

A sound solution to a testing problem...



Eliminating Undetected Hearing Loss in School Aged Children

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This presentation covered a range of topics relating to hearing health in the classroom with particular reference to Sound Scouts: a mobile hearing test for school aged children

- 1.Context
- 2.Conductive loss, sensorineural loss and processing disorders.
- 3.Sound Scouts – Science + Technology + Gameplay
- 4.Improving teaching capacity
- 5.Monitoring acquired hearing loss
- 6.Inventory of classroom strategies
- 7.Preventative behaviours for good hearing health
- 8.Implementation of School wide initiatives



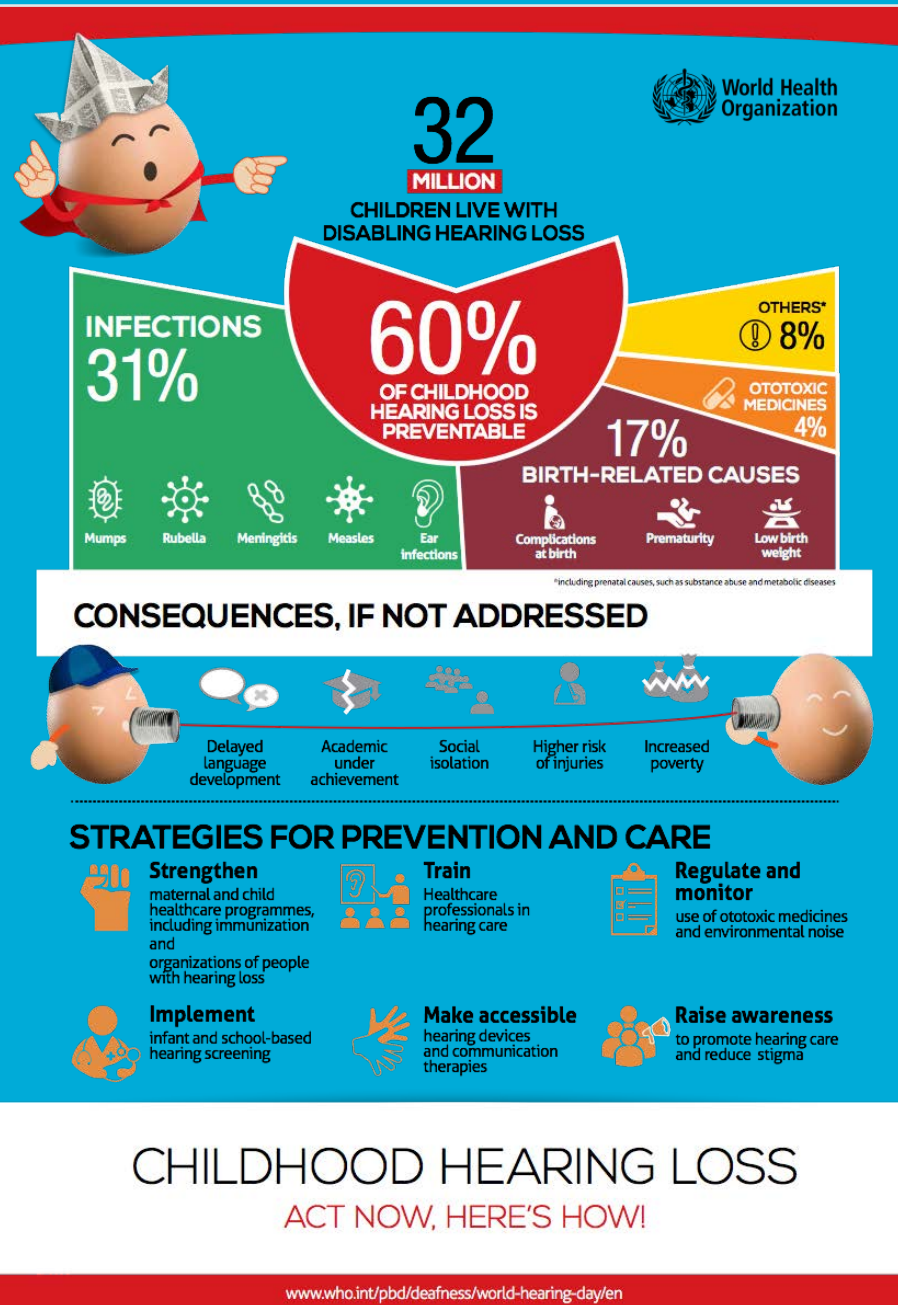
Hearing loss affects us all:

The Child
The Classroom
The School
The Community
The Country
The World

W.H.O.: Indigenous Australians have some of the worst levels of ear infections in the world.

