Cleveland Clinic Patient Information Handout: **Middle Ear Infections**

Middle ear infections are a common reason why young children visit healthcare providers. Chronic ear infections can muffle hearing, which children need to learn language. In severe cases, repeated ear infections can delay speech development and lead to hearing loss.

If you suspect that your child has chronic ear infections, have him or her checked by your healthcare provider. Given time and proper care, chronic ear infections can be cured.

**What are the symptoms of an ear infection?**
- Pain in one ear
- Sense of fullness in one ear
- Muffled hearing
- Fever

Babies too young to say where it hurts may rub or tug their ears, cry, and be irritable or unable to sleep.

**What causes an ear infection?**

Ear infections are caused by bacteria and viruses (bacteria and viruses are types of germs). Many times, an ear infection begins after a child gets a cold or cough from one of these germs. The germ travels into the middle ear through the Eustachian tube, the channel that connects the middle ear to the top of the throat.

Middle ear infections cause the tissue to become inflamed. The eardrum may bulge, swell and turn red, leading to pain and hearing problems. Fluid can build up behind the eardrum.

**How is an ear infection treated?**

If the ear infection is mild, your healthcare provider may wait to see if it goes away on its own. When treatment is needed, antibiotics, a type of medicine, may be ordered. Antibiotics kill the bacteria causing the infection and are taken by the mouth as pills or liquids. Most treatments require the child to take the antibiotic each day for seven to 10 days, depending on the medicine ordered. Keep giving your child the medicine, even if the pain goes away. The infection can come back if medication is stopped.

You may be asked to bring your child back for another checkup. This follow-up visit is to make sure that the infection is clear, even if symptoms have gone away.

**How soon will my child feel better?**

Your child should start feeling better a few days after treatment has begun.

**What is middle ear fluid?**

Middle ear fluid is the buildup of fluid behind the eardrum. It can result from an ear infection or on its own. Middle ear fluid may not cause pain and can reduce or distort hearing in both ears at the same time. Treatment is important because if prolonged, middle ear fluid can cause a delay in speech development.

If middle ear fluid does not go away on its own within three months, a course of antibiotics may be given.

**Why do some children need tubes put into their ears?**

Usually, chronic ear infections and middle ear fluid clear up with antibiotics or on its own. Sometimes, however, the ear doesn’t drain properly and fluid builds up behind the eardrum, even after infection has gone. Healthcare providers place small tubes into the eardrums to allow fluid to drain and to let air into the middle ear.

Before inserting tubes, your healthcare provider should wait several months to see if the fluid drains on its own. Another round of antibiotics and a hearing test may be ordered. Tubes are recommended only if the condition lasts for more than four to six months and your child is having hearing problems.

**Will my child always get ear infections?**

Most children stop getting ear infections by age six. Chronic ear infections are more common in young children because their Eustachian tubes are shorter and more horizontal. This shape encourages fluid to gather behind the eardrum.

**How can I protect my child from getting ear infections?**

Here are some ways you can reduce your child’s risk of ear infections:
- Don’t smoke around your children. Studies show that second-hand smoke can make a child two to three times more likely to develop ear infections.
- Breast feed your baby. Babies who are breast fed rather than bottle fed are less likely to get ear infections.
- If you bottle feed, keep your baby in a sitting position. When a child sucks a bottle lying down, milk is more likely to flow into the middle ear.
- Keep a watch on allergies. Mucus from allergic reactions can block the Eustachian tube and make ear infections more likely.
- Prevent colds. Preventing colds can reduce the number of ear problems.
Cleveland Clinic Patient Information Handout: Cerumen Impaction

What is ear wax?
Ear wax, also called cerumen, is made by the body to protect the ears. The ear wax has both lubricating and antibacterial properties. Most of the time, the old ear wax is moved through the ear canal by motions from chewing and other jaw movements and as the skin of the ear canal grows from the inside out. At that time, it reaches the outside of the ear and flakes off. Ear wax is produced in the outer part of the ear canal, not deep inside the ear.

What does it mean when ear wax becomes impacted?
We say that ear wax is impacted when it has built up in the ear canal to such a point that there may be signs that something is not quite right. It is important to note that, for most people, ears might never need cleaning—they are designed to clean themselves. Ear wax buildup and blockage often happens when people use items like cotton swabs or bobby pins to try to clean their ears. This only pushes the ear wax farther into the ears and can also cause injury to the ear.

