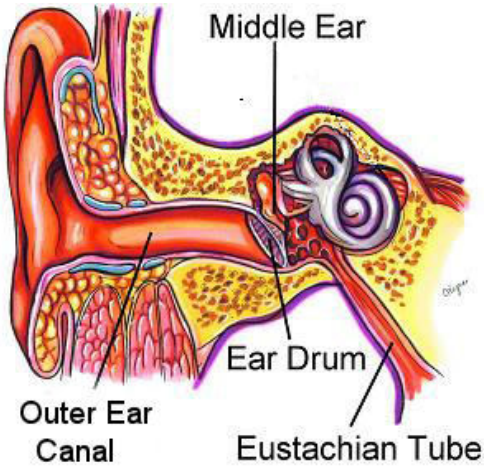
Ear Infection, Easing the Pain

Two out of 3 children will have an ear infection before their first birthday. Eight out of 10 will have had one or more ear infections before the age of 3.



Behind the eardrum is a *chamber* (an empty space) called the middle ear. Inside this chamber is a series of three small bones. These bones send sound from the outer ear, through the eardrum, to the inner ear where the sound waves are converted into nerve impulses. These nerve impulses are sent to the brain to be "heard". It is when the middle ear becomes filled with fluid, and this fluid becomes infected with *bacteria* (germs) or viruses, that a child develops a middle ear infection. This problem is also called *acute* (sudden) otitis media.

WHY DO MIDDLE EAR INFECTIONS OCCUR

Middle ear infections are usually a complication of the common cold. The middle ear is connected to the back of the throat by a tunnel called the eustachian tube. With the congestion that accompanies a cold, the eustachian tubes become congested and blocked. This causes the air in the middle ears to become replaced with fluid. Because bacteria are often blocked in the middle ear as well, the fluid becomes infected and a middle ear infection results.

CHILDREN ARE MORE SUSCEPTIBLE

The eustachian tubes are narrower and shorter in younger children, so young children are more prone to ear infections. Younger children also get more colds. Therefore, ear infections occur most most often between the ages of 3 months and 4 years old. By age 3, half of all children have had three or more ear infections.

The condition can also occur as a complication of allergies if the nose and ears become congested. Ear infections also occur without colds or allergies. Some children are prone to ear infections, and come from families with a history of ear infections. In many cases, these children have middle ears that chronically retain fluid because the eustachian tubes will not stay open.

COMMON SIGNS OF EAR INFECTION

Pain is the most common sign of an ear infection, and fever is the second most common sign. The pain may be anything from mild to severe; depending on the child and perhaps the particular kind of bacteria that is causing the infection.

The fever can run between 101° F (38.3° C) and 103° F (39.4° C), but it may be higher. Occasionally, children will have ear infection with no fever at all.

The pain is typically worse when a child is lying down, so ear infections often first become known in the middle of the night. Infants and toddlers will not be able to say that their ears hurt, but they will:

- Tug on their ears.
- Put their hands over their ears.
- Act fussy or agitated.

It can get confusing for parents because there are several other things that can cause ear pain, and there are lots of other things that can cause fever. For example, teething can cause ear pain, though it probably causes little or no fever. Lots of viruses cause fever, and in little children, viruses can commonly cause high fevers. With high fever, most young children are fretful, and it may be difficult for parents to tell whether anything, much less an ear, hurts.

A good guideline for parents of children older than 3 months is to call the caregiver if a child has a fever and you suspect an earache. If it is nighttime and your child is not very ill appearing, the call (and the visit to the caregiver's office) can wait until the next morning. For infants younger than 3 months, it is best to call your caregiver.

SHOULD ANTIBIOTICS BE USED

Without antibiotics, 80 percent of all ear infections get better within the week. Treating with an antibiotic only adds another ten percent to the cure rate - bringing it up to ninety percent. Of children with ear infections, 60 percent will be pain-free in 24 hours - whether or not they receive an antibiotic.

Not giving antibiotics for mildly ill children with ear infections is becoming more common in this country among physicians and parents. Results are similar whether or not an antibiotic is prescribed. By not giving an antibiotic you can save:

- Expense
- Inconvenience
- Possibilities of allergic reactions to the medicine
- Other side effects.

But, most importantly, giving less antibiotics decreases the likelihood of children developing infections with *bacteria* (germs) that have become resistant to the common antibiotics and are more difficult to treat.

For children with earaches who are not very ill, parents can discuss with their children's caregivers whether an antibiotic is advisable or not. If physicians and parents choose to hold off on starting an antibiotic, they should have a plan to get back in touch with one another in 48 hours if the symptoms (fever and/or fussiness) have not resolved.