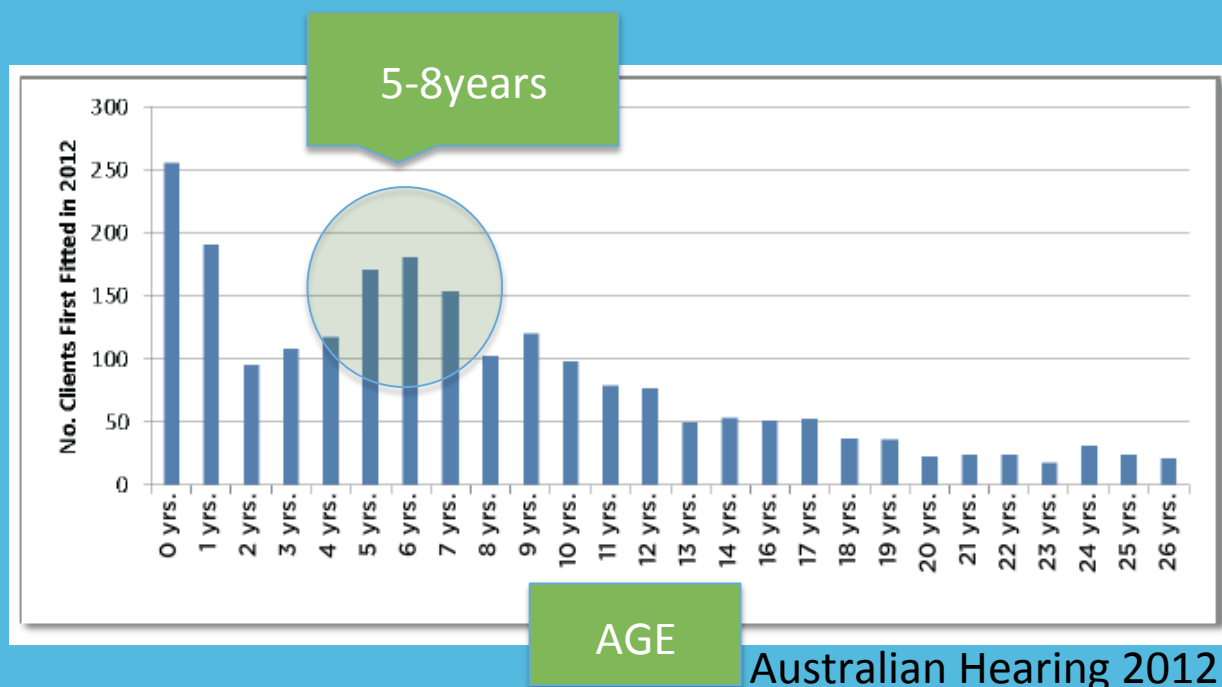
(Couzos, Melcalf & Murray 1999)







Children first fitted with hearing aids (2012)



”If you struggle to hear, you’ll struggle to learn”

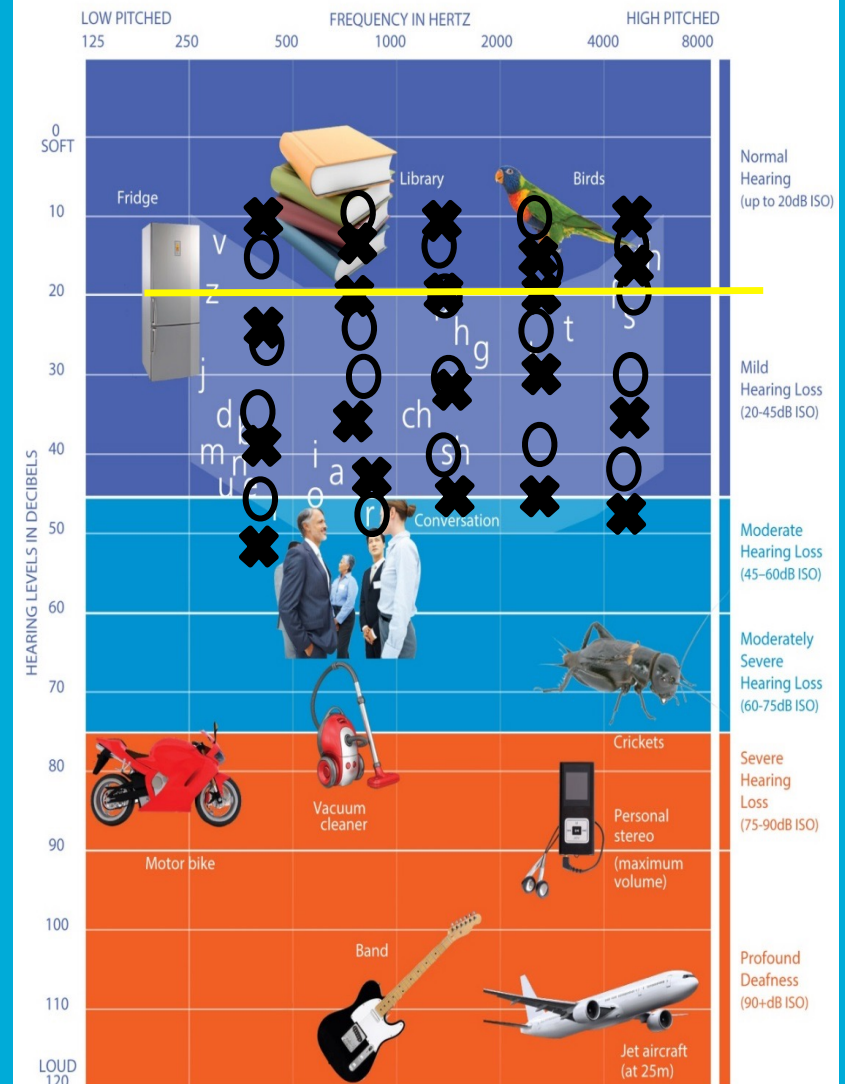
Video of how hearing works and the definition of
Sensorineural loss, Conductive loss and Auditory Processing
Disorder

