

## Let's Talk About...

# High-flow nasal cannula

A high-flow nasal cannula (HFNC) is a special way to deliver oxygen that adds heat and moisture to help your child breathe more easily.

## How does HFNC oxygen work?

HFNC oxygen is delivered by a tube (nasal cannula) with two short, soft tubes on the side that go into your child's nose. It provides a higher flow of oxygen than other nasal cannulas. The tubes are attached to a machine that moistens and heats the oxygen to make it more comfortable and keep mucus in the nose from getting dry and thick.

Oxygen and carbon dioxide are two gases found in the air and in our bodies. Usually, the lungs bring oxygen to the body and blow out carbon dioxide. This is called gas exchange. If your child has a lung disease or infection, they may have trouble with gas exchange. Air and HFNC oxygen are delivered at higher flow rates that help your child improve gas exchange. Your child will also use less energy to breathe.

## Why does my child need HFNC oxygen?

Your child may need HFNC if they can't get enough oxygen or have respiratory illness such as bronchiolitis (BRON-kee-oh-LITE-us), a lung infection caused by a virus that makes your child wheeze or cough. Children who have bronchiolitis work harder to breathe and may benefit from HFNC.

## How do I tell if my child is having trouble breathing?

- They may be breathing faster.
- They may widen their nostrils and have retractions to try to get more air in and out of the lungs.
- They may grunt and tighten their stomach muscles when they breathe.



- They may use more muscles than usual to help them breathe. You will see them pulling in below their ribs, below their breastbone, between their ribs, or in their neck. These movements are called retractions.
- They may make a high whistling sound or squeak (called a wheeze) each time they breathe.
- They may not drink liquids well because they are working so hard to breathe that they have trouble sucking and swallowing.
- They may have a bluish tint around their lips and fingertips. This means they are not getting enough oxygen into their blood.

## What happens before my child receives HFNC oxygen?

The medical team will look at your child for signs of trouble breathing. They will see if your child is getting enough oxygen in their blood. Your child may have a chest x-ray and a blood gas test. This test tells the medical team how well your child's lungs can get air in and out.

## What happens when my child receives HFNC oxygen?

A respiratory therapist (RT) will put the HFNC in your child's nose. The medical team will watch your child's heart, breathing rates, oxygen levels, lung sounds (called breath sounds), and retractions. Your child's healthcare provider may move them to the pediatric intensive care unit (PICU). After your child has the HFNC in their nose, their healthcare provider will frequently listen to their lungs.

## How long will my child use HFNC oxygen?

The time your child needs HFNC oxygen depends on how sick they are, other health problems they might have, and how they respond to treatment.

Once your child's breathing improves, their healthcare provider will start turning the oxygen down and check on your child every 2–4 hours. As your child gets better, the healthcare provider will decrease the oxygen and air flow rate. Your child can stop using HFNC oxygen when the medical team decides they can breathe well enough without it. A regular nasal cannula will replace the HFNC with a smaller amount of oxygen until your child no longer needs extra oxygen support.



## Can my child eat while using HFNC oxygen?

Your child's healthcare provider will decide whether your child can eat by mouth or not. If your child can't eat, they may receive feedings through a tube in their nose or fluids through an IV (small tube that goes into the vein).

## What problems can happen when my child has HFNC oxygen?

Problems with an HFNC are rare but may include:

- Too much air in your child's stomach.
- Skin irritation around the nose and face.
- Food going from the stomach to the lungs (aspiration), which may cause pneumonia.
- Air getting trapped in the lungs, making it harder to breathe out completely.
- Pneumothorax (a small hole in the lungs where air escapes in the chest, making it harder to breathe).
- Escaped air pushing on the heart so the heart doesn't work as well.

The medical team will watch your child closely and treat any problems. Your child's healthcare provider will talk to you if there are any specific concerns.

## What happens when my child stops using HFNC oxygen?

When your child no longer needs HFNC oxygen, they will get oxygen from a regular nasal cannula. This is a smaller tube with less gas flowing through it. As your child gets better, the healthcare provider will decrease the oxygen until it is no longer needed to keep the oxygen in your child's blood at a normal level.

## Notes

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