

# Community Paediatric Review

Current issues in children's health and development



Centre for Community Child Health

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## Ear, nose and throat health in early childhood

**Ear, nose, and throat problems are among the most common reasons for children to visit a doctor.**

From earaches to tonsillitis, children can suffer from a variety of issues that need prompt attention. The impact of a problem with the ear, nose and/or throat can impede everything from children's ability to build relationships with other children and adults, get a good night's rest, and eat a meal.

As the weather grows cooler and children and families spend more time indoors, the incidence of ear, nose and throat issues is set to rise. This edition of Community Paediatric Review provides an overview of some of the more common ear, nose and throat issues that you might encounter in your work, together with ideas about how you can help to effectively manage these issues.

### Middle ear infection

#### What is middle ear infection?

Acute otitis media is an infection of the middle ear space and a common complication of a cold or a sore throat. Respiratory viruses account for most cases of otitis media and are self-limiting (BMJ Best Practice).

#### Risk factors

More than 80% of children experience at least one episode of acute otitis media before the age of 2 years, with a peak incidence between 6 and 18 months (Teele et al, 1989; Paradise et al 1997). As children get older and their Eustachian tubes develop, they are less likely to get ear infections (BMJ Best Practice).

Aboriginal and Torres Strait Islander children experience middle ear infection earlier, more frequently, more severely, and more persistently than other children (Kong et al, 2009). In Australia, some literature reports that Australian Indigenous children experience the highest prevalence of chronic suppurative otitis media in the world, with rates of up to 70% in some remote communities (Coates, 2009).

Environmental risk factors for otitis media include parental tobacco smoke, childcare attendance and exposure to siblings and other children (BMJ Best Practice). There is debate among




researchers as to whether the use of dummies is associated with a higher incidence of ear infection.

Children with cleft palate, cleft uvula or immunological deficiencies experience increased risk of acute otitis media than peers. A higher incidence among boys, children with a family history of acute otitis media and certain ethnic groups suggests a higher genetic susceptibility (BMJ Best Practice).

#### Symptoms

The virus or bacteria spreads to the ear and fluid builds up behind the ear drum. The fluid can't drain away and in turn puts pressure on the ear drum. Symptoms to look out for in children include earache (or pulling at the ears), unsettled sleep, reduced ability to hear, fever, irritability and crying. Babies who are still breastfeeding might pull off the breast while feeding; bottle-fed babies may appear to be in pain while sucking. In more severe cases, the eardrum may perforate and cause fluid discharge; the tear will heal after a few days. Some children get repeated ear infections and may develop problems with speech and language as a result of the impact on their hearing, leading to problems in school because of the impact on their social and emotional development (BMJ Best Practice).

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## Treatment

About 8 in 10 children who have an ear infection get better after two to three days without any medicine. Painkillers can help. Antibiotics may help some children, but aren't usually needed.

To help prevent acute otitis media families can:

- breastfeed their baby to help fight infection; fruit and vegetables can also help once they are eating solids
- keep their child clean (wash their hands and face regularly)
- ensure their child gets all their immunisations
- get their child to blow their nose — this helps to open the Eustachian tube — and then wash their hands
- avoid smoking around their child
- avoid putting anything in their child's ears.

## Glue ear

### What is glue ear?

Glue ear is a build-up of sticky, thick glue-like fluid in the middle ear that disrupts the passage of sound through the middle ear.

It is most common in children between 3 and 7 years (Qureishi et al, 2014; American Academy of Family Physicians et al, 2004).

The condition can lead to deafness and even hearing loss if left untreated, and is the most common cause of hearing impairment among children in the developed world (Qureishi et al, 2014).

### Risk factors

In children, glue ear may occur spontaneously because of poor Eustachian tube function or as an inflammatory response following a middle ear infection (American Academy of Family Physicians et al, 2004). Children's Eustachian tubes are shorter, more flexible and will continue developing up until the age of 19; these factors make it easier for pathogens to enter the middle ear (Qureishi et al, 2014).

