

## Acute Otitis Media

**Ear infections are amongst the most commonly diagnosed conditions by healthcare providers. Roughly half of all infants will have had at least one ear infection by their first birthday. By age three, up to 90 percent of children would have had an ear infection.**

### What is Acute Otitis Media?

Acute Otitis Media (AOM) is an infection of the middle ear that causes inflammation (redness and swelling) and a build-up of fluid behind the eardrum. An “acute” ear infection is a short-term and painful ear infection that may come on rapidly. This is in contrast to a “chronic” ear infection that may last a longer time, come and go, and may cause permanent hearing damage. Anyone can develop a middle ear infection but infants between six and 15 months old are most commonly affected. Acute otitis media is not so common in school-age children, adolescents, and adults, but can still occur.



**Figure 1: Normal eardrum**



**Figure 2: Acute Otitis Media eardrum**

### What causes Acute Otitis Media?

The condition is mostly caused by either a bacterial or a viral infection of the middle ear. The infection often results from a cold, flu or allergies, causing congestion and swelling of the nasal passages, throat and eustachian tubes. Nasal allergies to pollen, dust, animal dandruff or food can produce the same effect, as can smoke, fumes and other environmental toxins. The Eustachian tubes can also become blocked with mucus.

### What are the Eustachian tubes and what are their role?

The eustachian tube is a narrow tube that connects the space behind the eardrum (the middle ear) with the back of the nose. The middle ear is normally filled with air and the air is constantly being absorbed by the cells that line the middle ear. So, fresh supplies of air are needed to get to the middle ear from time to time. The eustachian tube is normally closed but opens when we swallow, yawn or chew. This allows air to flow into the middle ear and any mucus to

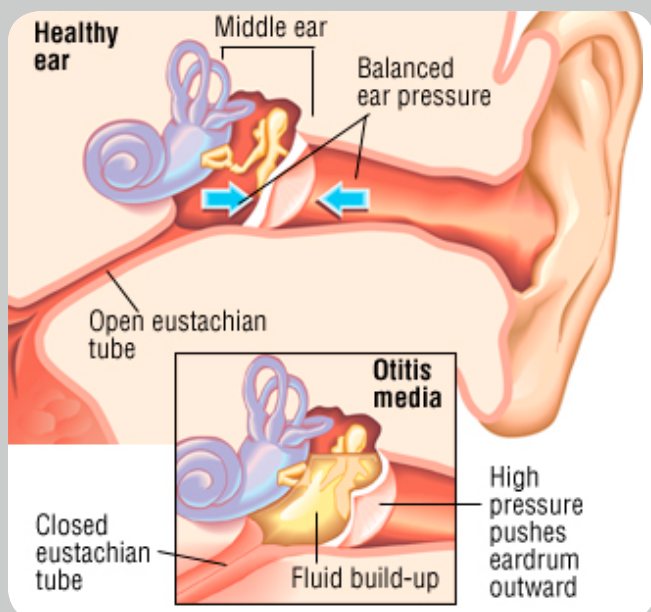
flow out. The opening of the eustachian tube keeps the air pressure equal on either side of the eardrum. Having equal air pressure on each side of the eardrum and the middle ear free of mucus, helps the eardrum to vibrate. This vibration is needed for us to hear properly.

Swelling, inflammation and mucus in the eustachian tube from an upper respiratory infection or allergy can block the tube, causing the accumulation of fluids in the middle ear. A bacterial or viral infection of this fluid is usually what produces the symptoms of AOM.

### What Are the Signs and Symptoms of Acute Otitis Media?

The onset of signs and symptoms of AOM is usually rapid. Symptoms usually begin two to seven days after an upper respiratory infection. Infants and children may have one or more of the following symptoms:

- Ear pain - especially when lying down, either a sharp, sudden pain or a dull, continuous pain



**Figure 2: Healthy ear vs Acute Otitis Media**

- Babies tugging or pulling at an ear
- Difficulty sleeping
- Crying more than usual
- Acting more irritable than usual
- Difficulty hearing or responding to sounds
- Fever of 100 F (38 °C) or higher
- Drainage of fluid from the ear
- Headache
- Decreased appetite in children
- A yellow or red and bulging eardrum, visible to a doctor when examining the infected ear
- Dizziness or change in balance

### Common signs and symptoms in adults

- Ear pain
- Drainage of fluid from the ear
- Diminished hearing

### When to see a doctor

Signs and symptoms of an ear infection can indicate a number of conditions. It is important to get an accurate diagnosis and prompt treatment. Call your child's doctor if: Symptoms last for more than a day.

- Symptoms are present in a child less than 6 months of age.
- Ear pain is severe.
- Your infant or toddler is sleepless or irritable after a cold or other upper respiratory infection.
- You observe a discharge of fluid, pus or bloody discharge from the ear.

An adult with ear pain or discharge should see a doctor as soon as possible.

