



## Audiology Services Goulburn Valley Health

### **1. Referrals to Audiology**

Audiological testing carried out at Goulburn Valley Health includes air, bone and speech audiometry, tympanometry, otoacoustic emissions (OAE), electrocochleography (ECoG) and auditory brainstem response audiometry (ABR).

For an appointment at the *Goulburn Valley Health Audiology Clinic (Hospital)*, all patients must have a referral from their Doctor, ENT, or in the case of children, a Maternal & Child Health Nurse, Speech Pathologist, School Nurse or other Audiologist.

There is a means tested co-payment for adult patients required at the time of service. This payment is between \$9.00 and \$60.00. **All children under 18 years of age are seen free of charge.**

In the first instance adults should be booked in for the usual 40 minute appointment (air, bone speech and impedance). Specialised tests such as Auditory Brainstem Response (ABR) and Electrocochleography (ECoG) take between 1 hour 20 minutes and 1 hour and 30 minutes and are normally arranged on the basis of the outcome of the standard assessment.

In the case of a ***sudden hearing loss*** or you are ***very concerned*** about a child's hearing, please ring the clinic and let us know. We will do what we can to arrange an appointment as soon as possible.

All adults requiring management in terms of hearing aids, pre-employment hearing tests or specialised testing such as pilot's, crane driver or scuba diver testing are seen at the private practice - *Goulburn Valley Hearing Clinic (55 Edward Street, Shepparton)*. Hearing aid assessment, prescription and rehabilitation for private patients, those eligible for a voucher from the Office of Hearing Services (pensioners and veterans) and assessment of Workcover clients is carried out at Goulburn Valley Hearing Clinic (Private Clinic)

**Phone 5821 6600 for ALL Audiology Appointments. This includes appointments at Goulburn Valley Health AND Goulburn Valley Hearing Clinic (Private Clinic).**

## 2. Electrocochleography (ECoG)

Electrocochleography is the recording of early auditory potentials in the cochlea. The test is mainly used as a diagnostic tool for *Endolymphatic Hydrops*. The test is sensitive to *Endolymphatic Hydrops* in roughly 70% of cases. Sensitivity increases if the test is conducted whilst the patient is experiencing an episode of vertigo.

The test is non-invasive and involves placing electrodes on the ear lobes, and a small 'ball' electrode into the ear canal. The patient hears a loud clicking stimulus in the ear (90dB nHL) and the early auditory potentials are recorded between the ear lobe and ear canal electrodes. The patient is required to lie quietly and relax with their eyes closed.

### **Symptoms of *Endolymphatic Hydrops***

- Aural fullness
- Roaring tinnitus
- Episodic Vertigo (true 'spinning' sensation)
- Fluctuating hearing loss
- Poor Speech discrimination

### **Contraindications to testing**

- Perforated tympanic membrane
- Wax – even a small amount of wax can hinder placement of the electrode in the ear canal
- Severe/profound high-frequency hearing loss
- Otitis Media with Effusion / discharge

***Please ensure your patient's ears are free of wax as testing cannot be completed if there is impacted wax or wax is occluding the ear canal.***

Reliable assessment is more difficult in elderly patients (aged over 75yrs) due to degraded waveform morphology. Results are also limited for people with a profound high-frequency hearing loss as the stimulus is often not loud enough to elicit clear waveform responses.

There are validation issues when conducting ECoG's in children under 18 years of age.

## 3. Auditory Brainstem Response (ABR)

Auditory brainstem response testing records the activity of the auditory nerve to external stimuli. A normal waveform is characterized by 5 vertex-positive peaks that occur in the time period of 1.4 to 8ms after the onset of the stimulus. The latencies of peaks I, III, V are recorded and compared to normative data and to the latencies in the opposite ear.

