

Pneumonia

Pneumonia is inflammation of the lungs usually caused by infection, most commonly with viruses or bacteria. Viral pneumonias usually clear up with supportive treatments; bacterial pneumonias are treated with antibiotics. Pneumonia is a major health problem for children worldwide, but in developed countries most pneumonias clear up without problems. Children with certain lung diseases or other health problems are at higher risk of pneumonia.

What is pneumonia?

Pneumonia is inflammation of the lungs usually caused by infection with viruses or bacteria. Most pneumonias resolve without problems. Pneumonia can be a serious illness. However, with the use of effective antibiotics for bacterial pneumonia, most children get better without complications.

There are many possible causes of pneumonia, and the most likely causes differ with age. In a younger child, it may be difficult to determine whether he or she really has pneumonia. The severity of pneumonia and the necessary treatment depend on many factors, including your child's age, his or her general health, and the cause of the pneumonia.

What does it look like?

The symptoms and severity of pneumonia in children vary widely. Some of the most common signs of pneumonia are:

- Cough.
- Fever, often high.
- Fast breathing.
-  Difficulty breathing: you may see your child's chest caving in, ribs sticking out (retractions), belly going up and down, and nostrils flaring. *This is an emergency!* Take your child to the nearest emergency room immediately.
- Noisy breathing; you may hear "crackles" and wheezing as your child breathes.
- Chest pain may be present along with the other symptoms.
- If pneumonia is severe and your child is not getting enough oxygen in the lungs, he or she may become anxious, drowsy, or restless.
- Like other serious illnesses, pneumonia may cause dehydration. Symptoms include decreased urine and dryness inside the mouth.

What causes pneumonia?

Although bacteria and viruses are the most common causes, there are many other possible reasons for pneumonia. The most frequent causes differ by age group and time of year. To ensure effective treatment, your child may undergo tests to identify the specific bacteria or virus underlying his or her pneumonia.

The most common cause of pneumonia in young children is respiratory syncytial virus (RSV), a very common virus that also causes bronchiolitis (infection and inflammation of the very smallest breathing tubes).

What are some possible complications of pneumonia?

Most pneumonias, including bacterial pneumonias, resolve without a problem. Possible complications include:

- A collection of pus (abscess) may develop in the lungs. This often requires special treatment.
- Although this is very uncommon, severe pneumonia may lead to permanent changes in the lungs.

What puts your child at risk of pneumonia?

- Lung diseases, such as asthma, or cystic fibrosis.
- Breathing in foreign substances (aspiration), including food or acid from the stomach.
- Any nervous system problem that interferes with the normal ability to protect the airway.
- Any immune system problem that interferes with the ability to fight off germs.
- Other injuries, including trauma to the airway caused by general anesthesia for surgery.

Can pneumonia be prevented?

For children with specific diseases that place them at high risk of pneumonia, vaccines may help to lower the risk. A yearly influenza vaccination ("flu shot") is recommended for all children ages 6 months to 5 years as well as for children with asthma, diabetes, heart disease, or any other chronic disease.

All infants should receive the pneumococcal vaccine to prevent infection with *Streptococcus pneumoniae*, the most common cause of bacterial pneumonia in children. The usual recommendation for pneumococcal vaccine is four shots given by age 18 months.

All infants should also receive vaccinations to prevent a particularly dangerous type of pneumonia caused by *Haemophilus influenzae* type B (Hib) bacteria. The usual recommendation is four doses of Hib vaccine before age 18 months.

Pneumonia is most common in the fall or winter, when seasonal outbreaks of infection with respiratory viruses occur.

How is pneumonia diagnosed and treated?

- The diagnosis of pneumonia can be made based on what the doctor hears when listening to the chest with a stethoscope. Often a chest x-ray is needed to detect the pneumonia.
 - Some tests on the blood or mucous may be done to help decide if the infection is caused by a virus or by bacteria.
 - If bacterial pneumonia is suspected, your child may receive antibiotics. The specific antibiotic chosen may depend on the most likely bacterial cause.
 - If the cause is suspected to be a virus and your child's pneumonia is mild, antibiotics will probably be unnecessary.
 - Your child will be tested to make sure that enough oxygen is in his or her blood. This is usually done with a device called a pulse oximeter. It is usually placed on a finger and is not painful. Oxygen will be given if needed.
 - If your child's pneumonia is not too severe, he or she can be treated at home, including taking oral antibiotics.
- Make sure your child drinks plenty of liquids to prevent dehydration.
- For infants and children with severe pneumonia, hospital treatment may be needed, possibly including intravenous (IV) antibiotics and fluids. Your child will be monitored closely for signs of worsening pneumonia or difficulty breathing.
 - We may recommend a follow-up visit after a few weeks to make sure your child's pneumonia is getting better. Depending on the cause, it may take several weeks for the pneumonia to clear up completely.
 - If your child's pneumonia does not clear up as rapidly or completely as it should, further tests may be recommended.

When should I call your office?

Call our office if:

- Your child's pneumonia symptoms (fever, cough, difficulty breathing, chest pain) do not seem to be getting better within 2 to 4 days.
- Your child's symptoms seem to be getting worse.
- Your child shows any signs of dehydration (dry mouth, not urinating).
- Your child seems to be having difficulty breathing: chest caving in, ribs sticking out (retractions), belly going up and down, and nostrils flaring. *This is an emergency!*  Take your child to the emergency room immediately.