[https://www.youtube.com/watch?
v=ISWkl29SpwU](https://www.youtube.com/watch?v=ISWkl29SpwU)

This is what normal hearing looks like.

If you have normal hearing, when you put in ear plugs you will have hearing at the bottom of the normal range.

For mild-moderate and moderate hearing loss, double or triple that effect.



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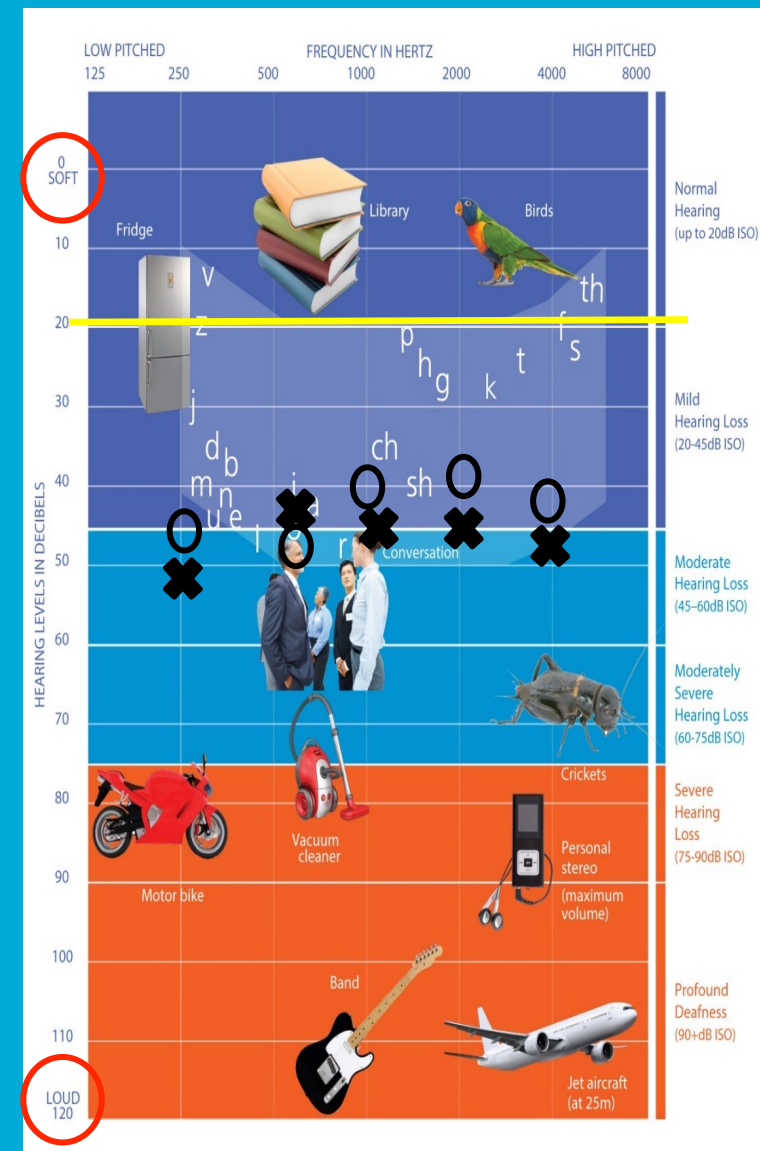
Audiogram depicting hearing loss

On an audiogram, soft sounds are near the top, loud sounds are near the bottom.

