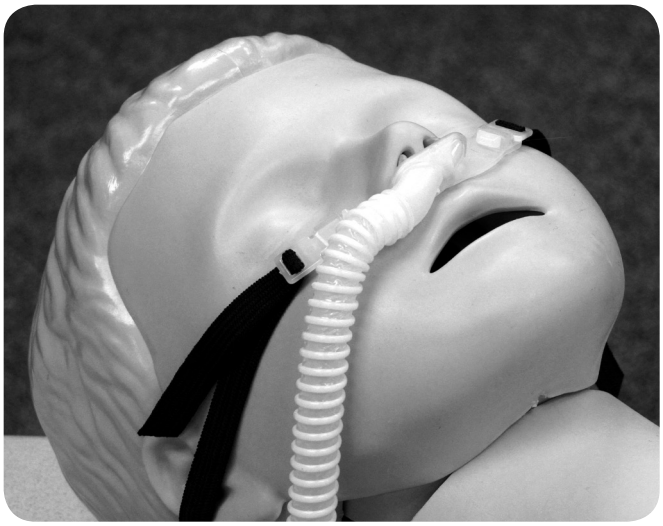
Let's Talk About...

High flow nasal cannula



A High Flow Nasal Cannula (HFNC) is a special oxygen tube with two short soft tubes on the side. The little soft tubes are placed in the nose to help a child breathe. The tubes bring gas (oxygen or oxygen mixed with air) to the child. The gas is moist and heated to make it comfortable and keep mucus in the nose from getting dry and thick. The gas flow through the tube is greater than traditional nasal cannulas; that is why it is called high flow.

How does HFNC work?

Oxygen and carbon dioxide are two gases found in the air and in our bodies. Usually the lungs bring oxygen to the body and get rid of carbon dioxide, a gas the body has used up. This is called "gas exchange." If there is a disease or infection of the lungs, this may interfere with gas exchange. The gas flow from the HFNC keeps the lungs open better and helps them have better gas exchange. This makes breathing easier and the child uses less energy to breathe.

When would a child need HFNC?

Babies and children who have bronchiolitis, work harder to breathe and may benefit from HFNC. The medical team can tell that your child needs help with breathing if he is breathing faster than normal and has extra noises in his lungs when the medical team listens to his chest. Children who are having trouble breathing also usually have retractions. This is when a child widens his nostrils and squeezes the muscles under his ribs when he breathes. The muscles in the neck and chest strain and there might be a pulling between his ribs or in his neck because he is straining to get the air in and out of his lungs.

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

- He may be breathing faster.
- He may widen his nostrils and have retractions to try to get more air in and out of his lungs.
- He may grunt (make a grunting noise) and tighten his stomach muscles when he breathes.
- He may use more muscles than usual to help him breathe. You will see him pulling in below his ribs, below his breastbone, between his ribs, or on his neck.
- He may make a high whistling sound or squeak (called a wheeze) each time he breathes.
- He may not drink liquids well because he is working so hard to breathe that he has trouble sucking and swallowing.
- He may have a bluish tint around his lips and fingertips. This means he is not getting enough oxygen into his blood.

What happens before a child receives HFNC?

The medical team will examine your child for signs of trouble breathing. They will see if he is getting

enough oxygen in his blood. He may have a chest x-ray and they may take a little blood from your child for a "blood gas" test. This test tells the medical team how well your child's lungs are able to get air in and out.

What will happen when a child receives HFNC?

A Respiratory Care Practitioner (RCP) will be the one to place your child on HFNC. The medical team will watch your child's heart rate, the oxygen in his body, how fast he is breathing, his lung sounds (called breath sounds), and retractions. Your child's doctor may transfer him to the Pediatric Intensive Care Unit (PICU) or the Neonatal Intensive Care Unit (NICU). After the HFNC is placed on your child's nose, his doctor, nurse, and RCP will listen to his lungs at regular intervals.

How long will my child be on the HFNC?

The amount of time your child needs HFNC is determined by how sick he is, if he has any other health problems, and how he responds to treatment.

Once your child's breathing improves the RCP will start turning the oxygen down. The RCP will examine your child every two to four hours. As your child gets better, your child's RCP will decrease the oxygen and flow on the HFNC. Your child can come off when the medical team determines the patient can adequately breathe.

Can my child eat while he is on an HFNC?

Your child's doctor will decide whether your child can eat or not. If your child is not able to eat, he may receive feedings through a tube in his nose or fluids through an IV.

Are there any complications from an HFNC?

Complications are rare, but may include:

- Too much air can get into your baby's stomach.
- There can be skin irritation around the nose and face.
- Food can go from the stomach to the lungs and may cause pneumonia.
- Some air may get "trapped" in the lungs, making it harder to breathe out completely
- Pneumothorax: this is when a small hole happens in the lungs and air escapes in the chest outside the lungs and makes it more difficult to breathe.
- Escaped air pushes 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 doctor will talk to you if there are any specific concerns.

What happens when my child is taken off HFNC?

When your child no longer needs HFNC, he will receive a regular nasal cannula. This is a smaller tube with less gas flowing through it. As your child gets better, the nurse will decrease the oxygen, always keeping the oxygen in your child's blood at a normal level.

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