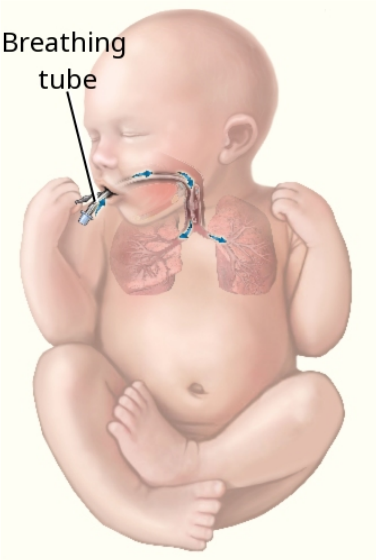
Ventilator, Pediatric



A ventilator, also called a breathing machine, respirator, or mechanical ventilator, is a machine that helps move air in and out of a person's lungs. It may be used to help your child breathe or to completely control his or her breathing. A ventilator may be used:

- While your child is under general anesthesia during surgery. This support is needed because anesthetic medicines can affect breathing.
- If your child is severely injured.
- If your child is too weak to breathe on his or her own.

Ventilators have alarms that may go off. The alarms help health care providers and other caregivers ensure that all connections are secure and that the ventilator is working properly.

How does a ventilator work?

- When your child is on a ventilator, a tube from the ventilator connects to a breathing tube that is passed into your child's windpipe (*intubation*). The breathing tube is usually inserted through the mouth or nose (*endotracheal*). Sometimes, an incision is made in the throat and the breathing tube is inserted directly into the windpipe (*tracheostomy*).
- The ventilator uses pressure to deliver oxygen-rich air through the breathing tube and into your child's lungs. The ventilator also helps your child "exhale" by removing waste gases, such as carbon dioxide.
- Ventilators are powered by electricity and have a backup power source in case a power outage happens.
- The air delivered by a ventilator is warm and moist.

How do I know if my child is getting enough air?

- Ventilators have settings that control the size of each breath and how often breaths occur. The settings are based on how your child normally breathes.
- There are pressure monitors that show that the machine is properly connected and that help determine the proper size of the breath.
- A display screen on the ventilator allows the health care team and other caregivers to check that the ventilator settings are right for your child.
- A monitor called a pulse oximeter may be used to track your child's blood oxygen level. The monitor is placed on the fingertip, toe, or earlobe.
- Tests may be done to check the levels of oxygen and carbon dioxide in your child's body or the placement of the breathing tube. Tests may include:
  - Blood tests.
  - Chest X-rays.

What are the risks of being on a ventilator?

Depending on how long your child is on the ventilator, there may be an increased risk for:

- Pneumonia.
- Sinus infection.
- Air leakage into the space between the lungs and the chest wall (*pneumothorax*). This may cause shortness of breath, pain, or a collapse of the lung.

- Damage to the lungs.
- Blood clots and skin infections. These may occur after lying in bed for a long time.
- Damage to vocal cords.

Follow these instructions at home:

Your child may need to go home with a ventilator. If that is the case:

- Make sure you are fully trained on how to care for your child before leaving the hospital. Training may include:
  - How to recognize emergency situations.
  - How to suction the breathing tube to keep it clear.
- Have another trained person stay with you and help you care for your child while he or she is on a ventilator.
- Ask your child's health care providers to guide you on how to care for your child at home. **Do not** be afraid to ask questions.
- **Do not** leave your child alone. Children who are on ventilators must have an awake and fully trained caregiver with them at all times. Ask your health care provider about getting help at home.
- Contact your health care provider right away if you notice any problems with your child's breathing tube, such as a blockage.
- If your child has an opening in his or her throat (*tracheostomy*),care for the opening (*stoma*) as told by your child's health care provider. This may include regular cleaning and checking for signs of infection.
- Keep all follow-up visits as told by your child's health care provider. This is important.

What happens when my child comes off a ventilator?

When your child can breathe on his or her own again, he or she will be given a breathing trial. This is also called weaning. During this procedure, the ventilator is turned off or the settings are turned down for a certain amount of time while your child is still attached to the machine.

- If your child is able to breathe well on his or her own, the breathing tube is removed.
- If your child is not able to breathe without the ventilator, the machine will be turned back on or the settings will be increased and weaning will be tried again at a later date.

The decision to wean your child from the ventilator is made carefully to ensure that the breathing tube is not removed too soon. When the breathing tube is removed, your child may cough and have some throat pain. Your child may also have a hoarse voice for a few days after the tube is removed. If your child has a tracheostomy, the tube may remain in place with or without a ventilator.

Summary

- A ventilator is a machine that helps move air in and out of a person's lungs.
- A ventilator may be used during surgery while your child is under general anesthesia. Your child may also need a ventilator if he or she is severely injured or is too weak to breathe without help.
- When your child is on a ventilator, a tube from the ventilator connects to a breathing tube that is passed into your child's windpipe. The tube may be passed through the mouth, nose, or throat.
- If your child needs to come home with a ventilator, **do not** leave him or her alone at any time. Children who are on ventilators must have an awake and fully trained caregiver with them at all times.

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.

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