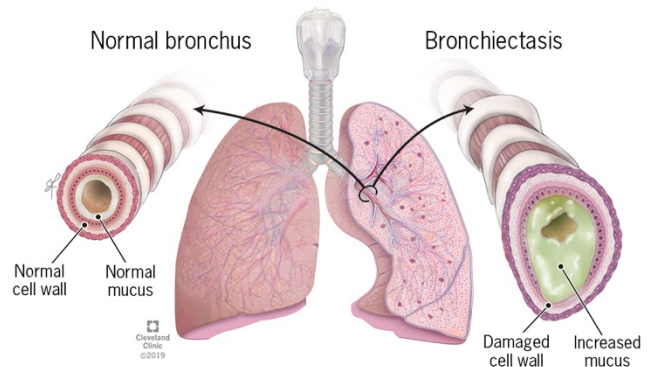
grow very slowly and cover themselves with slime, making them hard to get rid of. Children with persistent bacterial bronchitis are usually reasonably well appearing, and, despite the cough, can get on with their usual activities. Sometimes children will be a bit tired and cranky or have slightly low energy, particularly if the cough is going on for a long time. Some children will get low grade temperatures but this is uncommon. The relatively mild nature of the symptoms, with a normal chest examination sometimes means that persistent bronchitis is under-recognised and not treated as early as it might be. For persistent bronchitis, short courses of antibiotics usually do not eradicate the infection but may lead to some temporary improvement in symptoms while they are being taken, with symptoms returning when they are stopped. For this reason, treatment for persistent bronchitis will involve a prolonged course of antibiotics, usually several weeks long.

Why does my child keep getting bronchitis?

Most children will just get persistent bronchitis as a one-off phenomenon, but some children can have recurrent episodes, even when each episode is successfully treated. Sometimes there are obvious reasons for getting recurrent bronchitis such as damaged airways, immune deficiencies or pulmonary aspiration (food entering the lungs) but most children with recurrent bronchitis do not have serious lung conditions such as these. The way that the airways and lungs handle and clear bacterial infection is very complicated and varies between individuals. Some children, even in the absence of serious conditions, struggle to clear bacterial infection from their airway for reasons that we don't fully understand, and can present with recurrent episodes of persistent bacterial bronchitis. Children who get recurrent episodes of persistent bacterial bronchitis should be reviewed by a consultant in paediatric respiratory medicine. Depending on the frequency and severity of the episodes and the age of the child, some children will need to be investigated to determine whether there is a serious cause for recurrent persistent bacterial bronchitis. This would usually involve a CT scan of the chest, a bronchoscopy (a camera inserted into the airway) and some blood tests.

Does persistent bronchitis do any harm to my child?

Most children will just get persistent bronchitis once and it will resolve completely either spontaneously or with antibiotic treatment. A very small number of children with persistent bronchitis that goes untreated will develop a condition called 'bronchiectasis' where the airways become damaged irreversibly. This is a lifelong condition. This seems to occur only in a small minority of cases and we do not understand fully who is at risk of developing this complication. This is the reason that we are keen to treat children with prolonged daily productive coughing with appropriate antibiotic treatment.



Will antibiotics harm my child?

The *unnecessary* use of antibiotics for non-bacterial illnesses in children is to be avoided as this can contribute to the development of population wide resistant bacteria and have adverse effects on the individual. The *appropriate* use of antibiotics in humans for conditions that are recognised to have potentially serious adverse consequences is to be encouraged however. Balancing the known risks and benefits of treatments is part of the practice of good medicine. Isolated courses of appropriate antibiotic treatment for potentially serious infection are generally perfectly safe. Despite common misconceptions, there is no evidence that appropriately used antibiotics adversely affect immune function in children.