



PATIENT EDUCATION

Ear Infection in Children

MAYO CLINIC CHILDREN'S CENTER



BARBARA WOODWARD LIPS
PATIENT EDUCATION CENTER

Mayo Clinic Children's Center

For more than 100 years, teams of physicians have cared for children at Mayo Clinic.

T. DENNY SANFORD PEDIATRIC CENTER

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Pediatric Sub-Specialties in the following areas:

Allergy and Immunology	General Pediatric and	Plastic and Reconstructive
Anesthesiology	Adolescent Medicine	Surgery
Cardiology	Gynecology, Adolescent	Psychiatry and Psychology
Cardiovascular Surgery	Hematology and Oncology	Pulmonology
Child and Family	Infectious Diseases	Radiation Oncology
Advocacy Program	Medical Genetics	Radiology
Community Pediatrics and	Neonatal Medicine	Regional (Health System)
Adolescent Medicine	Nephrology	Pediatrics
Critical Care	Neurology	Research
Dermatology	Neurosurgery	Rheumatology
Developmental and	Ophthalmology	Sleep Medicine Center
Behavioral Pediatrics	Oral and Maxillofacial Surgery	Speech Pathology
Emergency Medicine	Orthopedic Surgery	Surgery
Endocrinology and Metabolism	Otorhinolaryngology (ENT)	Urology
Gastroenterology and	Physical Medicine and	
Hepatology	Rehabilitation	

Pediatric Specialty Clinics:

Adrenoleukodystrophy Clinic	Dermatology Genetics Clinic	Neonatal Follow-Up Clinic
Aerodigestive Clinic	Diabetes Clinic	Neuromuscular Clinic
Anxiety Disorders Clinic and	Eating Disorders Clinic	Pain Clinic
Intensive Therapy Program	Eosinophilic Esophagitis Clinic	Pain Rehabilitation Center
Arrhythmia and Device	Epilepsy Clinic	Pediatric Diagnostic Referral
Placement Clinic	Erythromelalgia Clinic	Clinic
Asthma Center	Facial Paralysis and	Pediatric Level 1 Trauma Center
Attention Deficit Hyperactivity	Reanimation Clinic	Plagiocephaly Program
Disorders (ADHD) Clinic	Feeding Program	Pulmonary Hypertension
Bariatric Surgery Clinic	Fertility Preservation	Program
Brain Injury Program	Fetal Surgery Program	Renal Stone Clinic
Brain Tumor Clinic	Friedreich's Ataxia Clinic	Spina Bifida Clinic
Cerebral Palsy Clinic	Functional Movement	Spinal Deformities Clinic
Chemotherapy/Radiation	Disorder Program	Sports Medicine Center
Long-Term Effects Clinic	Heart Failure Clinic	Thyroid Nodule/Cancer Clinic
Child and Adolescent Intensive	Hemophilia/Coagulopathy Clinic	Transgender Clinic
Mood Program (CAIMP)	Hyperlipidemia Program	Transitions Program
Childhood Sarcoma Clinic	Immunodeficiency Disorders	Transplant Center
CompPASS (Palliative Care and	Clinic	Travel Clinic
Integrative Medicine)	Inflammatory Bowel Disease	Vascular Malformations
Congenital Heart Clinic	Clinic	Velo-Pharyngeal
Constraint Induced Movement	Learning Disorders	Insufficiency Clinic
Therapy Program	Assessment Clinic	Voiding Clinic
Craniofacial Clinic	Long QT Syndrome Clinic	Weight Management Clinic
Cystic Fibrosis Center	Marfan Syndrome Clinic	
Dana Child Developmental and	Metabolic Bone Clinic	
Learning Disorders Program	Mood Disorders Clinic	

A Common Childhood Illness

Ear infections, also called “otitis media,” are very common in children under the age of 2 years.

Most ear infections are not serious. They cause discomfort, especially before treatment begins. But they usually heal. And the child typically doesn’t have related problems after the infection is gone. As children get older, ear infections happen less often.

Read this to learn more about ear infections, how you can help your child at home and when to contact your child’s health care provider.

