Midlands Family Medicine
Let our family care for yours!

611 West Francis St. Suite 100
North Platte, NE 69101
Phone: (308) 534-2532
Fax: (308) 534-6615

## Education

# Ventilation Tubes Surgery

### What are ventilation tubes?

Ventilation tubes are tiny plastic tubes that are surgically inserted through the eardrum by an ear, nose, and throat surgeon. They are also called tympanostomy tubes because they are placed in the tympanic membrane, which is another term for the eardrum. Ventilation tubes drain fluid out of the middle ear space and ventilate the area with air.

### Why are ventilation tubes needed?

The eardrum normally vibrates with sound because the space behind it (the middle ear) is filled with air. If the middle ear is filled with fluid, as occurs during an ear infection, hearing is muffled.

Sometimes after an ear is no longer infected, fluid remains in the ear. This occurs if the eustachian tube, which runs from the back of the nose to the middle ear, becomes blocked and no longer allows air in and fluid out.

Approximately 30% of children still have fluid in the middle ear 1 month after an ear infection. 20% still have fluid 2 months, 10% at 3 months, and 5% have fluid 4 months after the infection. Fluid is especially likely to stay in the ear if the first infection occurs before a child is 6 months old. By the time a child is 5 years old, the eustachian tube is wider, and fluid usually doesn't stay long after ear infections are treated.

The main concern about having fluid in the middle ear for a long time is that the muffled hearing may affect a child's speech development.

### What are the benefits of ventilation tubes?

Ventilation tubes allow fluid to drain out of the middle ear space and allow air to reenter. The risk of recurring ear infections is greatly reduced. Hearing returns to normal with the tube in place and speech development can get back on track.

Ventilation tubes also prevent the fluid from becoming thicker (a "glue ear") and damaging the middle ear. Ventilation tubes give time for the eustachian tubes to begin to function better as the child grows older.

### What are the risks of ventilation tubes?

Approximately 10% of children with ventilation tubes continue to have ear infections with drainage and pain. However, these bouts of infection that require antibiotics probably would have occurred without the tubes.

Normally the tubes come out and fall into the ear canal after about a year. Complications may occur when the tubes come out. Sometimes they come out too quickly and need to be replaced by another set. Rarely, they fall into the middle ear space and need to be removed by the surgeon. If the tubes remain in the eardrum for over 2 years, the surgeon may need to remove them.

After the tubes come out, they may leave scars on the eardrum or a small hole (perforation) that doesn't heal. Both of these problems can cause a small hearing loss.

Because of these possible complications and the need to give anesthesia to young children before the operation, physicians recommend ventilation tubes only for children who really need them.

### When is ventilation tube surgery recommended?

The surgical placement of ventilation tubes is usually recommended for middle ear fluid if your child has the following conditions:

- Fluid has been present in the middle ear continuously for over 4 months.
- Both ears have fluid.
- The fluid has caused a documented hearing loss. A hearing loss greater than 20 dB can significantly delay speech. However, many children with fluid in their ears have nearly normal hearing.
- The fluid has caused a speech delay (for example, a child is not speaking at least three words by the age of 18 months or 20 words by the age of 2 years).

Ventilation tube placement is also recommended for severe ear infections such as:

- Recurrent ear infections (3 or more within a 6 month period.)
- Ear infections do not clear up after trying multiple antibiotics.
- Complications of ear infections such as a mastoid infection or paralysis of the facial nerve (giving a "crooked smile").

**What if my child has temporary hearing loss from ear fluid?**

Most children have only temporary hearing loss because of fluid in their middle ears. When you talk to your child during this time of temporary hearing loss, get close to him, seek eye contact, get his full attention, and occasionally check that he understands what you have said. If your child is not hearing you well, speak in a louder voice than you normally use. A common mistake is to assume your child is ignoring you when actually he doesn't hear you. Reduce background noise from radio or television while you talk with your child.

If your child goes to school, make sure that he sits near the teacher. (Fluid in the middle ear makes it difficult to hear in a crowd or classroom).

Keep in mind that most children's speech development will catch up after a brief period of partial hearing.

**How can I help prevent chronic ear fluid?**

Chronic ear fluid and recurrent ear infections are usually caused by a blocked eustachian tube. However, there are other factors that might worsen a child's condition:

- Exposure to adults who smoke.
- Drinking from a bottle while lying down (or bottle propping), which can cause milk to enter the middle ear space.
- Nasal allergies, which can cause more frequent ear fluid buildup. Consider this factor if your child has hay fever, eczema, asthma, or food allergies.
- Nightly snoring caused by large adenoids.

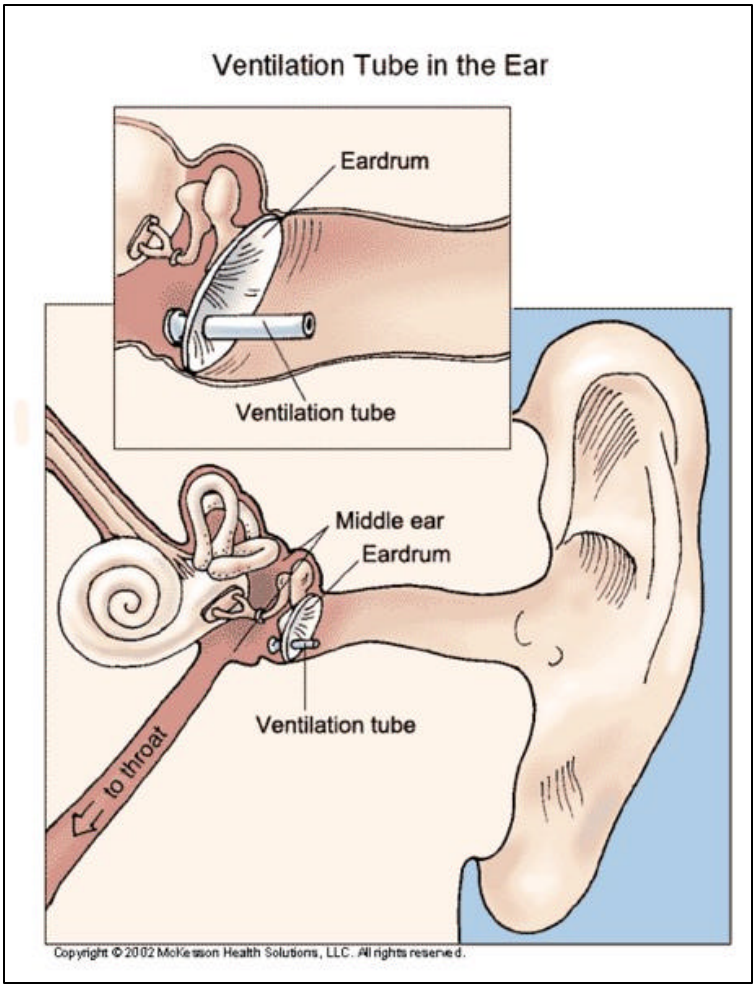
For more information see

If any of these factors are true for your child, treat or eliminate them before you consider ventilation tubes.

**When should I call my child's health care provider?**

Call during office hours if:

- You have other questions or concerns about ventilation tubes.


Ventilation Tube in the Ear
Eardrum
Ventilation tube
Middle ear
Eardrum
Ventilation tube
to throat
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