Glue ear can be brought on by an inflammatory reaction to stimulus including cigarette smoke, allergies or genetic influences (Qureishi et al, 2014).

Parental smoking is estimated to account for 110,000 tympanostomy tubes for glue ear in the United States annually (Aligne et al, 1997). Possible genetic influences include family history (Casselbrant et al, 1999), Down syndrome (Satwant. et al, 2002), Williams syndrome (Klein et al, 1990), cleft palate and other cranio-facial abnormalities (Berkman et al, 2013).

### Symptoms

Children may get glue ear in one or both ears; about 40 in 100 children have it in both ears (BMJ Best Practice).

Glue ear does not cause the pain or swelling common to ear infections. Families will usually notice hearing loss first; their child might have trouble talking to people or hearing quieter noises. Children might also speak more loudly or talk less.

Children might complain of ringing in their ear if they are old enough to communicate this. Glue ear can also contribute to

delayed speech and language development, clumsiness and balance problems, behavioural problems and poor attention

(Qureishi et al, 2014).

## Treatment

If you have concerns about a child's hearing, do not hesitate to refer the child for a hearing test.

If the child's glue ear doesn't go away, or it keeps coming back, the child may be referred to a specialist. Possible treatments include an operation to put in grommets—these let air flow in and out of the middle ear, control pressure and stop fluid building up. The operation might also involve removing the adenoids.

## Tonsillitis

### What is tonsillitis?

Tonsillitis is an infection in the tonsils, the two small mounds on either side of the back of the throat, which can become infected with a virus or bacteria.

### Risk factors

Most tonsillitis is caused by viruses, but up to 30% of cases are caused by bacteria including *Streptococcus* (Gwaltney et al, 2000).

Whether viral or bacterial, tonsillitis can be spread by exposure to an infected person, particularly in enclosed spaces like childcare centres (BMJ Best Practice).

Tonsillitis peaks in children between the ages of 5 and 15 in winter and early spring (Shulman et al, 2012).

### Symptoms

Symptoms of tonsillitis include sudden onset of sore throat and sometimes difficulty in swallowing (Dajani et al, 1995). Children might have a fever or swollen, tender glands in the neck and under the jaw. They might also complain of a headache, a runny nose and many of the symptoms of a cold.

Children under 5 years often don't say they have a sore throat, because they don't know where the pain is coming from. They may say they have a tummy ache (BMJ Best Practice).

## Treatment

Most children do not need treatment with antibiotics; tonsillitis normally resolves completely within one week (Del Mar et al, 2006). In vulnerable people, including infants, tonsillitis may run a more severe course.

Resting, drinking plenty of fluids, and painkillers such as paracetamol or ibuprofen should help the child to feel better.

You could suggest that families take their child to see a doctor if the child has been symptomatic for longer than two days, the family is worried, or if the child:

- refuses to drink fluids
- vomits frequently
- complains of an intense headache
- is pale and sleepy
- has trouble breathing
- has a high fever that doesn't respond to paracetamol.

## Sleep apnoea

### What is sleep apnoea?

While commonly thought of as a condition of older and obese adults, children can also experience sleep apnoea, which can have significant consequences for their learning and development because of the impact on sleep.

If a child has sleep apnoea, there are times during the night when they stop breathing for a few seconds. This happens because the muscles in their throat relax and block the flow of air. After a few seconds, their brain recognises the problem, and makes their body start breathing again. The child might wake up with a choking or gasping sound.

This can happen several times an hour, all night, so they can't stay in a deep sleep (BMJ Best Practice). The child's family may notice snoring and pauses in breathing while the child is sleeping (The Royal Children's Hospital, 2010).

### Risk factors

Snoring is common, affecting about 15–20 children in every 100 and usually harmless. However sleep apnoea, while more rare—affecting 2–3 children in every 100—can have serious consequences (The Royal Children's Hospital, 2010).