What are the symptoms of ear wax impaction?
- A feeling of fullness in the ear
- Pain in the ear
- Difficulty hearing, which may continue to worsen
- Ringing in the ear (tinnitus)
- A feeling of itchiness in the ear
- Discharge from the ear
- Odor coming from the ear
- Dizziness

Who experiences ear wax buildup?
Ear wax buildup can happen to anyone. However, it is more likely to occur in:
- People who use hearing aids or ear plugs
- People who put cotton swabs or other items into their ears
- Older people
- People with ear canals shaped in such a way as to interfere with natural wax removal

How is ear wax impaction diagnosed?
Your health care provider can look into your ears with a special instrument, called an otoscope, to see if ear wax buildup is present.

How is ear wax impaction treated?
Ear wax can be removed in several ways; some of these methods can be done at home.
- Putting cerumenolytic solutions (solutions to dissolve wax) into the ear canal—these solutions include mineral oil, baby oil, glycerin, peroxide-based ear drops (such as Debrox®), hydrogen peroxide, and saline solution.
- Irrigating or syringing the ear—this involves using a syringe to rinse out the ear canal with water or saline, generally after the wax has been softened or dissolved by a cerumenolytic.
- Removing the wax manually using special instruments—this should be done only by a health care provider who might use a cerumen spoon, forceps, or suction device.

Note: Irrigation should not be done by or to any persons who have, or suspect they have, a perforation (hole) in their eardrum or tubes in the affected ear(s).
Commercially available suction devices for home use (such as Wax-Vac) are not effective for most people and are therefore not recommended. Ear candles, which are advertised as a natural method to remove ear wax, are not only ineffective but can cause injury to the ear. Injuries include burns to the external ear and ear canal and perforation of the eardrum.

What are possible complications of ear wax impaction?
If left untreated, excessive ear wax may cause symptoms of ear wax impaction to become worse. These symptoms might include hearing loss, ear irritation, etc. A build-up of ear wax might also make it difficult to see into the ear, which may result in potential problems going undiagnosed.

How can ear wax impaction be prevented?
Do not stick anything into your ears to clean them. Use cotton swabs only on the outside of the ear. If you have a severe enough problem with ear wax that you need to have it removed by a health professional more than once a year, discuss with them which method of prevention (if any) may work best for you.
Acute sinusitis (acute rhinosinusitis) causes the cavities around your nasal passages (sinuses) to become inflamed and swollen. This interferes with drainage and causes mucus to build up. With acute sinusitis, it may be difficult to breathe through your nose. The area around your eyes and face may feel swollen, and you may have throbbing facial pain or a headache.

Acute sinusitis is most often caused by the common cold. Other triggers include allergies, bacterial and fungal infections. Treatment of acute sinusitis depends on the cause. In most cases, home remedies are all that's needed. However, persistent sinusitis can lead to serious infections and other complications. Sinusitis that lasts more than eight weeks or keeps coming back is called chronic sinusitis.

**Acute sinusitis symptoms often include:**
- Drainage of a thick, yellow or greenish discharge from the nose or down the back of the throat
- Nasal obstruction or congestion, causing difficulty breathing through your nose
- Pain, tenderness, swelling and pressure around your eyes, cheeks, nose or forehead
- Reduced sense of smell and taste
- Cough, which may be worse at night

When you have sinusitis, the mucous membranes of your nose, sinuses and throat (upper respiratory tract) become inflamed. Swelling obstructs the sinus openings and prevents mucus from draining normally, causing facial pain and other sinusitis symptoms. Blocked sinuses create a moist environment that makes it easier for infection to take hold. Sinuses that become infected and can't drain become pus filled, leading to signs and symptoms such as thick, yellow or greenish discharge and other symptoms of infection.

**Acute sinusitis can be caused by:**
- **Viral infection.** Most cases of acute sinusitis are caused by the common cold.
- **Bacterial infection.** When an upper respiratory tract infection persists longer than seven to 10 days, it's more likely to be caused by a bacterial infection than by a viral infection.

Some health conditions can increase your risk of getting a sinus infection that causes sinusitis, or can increase your risk of getting sinusitis. These conditions include:
- Allergies such as hay fever. Inflammation that occurs with allergies may block your sinuses.
- Nasal polyps or tumors. These tissue growths may block the nasal passages or sinuses.
- Deviated nasal septum. A crooked septum — the wall between the nostrils — may restrict or block sinus passages.

Most cases of acute sinusitis don't need treatment because they're caused by viruses that also cause the common cold. Self-care techniques are usually the only treatment needed to speed recovery and ease symptoms.

