

Earaches and Ear Infections.

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Introduction.

Earaches and ear infections are very common amongst children. Ear infections are the leading reason to need an antibiotic for children. Earaches can be caused by a variety of things: ear infections (called otitis media, meaning ear inflammation of the middle space of the ear), swimmer's ear (otitis externa, meaning inflammation of the outer part or skin of the ear and ear canal), pressure in the ears from nasal congestion or drainage, injury to the ear, a foreign body in the ear canal, teething, and a change of the pressure in the ears because of flying or traveling to a different elevation (such as driving through the mountains). Many earaches are worse at night.

Causes of earaches.

Ear infections (otitis media) are the most common cause for earaches. Although some children have no ear infections, the average child now has 2-3 ear infections each year for their first 2 years. Ear infections often start with the child having a "cold" (viral upper respiratory illness), as this causes nasal drainage and bacteria from the back of the nose and throat to become trapped in the middle ear space behind the ear drum. This drainage and the bacteria travel to the ear through the eustachian tube, the small tube that connects the back of the nose and the middle ear space behind the eardrum. Because "colds" are more common amongst young children and the eustachian tube is more prone to allow the fluid and germs to become trapped behind the eardrum when the child is less than 2 years of age, ear infections are more common amongst children less than 2 years of age. Other **risk factors**, besides young age, for ear infections include being a boy, being in a daycare setting where one is exposed to 4 or more, the winter months ("colds" are more common then), being exposed to cigarette smoke, nasal allergy symptoms (this is not common until after 3 years of age), family history, using a pacifier, and conditions such as Down Syndrome, cleft palate, and immunodeficiencies (having less ability to fight off common infections). Children who are breast-fed have a significantly less likelihood of ear infections. These three bacteria most commonly cause ear infections: Strep pneumoniae, H. flu, and Moraxella catarrhalis. Ear infections are not contagious. They can occur in one or both ears.

Fluid behind the eardrum (serous otitis media) is a common problem happening after an ear infection has cleared. Almost half of all children will have some (not infected) fluid behind their eardrums 10-14 days after an ear infection. This fluid can also be there when a child has a "cold", allergies, or sinus infection. This fluid generally clears in time without special treatment.

Swimmer's ear (otitis externa) is most commonly caused by bacteria that infect the lining or skin of the ear canal when the canal becomes damp after swimming. This also can occur with long showers or getting the ears damp with baths. Bacteria that like a damp, dark area like the ear canal most frequently cause swimmer's ear. These bacteria are most commonly Pseudomonas or Staph aureus. Swimmer's ear is more common in the summer months, but can occur year round. Swimmer's ear is more common after swimming in untreated water (lakes, ponds, rivers, and oceans compared to swimming pools). Swimmer's ear infections are more common when the earwax is aggressively cleaned from the ear canal, which irritates the ear canal and makes an infection more likely. Swimmer's ear is not contagious. Swimmer's ear can occur in one or both ears.

Teething causes a number of earaches, especially in infants and toddlers. The teething can cause pain to move (radiate) up the jaw line to the area around the ears.

Injuries to the ear can cause earaches. These injuries could be to the outer ear, the ear canal, or the eardrum. Ear, nose, and throat specialists will often tell folks not to put anything larger than your elbow (which, obviously, would not fit) in your ear canal to prevent ear injuries.

Pressure in the ear can be caused by "colds", allergies, sinus infections, sore throats, flying, traveling to a different elevation, or enlarged adenoids (the tonsil-like tissue that is tucked behind the nose, above the throat). This pressure happens because of the connection between the middle ear space behind the eardrum and the back of the throat, the eustachian tube.

Symptoms of different causes of earaches.

Although all earaches cause some sort of ear pain, and sometimes it is difficult to tell the difference between various causes of earaches, there are certain symptoms that occur most commonly with certain causes of earaches.

Ear infections (otitis media) often have "cold" symptoms, a fever, a decreased appetite or pain with swallowing, pain with laying flat (this puts more pressure on the sore ear), difficulty sleeping comfortably, and irritability. Some ear infections occur with minimal symptoms, though. Ear infections can also cause dizziness, hearing difficulty, and vomiting. Ear infections generally does not cause any discomfort of the outer ear. Young children may tug on their ear if they have an earache. Older children often just complain of the ear pain. Ear infections can cause ear drainage. This drainage occurs if a child has a hole in their ear drum ("perforation") form during an ear infection. Drainage also occurs if they have ear tubes placed and an infection later occurs.