Look at the letters that are drawn on to the audiogram graph. *What do you think they represent?*

Students with undetected hearing loss do not hear some or many of these speech sounds.

Which ones are they most likely to miss?



Sounds taken out

What that means is that in order to learn, students with hearing loss who do not wear their hearing aids must first apply a lot of cognitive effort to working out what you have just said, using their knowledge of the context and their knowledge of language.

Then they have to process it and connect it with knowledge they already have in order to learn.

So, there is a lot of detective work going on, for those students who are actively trying to engage with the learning process.



What good hearing looks like

What that means is that in order to learn, students with hearing loss who do not wear hearing aids must first apply a lot of cognitive effort to working out what you have just said, using their knowledge of the context and their knowledge of language.

Then they have to process it and connect it with knowledge they already have in order to learn.

So, there is a lot of detective work going on, for those students who are actively trying to engage with the learning process.

For some students it will be too hard, and they will disengage.



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Detection



Inaccessible



Convenient

Audiology Clinics

hearScreen
smart solutions for hearing

Central Auditory Processing Disorder



- In addition to conductive and sensorineural loss Sound Scouts screens for CAPD in children as young as 4 yrs and 6 months



a game to check children's hearing



Enter Sound Scouts - a mobile game, **played on a tablet with a set of headphones**, that surreptitiously tests a child's hearing as they play. Any responsible adult can set it up and supervise. Sound Scouts an audiologist in a tablet.



Science



Game Mechanics



Technology



Hearing screening

Dr Harvey Dillon Director of NAL

- In this video Harvey Dillon describes the process of the tests and how they work at the very edge of the child's hearing to produce a reliable result.
- <https://www.youtube.com/watch?v=TZqhFN2faXs>



Tests are carried out in a Familiar Environment



Feedback:

“All done - they loved it! Said it would be fantastic if that was the test they did at Australian Hearing!”

“Thank you Carolyn for letting us be a part of it and sharing your product. It’s absolutely brilliant and I’d love to see it widely used.”

“You have created something amazing that will help so many people.

Australian Hearing
Pediatrics Program Advisory Committee Members

Customer Feedback:

“I questioned Elyse's preschool teachers, dancing teacher and other family members. No one felt Elyse had a hearing issue. It was only when she played Sound Scouts and received a fail result, my husband and I knew there may be an issue. We did another test and received the same result. We followed up with an audiologist and the Sound Scouts result was confirmed.



Kylie M, Mother of Elyse 5years old



Hearing Test Results

Dummy Data



Your child has received a score of: 50
The average score is: 100.

Dummy Data's results are outside the normal range. The pattern of results obtained was unusual, and Sound Scouts is unable to determine what type of problem led to these results. If you are concerned about Dummy Data's hearing, you may like to consult an audiologist or your GP.

Sound Scouts is not a replacement for a complete diagnostic hearing assessment carried out by a qualified clinician. It should not be taken as medical advice. Results from Sound Scouts may vary, depending on whether you are in a quiet or noisy environment and whether Dummy Data has understood what she was supposed to do and depending on Dummy Data's concentration during the game. Sound Scouts must be carried out in a quiet environment.

The ID for this session is: dEvVibqCKN



www.hearing.com.au
www.soundscouts.com.au

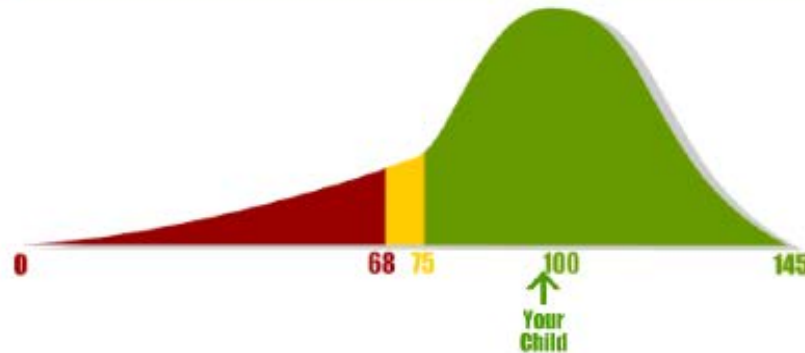


Once the test is completed a report is sent to the email address provided. The report identifies if there is a hearing loss. If a loss is identified the report suggests the type of hearing loss identified, if it is in one or two ears and importantly the recommended course of action.