The most common cause of sleep apnoea in childhood is enlargement of the tonsils in the back of the throat and the adenoids in the back of the nose. Tonsils and adenoids grow most quickly when a child is between 2 and 7 years old.

Snoring and sleep apnoea are related to medical conditions associated with weak muscle tone, e.g. Down syndrome; obesity; and long-term allergy or hay fever. Children with small jaws and flat faces are also more susceptible (BMJ Best Practice).

### Symptoms

The child might feel tired when they wake up or drowsy during the day, reducing their ability to get the most out of everyday life. Other symptoms include learning difficulties or behavioural problems such as not paying attention, aggression or hyperactivity (BMJ Best Practice).

### Treatment

Severe sleep apnoea won't get better on its own so it's important that families talk with their doctor about the right treatment for their child. Different treatments include:

- wearing a mask at night that blows air into the nose and/or mouth to help keep the airway open
- wearing a mouthpiece that pushes the lower jaw forward to keep the airway open
- surgery to remove large adenoids and tonsils.

## Sinusitis

### What is sinusitis?

Sinusitis inflames and swells the sinuses, so mucous can't drain away. Sinuses are in the cheek bones, behind and between the eyes, and in the forehead. The sinuses in the cheeks are most often affected.

### Risk factors

Children and adults often get sinusitis after they've had a viral infection such as a cold or the flu. Hay fever and other allergies can also cause sinusitis. Sinusitis can last a long time (called chronic sinusitis) or occur in short attacks. Short attacks that last for four weeks or less are called acute sinusitis.

It is estimated that 6% to 13% of children will have had one case of acute sinusitis by the age of 3 years (Gwaltney, 1996). School-age children on average contract 6 to 8 upper respiratory tract infections per year, and of these, 5% to 10% will be complicated by sinusitis (Gwaltney, 1996).

### Symptoms

Symptoms of sinusitis include nasal mucous; congestion; stuffiness; blockage; pain or pressure in the forehead, upper jaw, teeth and cheeks or around eyes; high temperature; loss of sense of smell; or a headache that is worse when leaning forward.

### Treatment

Sinusitis can be very painful but it usually clears up on its own. Painkillers such as paracetamol or ibuprofen should help the child to feel better. If the child's symptoms are very severe the family may wish to take them to their doctor.

Good hand washing practices (i.e. using soap or alcohol-based rubs) are recommended to help prevent sinusitis, especially when in contact with people who are unwell. Exposure to environmental irritants, such as cigarette smoke, pollutants, and allergens, should be avoided.

In the cooler months ahead you are likely to see an increase in ear, nose and throat issues. While some conditions will mean a trip to the doctor and maybe even specialists for further support, other conditions can be managed with rest, drinking plenty of fluids and painkillers like paracetamol or ibuprofen.

Raising awareness in your workplace and with families of the importance of staying home when unwell to prevent spreading illness; good hand washing practices; staying up to date with vaccinations; and keeping children away from tobacco smoke and allergens will help prevent many ear, nose and throat issues and their immediate and longer term impacts.

You can also help to raise awareness of the important role that breastfeeding and a healthy diet play in helping to fight infection.

The time you spend each day with children and your relationship with them is also key to helping families pick up on subtle changes in children, like hearing difficulties; learning or developmental delays; and behavioural problems such as not paying attention, aggression or hyperactivity and any possible underlying ear, nose and throat issues.

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## Reflection questions

How can you support families to prevent ear, nose and throat problems?

Given the significant protective and preventive effect of breastfeeding for many ear, nose and throat conditions, what strategies do you have in place to increase family awareness of this factor?

What procedures do you have in place at your workplace to support ear, nose and throat health in both staff and visitors?

How do you address concerns that a child might have an ear, nose and throat condition?

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## Listen up! Hearing screening in the early years



Helping babies and children to start their lives and continue to grow and develop with the best hearing possible has important implications for their development. Early detection of any problems with hearing gives children the best chance for good speech

and language development, good communication ability, and future educational and vocational success.