In adults, the ABR is used to assist diagnosis of retrocochlear pathology. Indications of retrocochlear pathology include:

- Vertigo
- Unilateral tinnitus
- Asymmetrical hearing loss

As with ECoG's, reliable assessment is more difficult in elderly patients (aged over 75yrs) due to degraded waveform morphology. Results are also limited for people with a profound high-frequency hearing loss as the stimulus is often not loud enough to elicit clear waveform responses.

In neonates, the ABR forms part of the full diagnostic assessment protocol to help determine the child's level of hearing. Infants requiring full diagnostic assessment are usually referred to the clinic through the Victorian Infant Hearing Screening Program (VIHSP) or the NSW Statewide Infant Screening Hearing (SWISH) and maternal child health nurses.

## 4. Sudden Hearing Losses

Sudden sensorineural hearing loss is infrequent. The possibility of wax impaction and middle ear infection should be excluded before the option of a sudden sensorineural loss is considered.

**Patients reporting sudden losses should be seen by an Ear Nose & Throat (ENT) Specialist and, if possible, an Audiologist, within the first 48-72 hours post-onset.**

This may require patients making a day trip to Melbourne for an ENT appointment. When contacting the clinic, please make sure that we are informed that the hearing loss is 'sudden' in nature so arrangements can be made to see the patient as soon as possible.

## 5. Paediatric Assessment

**HEARING TESTS OF ALL CHILDREN UNDER 18 YEARS AT GOULBURN VALLEY HEALTHY OF AGE IS FREE OF CHARGE**

Children of all ages, including newborn infants and children with disabilities, can be tested at Goulburn Valley Health Audiology. The type of test used for assessment varies with the age and abilities of the child.

Newborn babies in Victoria are screened by the Victorian Infant Hearing Screening Program (VIHSP). Babies in this region – and from southern New South Wales - who do not pass the screening are referred to Goulburn Valley Health Audiology for full diagnostic assessment. Diagnostic testing is usually performed at two to four weeks of age. Diagnostic test results are accurate enough to either exclude a significant hearing loss, or to fit hearing aids in the event of a baby having an aidable loss.

A full newborn diagnostic assessment will include:

1. Distortion-Product Otoacoustic Emissions, which measure cochlear outer hair cell activity

2. Auditory Brainstem Responses to clicks and “chirps” to assess the auditory neural pathway and identify possible auditory neuropath
3. Auditory Steady-State Responses, which estimate frequency-specific hearing levels
4. Impedance testing to determine middle ear functioning.

If an aidable hearing loss is diagnosed, the baby is referred to Australian Hearing and, if appropriate, the Cochlear Implant Clinic. Support is offered to families through the diagnostic process. This support also includes Australian Hearing and/or Cochlear Implant Clinic appointments and continues until families are well linked into early intervention services.

#### **Indications for Paediatric referral:**

- **Parent concern** is a strong risk factor and immediate referral is recommended when parents are worried about their child’s hearing
- Family history or other risk factor for hereditary hearing loss
- Meningitis, CMV, measles or mumps infection
- Recurrent or chronic otitis media
- Speech/language delay
- Learning difficulties
- Behavioural problems

If you are concerned about a child’s hearing, in the first instance make a referral to the Goulburn Valley Health Audiology Clinic. If an aidable hearing loss is diagnosed, GVH Audiologists will then make a referral to Australian Hearing for aid fitting. ***This applies for all children and young adults under 26 years of age.***

**Testing for children under the age of 18 is free at Goulburn Valley Health Audiology. All tests are performed by qualified and appropriately trained audiologists.**

## **Our Audiologists**

Lindsay Symons BSc, Dip Aud, MSc, FAAA, MAudSA Accredited Audiologist  
Belinda Schmedje BApp Sci (SpPath), Dip Aud, MAudSA Accredited Audiologist  
Elizabeth Webster BSpPath(Hons), MCI Aud, MAudSA Accredited Audiologist  
Wade Gregory BMus(Hons), MAudSt, MAudSA Accredited Audiologist

All our clinical staff are Audiology Australia Accredited Audiologists.