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If you have questions after reading this, talk with your child’s health care provider.

Causes

To understand how ear infections happen, it may help to review the parts of the ear. (See Figure 1.) The ear has three parts: the outer ear, middle ear and inner ear. Most ear infections happen in the middle ear — a pea-size space behind the eardrum. The eardrum is also called the **tympanic membrane**.

A small tube, called the **Eustachian tube**, connects the middle ear to the back of the nose and throat. This tube helps balance the pressure inside and outside the ear. It also helps drain fluid from the middle ear.

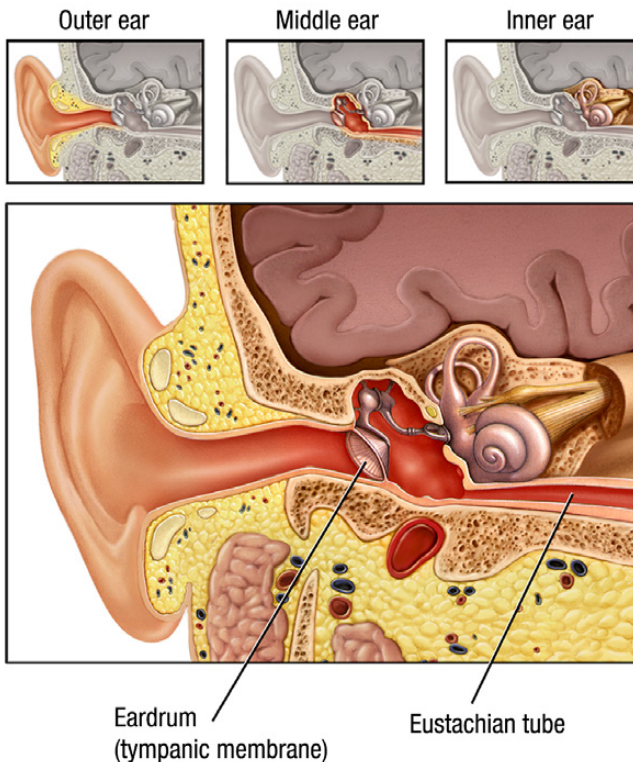


Figure 1. Parts of the ear

Fluid in the middle ear

Most middle-ear infections begin with a cold or some other upper-respiratory infection. This illness can cause swelling and inflammation in the Eustachian tubes.

A child's Eustachian tubes are shorter and narrower than an adult's tubes. Because the tube is smaller, there's a greater risk that any inflammation will completely block the tube. This traps fluid in the middle ear. (See Figure 2.)

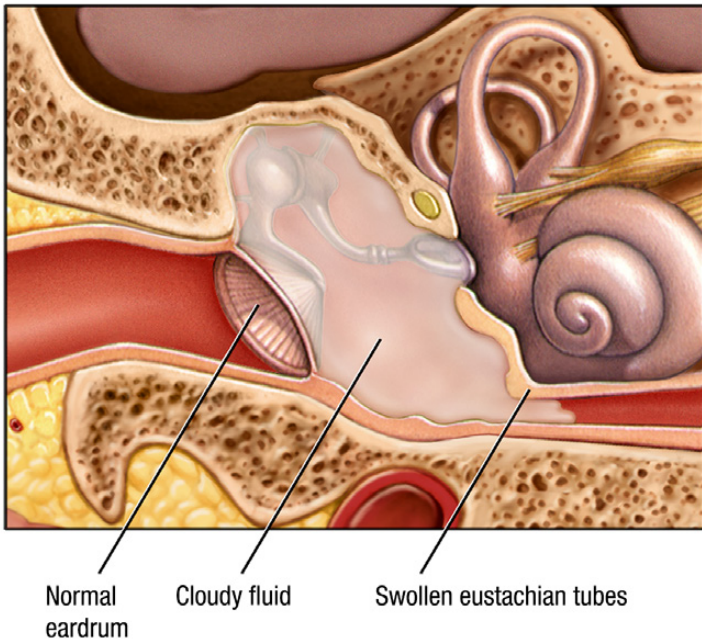


Figure 2. Fluid in the middle ear

Ear infection

Middle ear fluid is a great place for bacteria and viruses to cause infections. (See Figure 3.) Infected fluid can cause swelling, pain and other ear infection symptoms. If the swelling is very bad, it can cause pressure to build up in the area. Sometimes, pressure from an infection can burst, or make a hole (a perforation), in a child's eardrum. Fortunately, even when this happens, the hole usually heals quickly without lasting problems.

