

Acute Respiratory Distress Syndrome, Pediatric

Acute respiratory distress syndrome is a life-threatening condition in which fluid collects in the lungs. This keeps the lungs from filling with air and passing oxygen into the blood. This can cause the lungs and other vital organs to fail. The condition usually develops following an infection, illness, surgery, or injury.

What are the causes?

This condition may be caused by:

- An infection, such as sepsis or pneumonia.
- A serious head or chest injury.
- Severe bleeding from an injury.
- A major surgery.
- Breathing in harmful chemicals or smoke.
- Blood transfusions.
- A blood clot in the lungs.
- Breathing in vomit (*aspiration*).
- Near-drowning.
- Inflammation of the pancreas (*pancreatitis*).
- A drug overdose.

What are the signs or symptoms?

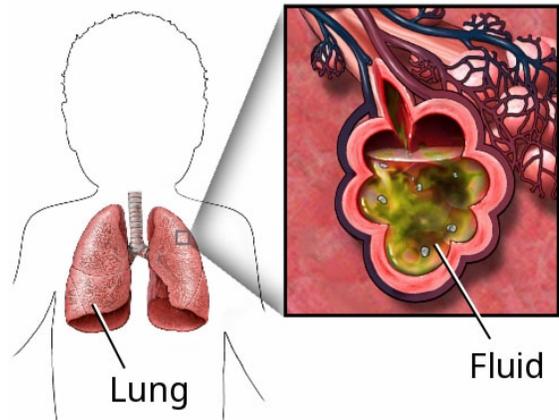
The main symptoms of this condition are sudden shortness of breath and rapid breathing. Other symptoms may include:

- A fast or irregular heart rate.
- Skin, lips, or fingernails that appear blue (*cyanosis*).
- Confusion.
- Tiredness or loss of energy.
- Chest pain, particularly when taking a breath.
- Coughing.
- Restlessness or anxiety.
- Grunting or flaring of the nostrils while breathing.
- Belly breathing. This is when your child draws in his or her stomach just below the rib cage or at the bottom of the breastbone while breathing.
- Fever. This is usually present if there is an underlying infection, such as pneumonia.

How is this diagnosed?

This condition is diagnosed based on:

- Your child's symptoms.
- Your child's medical history.



- A physical exam. During the exam, your child's health care provider will listen to your child's heart and check for crackling or wheezing sounds in his or her lungs.

Your child may also have other tests to confirm the diagnosis and measure how well the lungs are working. This may include:

- Measuring the amount of oxygen in your child's blood. Your child's health care provider will use two methods to do this:
 - A small device (*pulse oximeter*) that is placed on your child's finger, earlobe, or toe.
 - An arterial blood gas test. A sample of blood is taken from an artery and tested for oxygen levels.
- Blood tests.
- Taking a sample of your child's sputum to test for infection.
- Chest X-rays or CT scans to look for fluid in the lungs.
- Heart test, such as an echocardiogram or electrocardiogram. This is done to rule out any heart problems (such as heart failure) that may be causing your symptoms.
- Bronchoscopy. During this test, a thin, flexible tube with a light is passed into the mouth or nose, down the windpipe, and into the lungs.

How is this treated?

Treatment depends on the cause of your child's condition. The goal is to support your child while his or her lungs heal and the underlying cause is treated. Treatment may include:

- Oxygen therapy. This may be done through:
 - A nasal cannula or a face mask.
 - A ventilator. This device helps move air into and out of your child's lungs through a breathing tube inserted into your child's mouth or nose.
- Continuous positive airway pressure (CPAP). This treatment uses mild air pressure to keep the airways open. A mask or other device will be placed over your child's nose or mouth.
- Tracheostomy. During this procedure, a small cut is made in your child's neck in order to create an opening to the windpipe. A breathing tube is placed directly into your child's windpipe. The breathing tube is connected to a ventilator. This is done if your child needs a ventilator for a longer period of time or if your child has problems with his or her airway.
- Positioning your child to lie on his or her stomach (*prone position*).
- Medicines, such as:
 - Sedatives to help your child relax.
 - Blood pressure medicines.
 - Antibiotics to treat infection.
 - Blood thinners to prevent blood clots.
 - Diuretics to help prevent excess fluid.
- Fluids and nutrients given through an IV tube.
- Wearing compression stockings on his or her legs to prevent blood clots.
- Extra corporeal membrane oxygenation (ECMO). This treatment takes blood outside your child's body, adds oxygen, and removes carbon dioxide. The blood is then returned to your child's body. This treatment is only used in severe cases.

Follow these instructions at home:

- Give your child over-the-counter and prescription medicines only as told by your child's health care provider.
- Help your child if daily activities make him or her tired.

- Attend any pulmonary rehabilitation as told by your child's health care provider. This may include:
 - Education about your child's condition.
 - Exercises.
 - Breathing training.
 - Counseling.
 - Learning techniques to conserve energy.
 - Nutrition counseling.
- Keep all follow-up visits as told by your child's health care provider. This is important.

Contact a health care provider if:

- Your child becomes short of breath during activity or while resting.
- Your child develops a cough that does not go away.
- Your child has a fever.
- Your child's symptoms do not improve or they get worse.
- Your child becomes anxious or depressed.

Get help right away if:

- Your child who is younger than 3 months has a temperature of 100°F (38°C) or higher.
- Your child has sudden shortness of breath.
- Your child develops sudden chest pain that does not go away.
- Your child has a rapid heart rate.
- Your child develops swelling or pain in one of his or her legs.
- Your child coughs up blood.
- Your child has trouble breathing.
- Your child's skin, lips, or fingernails turn blue.

These symptoms may represent a serious problem that is an emergency. Do not wait to see if the symptoms will go away. Get medical help right away. Call your local emergency services (911 in the U.S.).

Summary

- Acute respiratory distress syndrome is a life-threatening condition in which fluid collects in the lungs. This keeps the lungs from filling with air and passing oxygen into the blood, causing the lungs and other vital organs to fail.
- This condition usually develops following an infection, illness, surgery, or injury.
- Sudden shortness of breath and rapid breathing are the main symptoms of acute respiratory distress syndrome.
- Treatment may include oxygen therapy, continuous positive airway pressure (CPAP), tracheostomy, making the child lie on his or her stomach (*prone position*), medicines, fluids and nutrients given through an IV tube, compression stockings, and extra corporeal membrane oxygenation (ECMO).

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.