Approximately one in every thousand babies in Australia is born with some degree of permanent hearing loss in both ears (VIHSP, 2014). While a profound hearing loss is often quite noticeable, mild and unilateral hearing losses can be more difficult to detect. Any hearing loss that is not detected can go on to have a significant impact on children's developmental trajectory.

### Universal newborn hearing screening

In the 1990s, research showed that infants with a hearing loss that was identified before six months of age, and who had appropriate supports implemented, were then able to develop communication skills equivalent to children of the same age without a hearing loss. In comparison, children whose hearing loss was not identified and addressed until they were older than six months did not achieve the same communication outcomes (eg Yoshinga-Itano et al, 1998). Before universal hearing screening was introduced, infant hearing loss was sometimes not

detected until up to three years of age, well past the crucial period for speech and language development.

Several studies, also in the 1990s, demonstrated that Universal Newborn Hearing Screening was feasible (eg Wessex Universal Neonatal Hearing Screening Trial Group, 1998). This research was driven in part by the failure of methods that had previously been used for early detection of hearing loss, such as the Ewing distraction test, which drove the need for an effective method of hearing-loss detection. In Australia, most newborn hearing screening is now done during infants' natural sleep as part of the routine health checks done shortly after birth. The hearing tests use either an Oto-acoustic emission screen or an automated auditory brainstem response screen. These screens do not provide a diagnosis, but simply an indication of whether the infant needs to be referred on for further testing. Further testing then indicates whether hearing is normal, or identifies the nature of any hearing problems – permanent sensorineural, permanent or temporary conductive, mixed hearing loss, or auditory neuropathy.

### **Diagnosing hearing impairment in early childhood and infancy**

If the newborn hearing screening suggests that there might be a hearing loss, families are referred for further audiological testing. If a hearing loss is then diagnosed by an audiologist, the family is likely to be sent to Australian Hearing. Australian Hearing is responsible for managing government-funded hearing services for all Australian citizens and permanent residents under the age of 26; this includes providing and fitting hearing aids and other listening devices. Infants younger than six months are seen by a paediatric specialist audiologist — this may require families in regional or remote areas to travel to an Australian Hearing centre that has a paediatric specialist (VIHSP, 2014). Screening sometimes involves multiple assessments over several hours in order to obtain a full picture of the level of hearing in each ear. All children diagnosed with a hearing loss also need to be seen by a paediatrician or an ENT specialist, who will be able to refer the family for genetic testing and counselling if indicated.

At this stage, early counselling will also be provided to the family by the diagnostic audiologist. Families who have been told that their child has a hearing loss are likely to experience a range of emotions throughout what will be a very difficult and stressful time.

### **When a hearing loss has been diagnosed**

If the intervention for the hearing loss includes hearing aids or other listening devices, Australian Hearing is the body responsible for ongoing management of the child's hearing and prescription and fitting of any devices (King, 2010). If possible, the infant's first hearing aid will be fitted within the first few weeks of life, with regular monitoring and re-fitting as the child's ears grow.

If the results of hearing screening indicate that a Cochlear Implant is warranted, then the family will be referred to

the Cochlear Implant Clinic in their state or territory. In that case, the child will undergo a comprehensive assessment, including scans and a hearing aid trial, to determine whether they are suitable for an implant. The aim is to fit the implant before the child is 12 months old in order to maximise the opportunities for normal language development.

### **Ear health for all children**

All children, not only those diagnosed with a hearing loss, need to have hearing monitored throughout their development. A pass on a newborn hearing screening is not a pass for life; reasons for later hearing loss include progressive hearing losses, late onset losses, acquired losses from injury or illness (meningitis for example), and ototoxicity from medications.