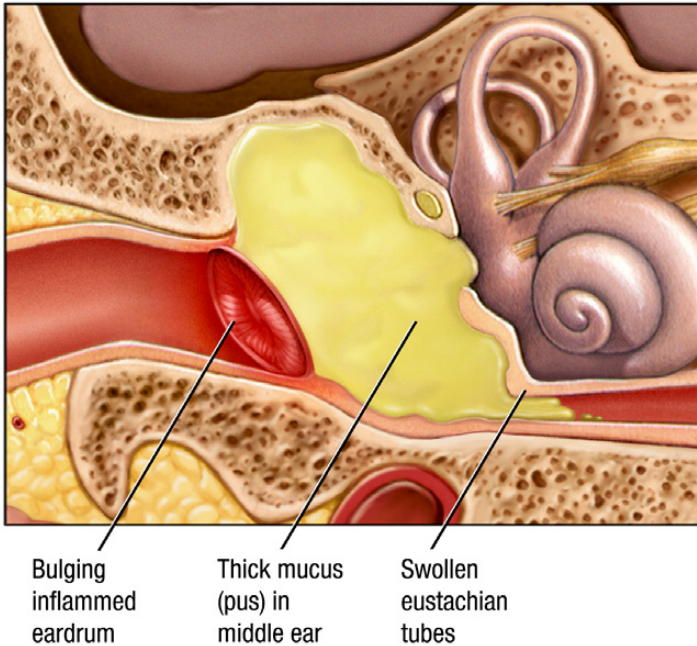


Figure 3. Ear infection

Fluid that doesn't go away quickly

After an ear infection is gone, some fluid may stay in the middle ear. This kind of middle-ear fluid, called **otitis media with effusion**, is not infected and usually goes away on its own in a few weeks.

Sometimes fluid stays in the middle ear for a long time, possibly months. It may affect your child's hearing. But this goes away when the fluid clears. For most children, otitis media with effusion has no long-term effect on hearing.

For young children, when fluid is present for many months, there may be a temporary effect on a child's hearing and possibly on speech development. If needed, talk to your child's care provider about whether your child would benefit from other services or treatments.

Symptoms

Common symptoms of an ear infection are:

- Pain or pressure in the ear.
- Fever above 100.4 degrees Fahrenheit (38 degrees Celsius).

In addition, when children have an ear infection, they may:

- Pull on the ear.
- Act fussy or cranky.
- Not sleep well or not sleep through the night.
- Not eat or drink as usual.

Ear infections typically happen around the same time a child has a cold.

Before you rush to get medical attention...

When a child is in pain or has a fever, it's natural for parents to worry. No one wants a child to be uncomfortable. For many illnesses, however, good care at home — making the child comfortable until the problem goes away — is the only care that's needed. Antibiotics and other interventions may not be needed. (See "When to Get Medical Care.")

Treatment Options

Antibiotics

Infections are caused by either a bacteria or a virus. Antibiotics can be used to treat bacterial infections, but they do not treat viral infections. Your child's health care provider can't tell by looking whether an infection is viral or bacterial.

Fortunately, most ear infections get better on their own without antibiotics. **For this reason, caring for your child's symptoms at home — such as giving pain medication — is the best first treatment advised. No other treatment may be needed.**

- **For children under age 2: Antibiotics often are prescribed.** Pain medication may be used to reduce discomfort until the antibiotics offer relief. See "Pain relief medication."
- **For children age 2 and older: Antibiotics typically are not prescribed** because most ear infections heal on their own without antibiotics.

Note: If your child is 2 or older, antibiotics may be considered if the child has uncontrolled pain, pain that lasts more than 48 to 72 hours, or signs of a more severe illness.