**Treatments can include:**
- **Apply warm compresses to your face.** Place warm, damp towels around your nose, cheeks and eyes to ease facial pain.
- **Saline nasal spray,** which you spray into your nose several times a day to rinse your nasal passages.
- **Nasal corticosteroids.** These nasal sprays help prevent and treat inflammation
- **Decongestants.** These medications are available in over-the-counter (OTC) and prescription liquids, tablets and nasal sprays. These medications are generally taken for only a few days at most. Otherwise they can cause the return of more severe congestion (rebound congestion).
- **Over-the-counter pain relievers,** such as acetaminophen (Tylenol, others)
- **Get plenty of rest.** This will help your body fight infection and speed recovery
- **Sleep with your head elevated.** This will help your sinuses drain, reducing congestion
- **Drink plenty of fluids,** such as water or juice. This will help dilute mucous secretions and promote drainage. Avoid beverages that contain caffeine or alcohol, as they can be dehydrating. Drinking alcohol can also worsen the swelling of the lining of the sinuses and nose.
- **Antibiotics** Antibiotics won't help when acute sinusitis is caused by a viral or fungal infection. Antibiotic treatment is generally needed only if the bacterial infection is severe, recurrent or persistent. If your doctor does prescribe antibiotics, it's critical to take the entire course of medication. Generally, this means you'll need to take them for 10 to 14 days — even after your symptoms get better.
Labyrinthitis (Inner Ear Infection)
Labyrinthitis is irritation and swelling of the inner ear. It can cause vertigo and hearing loss.

Causes
Labyrinthitis is usually caused by a virus and sometimes by bacteria. Having a cold or flu can trigger the condition. Other causes include allergies or certain drugs that are bad for the inner ear.
Your inner ear is important for both hearing and balance. When you have labyrinthitis, the parts of your inner ear become irritated and swollen. This can make you lose your balance and cause hearing loss.
These factors raise your risk for labyrinthitis:
- Drinking large amounts of alcohol
- Fatigue
- History of allergies
- Recent viral illness, respiratory infection, or ear infection
- Smoking
- Stress
- Using certain prescription or nonprescription drugs (such as aspirin)

Symptoms
- Feeling like you are spinning, even when you are still (vertigo)
- Your eyes moving on their own, making it hard to focus them
- Dizziness
- Hearing loss in one ear
- Loss of balance; you may fall toward one side
- Nausea and vomiting
- Ringing or other noises in your ears (tinnitus)

Treatment
Labyrinthitis usually goes away within a few weeks. Treatment can help reduce vertigo and other symptoms. Medicines that may help include:
- Antihistamines
- Medicines to control nausea and vomiting
- Medicines relieve dizziness
- Steroids (Prednisone)

Doing these things can help you manage vertigo:
- Stay still and rest.
- Avoid sudden movements or position changes.
- Slowly resume activity. You may need help walking when you lose your balance during attacks.
- Avoid bright lights, TV, and reading during attacks. Rest during severe episodes, and slowly increase your activity.
- Ask your health care provider about balance therapy. This may help once nausea and vomiting have passed.

You should avoid the following for 1 week after symptoms disappear (A sudden dizzy spell during these activities can be dangerous):
- Driving
- Operating heavy machinery
- Climbing

Outlook (Prognosis)
- If you have severe vomiting, you may be admitted to the hospital.
- Severe symptoms usually go away within a week.
- Most people are completely better within 2 to 3 months.
Outer Ear Infection (Swimmer's ear)

Swimmer's ear is inflammation, irritation, or infection of the outer ear and ear canal. The medical term for swimmer's ear is otitis externa.

Causes

Swimmer's ear is more common among teenagers and young adults. It may occur with a middle ear infection or a respiratory infection such as a cold.

Swimming in unclean water can lead to swimmer's ear. Pseudomonas and other bacteria commonly found in water can cause ear infections. Rarely, the infection may be caused by a fungus.

Other causes of swimmer's ear include:

- Scratching the ear or inside the ear
- Getting something stuck in the ear

Trying to clean wax from the ear canal with cotton swabs or small objects can damage the skin.

Symptoms

Symptoms of swimmer's ear include:

- Drainage from the ear -- yellow, yellow-green, pus-like, or foul smelling
- Ear pain, which may get worse when you pull on the outer ear
- Hearing loss
- Itching of the ear or ear canal

Exams and Tests

The health care provider will look inside your ears. The ear canal area will look red and swollen. The skin inside the ear canal may be scaly or shedding.