Hearing Test Results

Dummy Data
ID: 8n7MJBIGKI



Your child has received a score of: 96

Dummy Data has passed Sound Scouts. Dummy Data's hearing is within the normal range on this test. However if you have serious concerns about her hearing, you should contact your doctor who can provide advice on hearing services in your area. Remember also that middle ear infections can come and go quickly, so temporary or intermittent hearing loss could occur in the future.

Sound Scouts is not a replacement for a complete diagnostic hearing assessment carried out by a qualified clinician. It should not be taken as medical advice. Results from Sound Scouts may vary, depending on whether you are in a quiet or noisy environment and whether Dummy Data has understood what she was supposed to do and depending on Dummy Data's concentration during the game. Sound Scouts must be carried out in a quiet environment.

The ID for this session is: 8n7MJBIGKI

The report can be printed out and added to the child's learning profile.

Communication Strategies

- Short animation outlining some of the overriding strategies for dealing with students with hearing loss.
- <https://www.youtube.com/watch?v=BvrmZNUPIwY&list=UUrARlxbzvJ2SUCfDSRkwdng>

Teaching strategies for children with hearing loss

- Control the background noise
- Monitoring your communication behaviours
- Small Group work
- Buddying
- Reinstruction
- Preteaching
- Amplification
- Captioning
- <http://www.mediaaccess.org.au/education/hearing-impairment-deafness/teacher-information-hearing/inclusive-teaching-practices> -



- The same amount of consideration for hearing in the classroom needs to be taken for sight. We wouldn't accept a darkened room as a positive learning environment but often our classrooms are hard to hear in, especially with an undetected hearing loss.

Whole school strategy to improve hearing wellbeing

- **Retest** Sound scouts can be used to retest children to ensure hearing has returned after infection
- **Report** The report can provide the basis for improved outcomes through out the students education
- **Classroom design** Be aware of the limitations of an open plan learning environment
- **Daily routine** Helps reduce stress because children can anticipate what is coming next.
- **Playground spaces** Create a quiet place to retreat to
- **Whole school initiatives** Participation in Hearing Awareness Week.
- **Hearing loss prevention** - NAL Hear4tomorrow Program



“I just couldn’t hear in the classroom”



Resources from Sound Scouts Presentation

Deadly Ears

https://www.health.qld.gov.au/deadly_ears/html/educators.asp

Tips for Creating a Good Listening Environment in the Classroom

<http://www.asha.org/public/hearing/Creating-a-Good-Listening-Environment-in-the-Classroom/>

Inclusive teaching practices | Media Access Australia

<http://www.mediaaccess.org.au/education/hearing-impairment-deafness/teacher-information-hearing/inclusive-teaching-practices>

Identifying Students with Hearing Problems | PeopleHearingBetter

<http://phb.secondsensehearing.com/content/identifying-students-hearing-problems>

Tiredness-in-Deaf-Children.pdf

<http://successforkidswithhearingloss.com/wp-content/uploads/2011/12/Tiredness-in-Deaf-Children.pdf>

Students struggle to hear teacher in new fad open-plan classrooms

<http://theconversation.com/students-struggle-to-hear-teacher-in-new-fad-open-plan-classrooms-37102>

Hearing | RIDBC

<http://www.ridbc.org.au/deafness>

Your Child Has A Mild Hearing Loss | Aussie Deaf Kids

<http://www.aussiedeafkids.org.au/your-child-has-a-mild-hearing-loss-whats-the-next-step.html>

Deaf-Child-in-Classroom-2012.pdf

<http://deafchildrenaustralia.org.au/wp-content/uploads/2014/11/Deaf-Child-in-Classroom-2012.pdf>

Tips for teachers | Australian Hearing

<https://www.hearing.com.au/tips-teachers/>

For teachers - Adjustments for students with a hearing impairment FACT SHEET.pdf

<http://www.hearingawarenessweek.org.au/images/For%20teachers%20-%20Adjustments%20for%20students%20with%20a%20hearing%20impairment%20FACT%20SHEET.pdf>

Sound Scouts in Aboriginal and Torres Strait Islander communities | Australian Hearing

<https://www.hearing.com.au/sound-scouts-in-aboriginal-and-torres-strait-islander-communities/>

APD Defined - Auditory Processing

<http://www.auditoryprocessing.com.au/apd-defined/>

Break the Sound Barrier: Thousands of deaf children slipping through the cracks

<http://www.smh.com.au/national/health/break-the-sound-barrier-thousands-of-deaf-children-slipping-through-the-cracks-20180505-gonqhj.html>