Fluid behind the eardrum (serous otitis media) can have the same symptoms as an ear infection, but does not cause a fever. Children with fluid behind their eardrums often complain of popping or clicking in their ears, especially after sneezing, swallowing, or blowing their nose.

Swimmer's ear (otitis externa) often causes an earache, especially if the ear canal or area of the outer ear nearby is touched or pulled. There is generally no fever. Children can have pain with swallowing, difficulty sleeping comfortably, and irritability with a swimmer's ear. Swimmer's ear can cause swelling of the ear canal and drainage from the ear canal, often a yellow or green color.

Teething can cause decreased appetite, difficulty sleeping comfortably, and irritability. Teething does not cause a fever.

Injuries to the ear can cause pain when the ear is touched, a decreased appetite, pain with swallowing, hearing difficulty, and vomiting. Injuries to the ear do not cause a fever.

Pressure in the ear can cause a decreased appetite, irritability, and decreased hearing. This will not cause a fever by itself.

Treatment for earaches.

All earaches may require prescription **ear numbing drops** (a common brand is Auralgan® drops) to reduce the ear pain. The ear numbing drops cannot be used if someone has a perforated ear drum or ear tubes. **Tylenol®** (acetaminophen) or **Motrin/Advil®** (ibuprofen) can be given for ear pain according to their usual schedules. Children with a sore ear may benefit from putting a warm compress or a heating pad set on a low setting against the sore ear.

Ear infections are commonly treated with antibiotics (technically, antibacterials). The average ear infection would clear on its own in about 3-6 weeks. With antibiotic treatment, most ear infections rapidly clear up. On the right antibiotic for the infection, children generally begin to feel better in 2-3 days. Deciding on the right antibiotic is something of an intelligent guessing game by the doctor. The bacteria that cause ear infections are becoming more resistant to antibiotics over the last 15 years. No antibiotic treats the bacteria from every ear infection. Our general approach is to initially use the weakest antibiotic that will likely work to fight the infection. This helps decrease how resistant the bacteria are to the antibiotics. We

will often use a stronger antibiotic when a child has a history of frequent ear infections or has had a recent infection (in the last 6 weeks). It is not the child that becomes resistant to the antibiotics, but the bacteria that become resistant. And the bacteria may be different from one ear infection to another. These bacteria are passed from one person to another with everyday contact between people. So if your child is around other children who are frequently on antibiotics and have resistant bacteria, your child will be more likely to have resistant bacteria causing their ear infection.

Ear infections in children with **ear tubes** can often be treated with antibiotic eardrops. Sometimes, an oral antibiotic is also necessary. For children with a **perforated eardrum**, both ear drops and a medicine taken by mouth may be necessary. Ninety percent of all perforated ear drums heal on their own once the infection is resolved. We want to re-check the children with a perforated eardrum after they have completed their antibiotic.

Fluid behind the eardrum will generally resolve with time. Although it makes sense that they would work, antihistamines or decongestants (“cold” medicines) do not help speed up how quickly the fluid clears up. Children with chronic (3 months or more) fluid behind the eardrum are generally referred to an ear, nose, and throat (ENT) specialist for further evaluation, as they may require ear tube placement.

Swimmer’s ear is treated with antibiotic drops for the ear canal. Antibiotics by mouth will generally not help swimmer’s ear.

Teething is treated with over-the-counter numbing medicine (Oragel® and Ambesol®), which can reduce the pain. Having the child chew on various things, including hard chew toys and teething toys kept in the refrigerator, often helps teething.

Pressure in the ear can be helped in older children by have the child pinch their nose closed and blow their nose, allowing the ears to “pop”. The child should then swallow a few times to make the muffled, “pressure” feeling go away. This can be repeated as needed.

Prevention.