Touching or moving the outer ear will increase the pain.

Treatment

In most cases, you will need to use ear drops containing antibiotics for 10 to 14 days. If the ear canal is very swollen, a wick may be put into the ear to allow the drops to travel to the end of the canal.

Other treatments may include:

- Corticosteroids to reduce itching and inflammation
- Pain medication, such as acetaminophen (Tylenol) or ibuprofen (Advil, Motrin)
- Vinegar (acetic acid) ear drops

Placing something warm against the ear may reduce pain.
Conjunctivitis is the medical name for pink eye. It involves inflammation of the outer layer of the eye and inside of the eyelid. It can cause swelling, itching, burning, discharge, and redness. Pinkeye usually does not affect vision. Infectious pink eye can easily spread from one person to another. The infection will clear in most cases without medical care, but bacterial pinkeye needs treatment with antibiotic eye drops or ointment. Conjunctivitis is swelling (inflammation) or infection of the conjunctiva. This is the membrane that lines the eyelids and covers the white part of the eye.

**Causes**
The conjunctiva is exposed to bacteria and other irritants. Tears help protect the conjunctiva by washing away bacteria. Tears also contain proteins and antibodies that kill bacteria. Conjunctivitis is most often caused by a virus. Viral conjunctivitis is referred to as "pink eye." Certain forms of pink eye can spread easily among children. Other causes include:
- Allergies
- Bacteria
- Chemical exposure
- Use of contact lenses (especially extended-wear lenses)

**Symptoms** include:
- Crusts that form on the eyelid overnight
- Gritty feeling in the eyes
- Redness in the eyes

**Treatment**
Treatment of conjunctivitis depends on the cause. Allergic conjunctivitis may improve when allergies are treated. It may go away on its own when you avoid your allergy triggers. Cool compresses may help soothe allergic conjunctivitis.
Antibiotic medicines most often in the form of eye drops work well to treat bacterial conjunctivitis. Viral conjunctivitis will go away on its own.
You can soothe the discomfort of viral or bacterial conjunctivitis by applying warm compresses (clean cloths soaked in warm water) to your closed eyes.

**Prevention**
Good hygiene can help prevent the spread of conjunctivitis. Things you can do include:
- Change pillowcases often.
- Do not share eye makeup and replace it regularly.
- Do not share towels or handkerchiefs.
- Handle and clean contact lenses properly.
- Keep hands away from the eye.
- Wash your hands often.
NIH: Diabetic Retinopathy

If you have diabetes, your blood glucose, or blood sugar, levels are too high. Over time, this can damage your eyes. The most common problem is diabetic retinopathy. It is a leading cause of blindness in American adults. The retina is a thin layer of light-sensitive tissue that lines the back of the eye. Light rays are focused onto the retina, where they are transmitted to the brain and interpreted as the images you see. The macula is a very small area at the center of the retina. It is the macula that is responsible for your pinpoint vision, allowing you to read, sew or recognize a face. The surrounding part of the retina, called the peripheral retina, is responsible for your side—or peripheral—vision.

You need a healthy retina to see clearly. Diabetic retinopathy damages the tiny blood vessels inside your retina. Sometimes these vessels swell and leak fluid or even close off completely. In other cases, abnormal new blood vessels grow on the surface of the retina. Symptoms can include

• Blurry or double vision
• Blank or dark areas in your field of vision
• Poor night vision
• Rings, flashing lights, or blank spots
• Dark or floating spots
• Trouble seeing things out of the corners of your eyes

Treatment often includes laser treatment or surgery, with follow-up care.
Glaucoma is a disease that damages your eye’s optic nerve. It usually happens when fluid builds up in the front part of your eye. That extra fluid increases the pressure in your eye, damaging the optic nerve.

Glaucoma is a leading cause of blindness for people over 60 years old. But blindness from glaucoma can often be prevented with early treatment. When glaucoma develops, usually you don’t have any early symptoms and the disease progresses slowly. In this way, glaucoma can steal your sight very gradually. Fortunately, early detection and treatment (with glaucoma eye drops, glaucoma surgery or both) can help preserve your vision.

The optic nerve is connected to the retina — a layer of light-sensitive tissue lining the inside of the eye — and is made up of many nerve fibers, like an electric cable is made up of many wires. The optic nerve sends signals from your retina to your brain, where these signals are interpreted as the images you see.

In a healthy eye, excess fluid leaves the eye through the drainage angle, keeping pressure stable.