How could it “hurt” your child to take antibiotics that he or she doesn’t really need?

Using antibiotics poses an unnecessary risk to your child.

- Antibiotics can cause unwanted side effects, such as allergic reactions and diarrhea.
- If your child takes antibiotics when they aren’t needed, it could make bacteria resistant to (or “immune to”) antibiotics.

If your child takes antibiotics when they AREN’T needed, in the future, antibiotics that ARE needed may not work as well.

If antibiotics are prescribed

If your child’s health care provider prescribes antibiotics, make sure your child finishes the prescription as directed. If he or she stops the medicine too soon, some of the bacteria may still be in the ear.

Pain-relief medication

To ease ear pain, give your child an over-the-counter **children’s** pain reliever. You may try acetaminophen (for example Children’s Tylenol™ or generic brand) or ibuprofen (for example Children’s Advil™, Motrin™ or generic brand). Follow the directions on the package. This medication usually begins to work in about 30 to 45 minutes.

**Caution**

- Do not give aspirin to children under age 16. Aspirin could trigger Reye's syndrome in children. This is a possibly life-threatening disorder.
- Do not give ibuprofen to children under 6 months of age.

Other treatment options

Your child's health care provider does not recommend trying any other alternative treatment options. Do not try to put any medication or substance into the ear with the hope that it will prevent or treat infections. Alternative treatments could harm your child. And there is no proof (no evidence) to suggest that they work.

For children who have repeated ear infections

Ear tubes, tiny tubes surgically placed in the ear drums, may help some children. Ear tubes reduce the risk of more ear infections.

For children who already have ear tubes

If your child has ear tubes and you believe he or she has an ear infection, look for any signs of drainage from the ear. If there is drainage and it is cloudy or bloody, the health care provider may want you to use antibiotic ear drops.

When to Get Medical Care

Sometimes, a condition that has some of the behaviors or symptoms of an ear infection ISN'T an ear infection. Often, ear pain goes away on its own after a day or two.

For children younger than 3 months

If your child is less than 3 months of age and has a fever of 100.4 degrees Fahrenheit (38 degrees Celsius) or more, take the child to an emergency care center right away.

For children between 3 months and 2 years

Contact the health care provider during usual business hours if your child has a fever of 100.4 degrees Fahrenheit (38 degrees Celsius) or more that has lasted longer than 72 hours.

If your child has pain but no fever

- Treat the pain with over-the-counter children's pain medication. Follow the package instructions for your child's age or weight. (See also "Treatment Options.")
- Watch your child for about 2 to 3 days (48 to 72 hours) to see if the pain goes away. If it does not go away, contact your child's care team.

For children older than 2 years

An ear infection is likely to go away without antibiotics. If your child has had symptoms for less than 2 to 3 days, many health care providers will not prescribe antibiotics. Consider waiting until at/after 2 or 3 days before you contact your child's care team. (See also "Treatment Options.")

If you have reason to be concerned that your child may have a different health care condition, or if your child's symptoms are severe, contact your child's health care provider now.

What number to call?

- **If you call during the usual business hours of 8 a.m. to 5 p.m.:** Call the health care provider's office.
- **If you call outside of the usual business hours:** Call the main switchboard. Ask for the "physician on call" in your child's health care provider's office (example, Community Pediatrics).

Notes



BARBARA WOODWARD LIPS PATIENT EDUCATION CENTER

Mrs. Lips, a resident of San Antonio, Texas, was a loyal Mayo Clinic patient of more than 40 years and a self-made business leader who significantly expanded her family's activities in oil, gas and ranching. Upon her death in 1995, Mrs. Lips paid the ultimate compliment by leaving her entire estate to Mayo Clinic. By naming the Barbara Woodward Lips Patient Education Center, Mayo honors her generosity, her love of learning, her belief in patient empowerment and her dedication to high-quality care.

This material is for your education and information only. This content does not replace medical advice, diagnosis or treatment. New medical research may change this information. If you have questions about a medical condition, always talk with your health care provider.

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