Ear infections cannot be prevented entirely. However, breast feeding, avoiding other children with “colds”, avoiding second-hand smoke, and not allowing the child to drink while laying flat will all help prevent ear infections. If a child is prone to ear infections, it may help to avoid using a pacifier. Children with frequent ear infections are often referred to an ear, nose, and throat (ENT) specialist for possible ear tube placement. The general rules for referral for **ear tubes** are 3 separate ear infections in 6 months, 4 separate ear infections in 12 months, or a single ear infection that is not resolved within 8 weeks. Realize that a child may require multiple antibiotic courses to clear a single ear infection. Ear tube placement is a minor surgery done while the child is briefly asleep under general anesthesia. The ear tubes are small plastic tubes that allow any fluid or germs to drain out into the ear canal before an infection builds up. The average child with ear tubes will have a dramatic decrease in the number of ear infections. On average, the ear tubes stay in the eardrums for 12 months and then fall out on their own. Rarely, after the tube falls out, there is a hole in the eardrum that does not heal. These children require follow-up with the ENT specialist. Most children will only require one set of ear tubes. If an infection occurs after ear tubes have been placed, there generally is thick, discolored drainage from the ear canal. It is not unusual for the drainage to also contain blood. So far, we only have one vaccine that is used in childhood that helps prevent ear infections, the Prevnar® vaccine. This is routinely given at 2, 4, 6, and 15 months. It helps reduce a child’s chances of having an ear infection by 15-20%.

To can help prevent **swimmer’s ear** by keeping the ear canals dry and not using a cotton swab (Q-Tip®) in the ear canal to clean out earwax. Some children can swim frequently without ever having a swimmer’s ear. However, for those children that are prone to swimmer’s ear, doing more to prevent the infection makes sense. The most practical prevention is to use an over-the-counter drying drop for the ear canal. The drops are called Swim Ear® or Auro-Dri®. A few drops are put into each ear canal at the end of a day of swimming. These drops will not treat a swimmer’s ear. Another way to prevent swimmer’s ear is to use a wax or silicon plug or a cotton puff with some Vaseline on it in the ear canals to prevent the water from getting in. An audiologist (the hearing specialist) or ENTs office can make custom-fitted earplugs. If an eardrum is perforated or has ear tubes, the drying drops should **not** be used.

Pressure in the ear cannot be prevented entirely, but some things may help. If the pressure is there because of nasal symptoms, treating the “cold”, allergies, or sinus infection will likely help. If the pressure is there from flying or traveling to a different elevation, having the child drink something, chewing gum (if old enough), or using a pacifier (for infants). All of these help “pop open” the eustachian tube, helping to relieve the ear pressure.

What to Do When.

-- If your child has **symptoms of an ear infection or earache** => come in for walk-in hours at 8 a.m. or call during regular office hours to schedule an appointment. It is fine to treat any symptoms that your child has before the appointment, including fever and pain with Tylenol® or Motrin®/Advil®. Although it is safe to wait until the next time our office is open, if you suspect your child has an ear infection over the weekend or is in a lot of pain after hours, you may certainly take your child to Nationwide Children’s Hospital Urgent Care or Emergency Department.

-- You suspect your child has another ear infection and you have **ear numbing drops** at home => it is fine to use the drops before your child is diagnosed with an ear infection as long as they do not have a perforated ear drum or tubes in their ears. We can call in the ear numbing drops for your child before they are seen. Please have the name and number of the pharmacy available when you call. It is safe to use the drops even if a child does not have an ear infection.

-- If your child is on an antibiotic for an ear infection but they have **not felt better after 3 full days** on the antibiotic => call our office during routine hours to discuss whether a change in treatment is required.

-- If your child’s ear is **draining infected looking fluid** after they started an antibiotic in the last few days => continue the antibiotic and expect improvement in the first week on the antibiotic. We should re-check the eardrum at the end of the course of antibiotics. Call during regular office hours to schedule an ear recheck appointment.

-- If your child **finished their antibiotic** for an ear infection, but they are acting as if they have **another ear infection** => we should see your child in the office again to determine whether there is an infection present. Call during regular office hours to schedule an appointment or come in at 8 a.m. for walk-ins.

-- If your child feels better after a few doses of the antibiotic, but you have **not yet finished the prescription** => it is very important to finish the entire course of the antibiotic. Without taking the whole prescription, the bacteria become more resistant and your child’s infection may not completely clear.

-- If your child has had **frequent ear infections** or **chronic fluid** behind the ear drum => we will discuss with you a referral to an ear, nose, and throat specialist.

-- If your child has **ear tubes** and is now has **infected looking drainage** from their ear => call our office during regular hours to discuss treatment with us. We often can call in prescription antibiotic drops to treat the infection.