In the healthy eye, a clear fluid called aqueous (pronounced AY-kwee-us) humor circulates inside the front portion of your eye. To maintain a constant healthy eye pressure, your eye continually produces a small amount of aqueous humor while an equal amount of this fluid flows out of your eye. If you have glaucoma, the aqueous humor does not flow out of the eye properly. Fluid pressure in the eye builds up and, over time, causes damage to the optic nerve fibers.

The most common form of glaucoma is called primary open-angle glaucoma. It occurs when the trabecular meshwork of the eye gradually becomes less efficient at draining fluid. As this happens, your eye pressure, called intraocular pressure (IOP), rises. Raised eye pressure leads to damage of the optic nerve. Damage to the optic nerve can occur at different eye pressures in different patients. There is not one ‘right’ eye pressure that is the same for everyone. Your ophthalmologist (Eye M.D.) establishes a target eye pressure for you that he or she predicts will protect your optic nerve from further damage. Different patients have different target pressures. Typically, open-angle glaucoma has no symptoms in its early stages and your vision remains normal. As the optic nerve becomes more damaged, blank spots begin to appear in your field of vision.

Angle-closure glaucoma (also called "closed-angle glaucoma" or "narrow-angle glaucoma") happens when someone’s iris is very close to the drainage angle in their eye. The iris can end up blocking the drainage angle. You can think of it like a piece of paper sliding over a sink drain. When the drainage angle gets completely blocked, eye pressure rises very quickly. This is called an acute attack. It is a true eye emergency, and you should call your ophthalmologist right away or you might go blind.

Symptoms of an acute attack include:
- Your vision is suddenly blurry
- You have severe eye pain
- You have a headache
- You feel sick to your stomach (nausea)
- You throw up (vomit)
- You see rainbow-colored rings or halos around lights

A closed-angle glaucoma attack is a medical emergency and must be treated immediately

Medicated eye drops are the most common way to treat glaucoma. They must be used every day. In some patients with glaucoma, surgery is recommended. Glaucoma surgery improves the flow of fluid out of the eye, resulting in lower eye pressure.
Corneal abrasion

A corneal abrasion is a superficial scratch on the clear, protective "window" at the front of your eye (cornea). Your cornea can be scratched by contact with dust, dirt, sand, wood shavings, metal particles, contact lenses or even the edge of a piece of paper. Corneal abrasions caused by plant matter (such as a pine needle) usually require special attention as they can cause a delayed inflammation inside the eye (iritis).

Signs and symptoms of corneal abrasion include:

- Pain
- A gritty feeling in the eye
- Tearing
- Redness

In case of corneal abrasion, seek prompt medical attention. Left untreated, it could become infected and result in a corneal ulcer. Immediate steps you can take for a corneal abrasion are to:

- **Rinse your eye with clean water or a saline solution.** You can use an eyecup or a small, clean drinking glass positioned with its rim resting on the bone at the base of your eye socket. If you have quick access to a work site eye-rinse station, use it. Rinsing the eye may wash out a foreign object.
- **Blink several times.** This may remove small particles.
- **Pull the upper eyelid over the lower eyelid.** This may cause your eye to tear, which may help wash out the particle. Or it may cause the lashes of your lower eyelid to brush away an object from under your upper eyelid.

Use the following pointers to avoid making the injury worse:

- Don’t try to remove an object that is embedded in your eyeball or makes it difficult to close your eye.
- Don’t rub your eye after an injury.
- Don’t touch your eyeball with cotton swabs, tweezers or other instruments.
- If you use contact lenses, don’t wear them while your eye is healing.

Most corneal abrasions heal in a day or two.
Macular degeneration, or age-related macular degeneration (Macular degeneration is most common in people older than 65) is a leading cause of vision loss. It is a disease that destroys your sharp, central vision. You need central vision to see objects clearly and to do tasks such as reading and driving.

Age-related Macular Degeneration affects the macula, the part of the eye that allows you to see fine detail. It does not hurt, but it causes cells in the macula to die.

There are two types: wet and dry.

Wet AMD happens when abnormal blood vessels grow under the macula. These new blood vessels often leak blood and fluid. Wet AMD damages the macula quickly. Blurred vision is a common early symptom.

Dry AMD, the more common and less severe condition, happens when the light-sensitive cells in the macula slowly break down. Your gradually lose your central vision. A common early symptom is that straight lines appear crooked.

Regular comprehensive eye exams can detect macular degeneration before the disease causes vision loss. Treatment can slow vision loss. It does not restore vision.