EASING THE PAIN OF AN EAR INFECTION

Whether or not a child is prescribed an antibiotic, parents will want to relieve their child's ear pain. Only take over-the-counter or prescription medicines for pain, discomfort, or fever as directed by your caregiver. Other ideas to help relieve pain include:

- Applying a warm washcloth to the ear.
- Keeping the child sitting up as much as possible.
- Older children who are old enough to chew gum without swallowing it find that chewing gum helps ease their ear pain.

If the ear pain and fever are not getting better over the first 48 hours - whether or not an antibiotic has been prescribed - then you should get back in touch with your child's caregiver. For the child who has not been prescribed an antibiotic, the usual decision may be to prescribe one. For the child who is taking an antibiotic and is not getting better, it may be time to switch to a different antibiotic. The bacteria that is causing the ear infection may be resistant to the current medicine.

ARE “TUBES” NEEDED TO DRAIN AND PREVENT LONG-STANDING FLUID?

Ear infections often develop after fluid has collected and is trapped in the middle ear. Trapped fluid in the middle ear is not only the *cause* of ear infections, but it is also the *result*.

After an ear infection is treated - or gets better by itself - it takes a while for the eustachian tube to open up and get back to normal. Until then, the middle ear contains fluid, not air. In most children, this fluid is gone in 6 weeks, but in about 10 percent of children it will last three months or more. This is called otitis media with effusion.

Regarding concerns about fluid in the middle ear:

- First, some children are constantly prone to repeated ear infections - for the same reason that they got their first ear infections.

- Second, with fluid in the middle ear, hearing is reduced, at least mildly. Over time, this can interfere with learning or with speech development. (The concern about interference with learning or speech development is much less if the fluid has only been there for several months.)

Placement of ear tubes is an option when:
- The child has had fluid in their middle ears for 4 to 6 months.
- Has repeated ear infections.
- Other measures fail to clear the fluid or prevent ear infections.
- Tests show that the child is having significant hearing problems.

The "tubes" are small plastic tubes that are inserted through the eardrums by an ear, nose and throat (ENT) surgeon. Usually a general anesthetic is used. Tube placement is usually done in the hospital. These tubes usually stay in place for about 6 to 18 months. These tubes keep the middle ear filled with air rather than fluid. The tubes usually fall out by themselves. Some children need to have tubes inserted several times over the course of infancy and the preschool years.

Insertion of ear tubes is one of the most common operations done by ENT surgeons. The placement of tubes is usually safe and most often they are effective in restoring hearing and reducing the numbers of ear infections. But, like any operation (or medical treatment), parents ought to discuss with the caregiver:
- Advantages and disadvantages
- Possible risks and alternative treatments

PREVENTING EAR INFECTIONS

There are several things within parents' control that they can do to reduce the numbers of ear infections that their children get.
- Breastfeed - Children who are bottle-fed get more ear infections than those who are breast-fed. There are several infection-fighting components in breast milk, including antibody proteins and active white blood cells. Also, breast-fed infants are more likely to be fed in a semi-sitting position, so milk does not tend to collect around the openings of the eustachian tubes at the back of the nose and throat. If you bottle feed, do not prop the bottle. Feed your baby semi-sitting, rather than with him lying down. That will make sure that all the formula gets swallowed, and none collects back by the eustachian tubes. Never prop the bottle on a pillow or let your child feed himself or herself while laying down. This is a matter of safety as well as ear infection prevention.
- **Keep your home smoke free** - Second-hand smoke in the home can increase ear infections in young children by 50 percent. It is an irritant to the upper respiratory passages, paving the way for infection into the middle ears.
- Keep up with immunizations - Two immunizations, in particular, can reduce ear infections. The first is the infant pneumococcal vaccine, Prevnar. Infants usually get three doses of this vaccine in the first year of life and one booster dose after the first birthday. Although the main purpose of this vaccine is to prevent blood infections and meningitis, it also will reduce ear infections by about ten percent. Also, infants who get this vaccine are 20 percent less likely to need ventilation tubes in their ears. The other vaccine is the flu vaccine. Although flu is not considered a common cause of ear infections, flu often causes the congestion that leads to an ear infection. In young children, about 20 percent of episodes of the flu are complicated by ear infection.
- Since colds are the most common precursor of ear infections, avoiding frequent colds in young ear infection-prone children can be helpful. The first line of defense is good hand washing to prevent the spread of viruses, particularly when a family member is ill. Infants and toddlers in childcare settings get more colds and ear infections than those at home. The more children in the childcare setting, the more infections. Choosing a childcare setting with fewer children can be helpful.

Document Released: 06/09/2003 Document Re-Released: 03/14/2011
ExitCare® Patient Information ©2011 ExitCare, LLC.