#### **Otitis media**

Acute otitis media is a very common problem in early childhood; up to 80% of children have at least one episode by the age of 3, with peak prevalence between 6 and 18 months (Teele et al, 1989; Paradise et al 1997). The combination of young children's immature anatomy and developing immune system makes them very susceptible. Even with treatment, this common inflammation of the middle ear can lead to recurrent episodes of serous otitis media or 'glue ear', which in turn can cause conductive hearing loss. This can have significant impact on children's language, literacy and cognitive development.

For a small proportion of the wider community, and a much larger proportion of the Aboriginal and Torres Strait Islander population, otitis media can become an ongoing problem — for these groups a 'temporary' conductive hearing loss becomes a permanent issue with significant implications for speech and language development.

### **Reasons for hearing review**

If a child visiting your centre has ongoing middle ear issues, concerns about development or speech and language, or behavioural issues, and/or there are family concerns, a hearing review will be warranted.

A hearing assessment can be performed at any age, using objective or behavioural techniques. Refer the family on to a paediatrician with an interest in audiology or a paediatric audiologist if there are concerns. No child is too young to have a hearing assessment, and children should be referred if there are any concerns.

Caring for infants' and children's ear health through the early years is essential for all areas of their development. Child and family health nurses and all health professionals who work with families have a vital role to play. When families are confident and supported to address any concerns about their child's hearing quickly and, if needed, to navigate through the process of additional supports for hearing loss, children can grow up with strong communicative abilities and all of the flow-on benefits for their health, learning, social and emotional skills, and later lives.

## Additional resources for child and family health nurses

There is a range of online resources available for child and family health nurses and other health practitioners when there are concerns or queries about a child's ear health.

At the Australian Hearing website at [www.hearing.com.au](http://www.hearing.com.au) you will find information about their paediatric program and some information about Cochlear implants. For Victorian and Tasmanian nurses, the cochlear implant clinic at the Royal Victorian Eye and Ear Hospital is the best source of information about this assistive device.

Each state and territory administers its own infant hearing screening. You can find out more at the links below.

The **Victorian** Infant Hearing Screening Program has a comprehensive site at [infanthearing.vihsp.org.au/home](http://infanthearing.vihsp.org.au/home), designed as a resource for Victorian child and family health nurses.

In **New South Wales**, referrals can be arranged by a child and family health nurse or other health professional [www.health.nsw.gov.au/publichealth/hearing/children.asp](http://www.health.nsw.gov.au/publichealth/hearing/children.asp)

In **Queensland**, the Healthy Hearing Program manages paediatric hearing screening. You can find out more at [www.health.qld.gov.au/healthyhearing/](http://www.health.qld.gov.au/healthyhearing/)

**ACT** Health manages the ACT Newborn Hearing Screening Program. There is more information here <http://health.act.gov.au/health-services/canberra-hospital/our-services/division-of-women-youth-and-children/neonatology/act-newborn-hearing-screening-program>

In **South Australia**, the Women's and Children's Health Network administers their Universal Neonatal Hearing Screening. Find out more at <http://www.cyh.com/SubContent.aspx?p=420>

The **Western Australian** newborn hearing screening program, operating out of the Princess Margaret Hospital in Perth, has been screening across the state since 2010. [http://www.pmh.health.wa.gov.au/services/newborn\\_hearing/](http://www.pmh.health.wa.gov.au/services/newborn_hearing/)

In remote areas of the **Northern Territory**, the Remote Area Health Corps, <http://www.rahc.com.au/>, has learning modules on hearing and ear health that are accessible to all health professionals via login.

You may wish to refer parents to Aussie Deaf Kids, <http://www.aussiedeafkids.org.au/>, which is a reputable source of information for parents and families. It also offers parent forums and information about the services and support that are available to parents of children with a hearing loss.

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The Royal Children's Hospital Centre for Community Child Health (CCCH) has been at the forefront of Australian research into early childhood development and behaviour since 1994.

The CCCH conducts research into the many conditions and common problems faced by children that are either preventable or can be improved if recognised and managed early.

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