### Who is at risk of developing Acute Otitis Media?

The following groups have a higher than average risk of developing AOM:

- Children three years and younger
- Individuals (children especially) who get recurrent colds and upper respiratory infections
- Children with enlarged adenoids - the swollen adenoid tissue may prevent the Eustachian tube from opening, allowing fluid to build up behind the eardrum
- Males
- Caucasians (higher risk than other ethnic groups)
- Individuals with a family history of ear infections
- Children whose siblings get ear infections
- Children in day-care centers
- People (children especially) living in households with tobacco smokers, or who are frequently exposed to tobacco smoke
- Children who are bottle-fed rather than breast-fed
- Children with Down's syndrome
- Children with cleft palate
- Children who suffer from allergies
- People with poor or weakened immune systems
- Poor socio-economic circumstances

### How do I prevent Acute Otitis Media?

- Immunisation is the starting point for preventing AOM. All Children should be immunised at least in accordance with the requirements of the Expanded Programme of Immunisation (EPI).
- Wash hands and toys frequently to reduce chances of getting a cold or other respiratory infections.
- Avoid cigarette smoke.
- Administration of seasonal flu shots and pneumococcal vaccines.
- Breastfeed infants instead of bottle feeding them if possible.
- Health education messages in relation to personal hygiene should target the known risk factors mentioned above.

### What is covered under PMBs?

AOM is a Prescribed Minimum Benefit (PMB) condition under Diagnostic Treatment Pair (DTP) code 482C - Acute otitis media. This implies that the medical scheme should fund the costs associated with the diagnosis, treatment and aftercare of AOM. The treatment component specified for this DTP according to the PMB Regulations is medical and surgical management including myringotomy.

Medical schemes may use designated service providers (DSPs) to provide PMB-related services such as medication, consultations, investigations, and hospitalisation.

Using the correct DSP for your PMBs guarantee that your medical scheme will cover your PMB conditions in full.

If you choose to use a non-DSP, you may be liable for a co-payment. Complications of a PMB condition are included for PMB funding as the complication would not have occurred if the original PMB did not exist.

### Diagnosis

- Doctors diagnose acute middle ear infections by using a handheld light called an otoscope to look for bulging and redness of the eardrum and for fluid behind the eardrum.

perforation) to allow the infected fluid to drain. After this procedure, symptoms usually resolve quickly, hearing returns, and the eardrum heals on its own.

### **Surgical management**

For children and adults who keep getting ear infections in spite of using antibiotics, the doctor may recommend surgery to insert small tubes (grommets) into the ears to open airflow and improve drainage. Tubes usually stay in the ears for several months and then fall out on their own. These ear tubes are inserted through surgical procedure called a myringotomy. A myringotomy is a procedure to create a hole in the ear drum to allow fluid that is trapped in the middle ear to drain out.



**Figure 3: Insertion of grommet**

- They may need to clean wax from the ear first so they can see more clearly.
- Doctors may use a rubber bulb and tube attached to the otoscope to squeeze air into the ear to see if the eardrum moves. If the eardrum does not move or moves only slightly, infection may be present.
- An audiogram (hearing test) is also used to measure how much hearing loss has occurred.

### Treatment

#### **Medical management**

Most AOM is treated with antibiotics and pain medication.

- Antibiotics, such as amoxicillin / amoxicillin-clavulanate (if there is no allergy to penicillin) or either a Macrolide e.g. Erythromycin or the combination of trimethoprim and sulfamethoxazole (in case of allergy to penicillin), may be used.
- Use painkillers such as paracetamol or ibuprofen.
- Place a warm or cold flannel on the ear.
- Preparations that contain decongestants such as oxymetazoline (e.g. Iliadin®) or antihistamines such as chlorpheniramine (e.g. Allergex®) are not helpful for children.
- If the eardrum is bulging and the patient has severe or persistent pain, fever, vomiting, or diarrhea, a doctor may puncture the eardrum (called tympanic membrane

### Complications

AOM rarely leads to more serious complications. The eardrum may rupture, causing blood or fluid to drain from the ear. Nearby structures may also become infected and lead to:

- Infection of the bone surrounding the ear (mastoiditis) which causes pain.
- Infection of the inner ear (labyrinthitis) which causes dizziness and deafness.
- Infection of the tissues surrounding the brain (meningitis) or collections of pus in the brain which causes headache, confusion, seizures (fits), and other neurologic problems.
- Repeated infections may lead to abnormal skin growth in the middle ear behind the eardrum (a cholesteatoma). This cholesteatoma can increase in size over time and can damage the bones of the middle ear and cause hearing loss.
- Rare conditions that can result from continued cholesteatoma growth are permanent hearing loss, dizziness, and facial muscle paralysis.

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### WHAT ARE PRESCRIBED MINIMUM BENEFITS?

Prescribed Minimum Benefits (PMBs) are defined by law. They are the minimum level of diagnosis, treatment, and care that your medical scheme must cover – and it must pay for your PMB condition/s from its risk pool and in full. There are medical interventions available over and above those prescribed for PMB conditions but your scheme may choose not to pay for them. A designated service provider (DSP) is a healthcare provider (e.g. doctor, pharmacist, hospital) that is your medical scheme's first choice when you need treatment or care for a PMB condition. You can use a non-DSP voluntarily or involuntarily but be aware that when you choose to use a non-DSP, you may have to pay a portion of the bill as a co-payment. PMBs include 270 serious health conditions, any emergency condition, and 25 chronic diseases; they can be found on our [website](#)

The Communications Unit would like to thank the Clinical Unit for assisting with this edition of CMScript

#### Contact information:

[information@medicalschemes.com](mailto:information@medicalschemes.com)

Hotline: 0861 123 267

Fax: 012 430 7644

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