

# HEARING LOSS PREVENTION: APPROACHING THE CHALLENGE FROM DIFFERENT ANGLES

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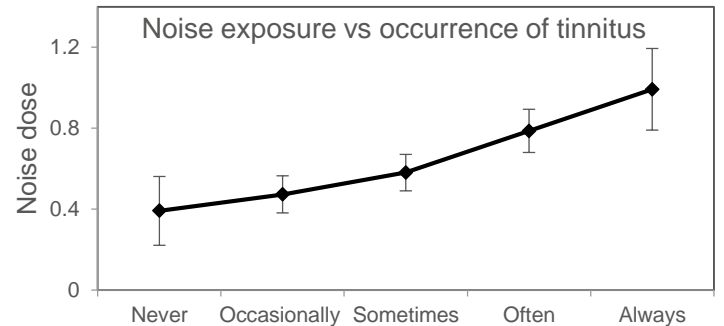
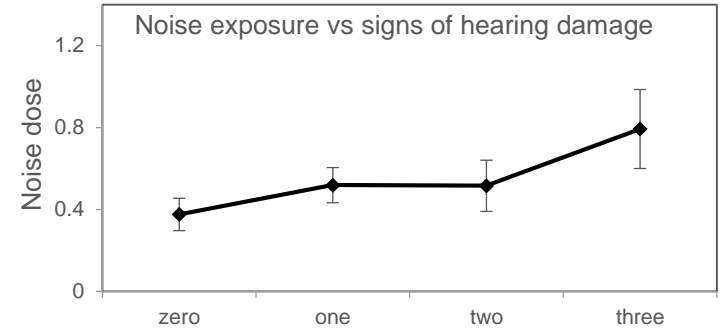
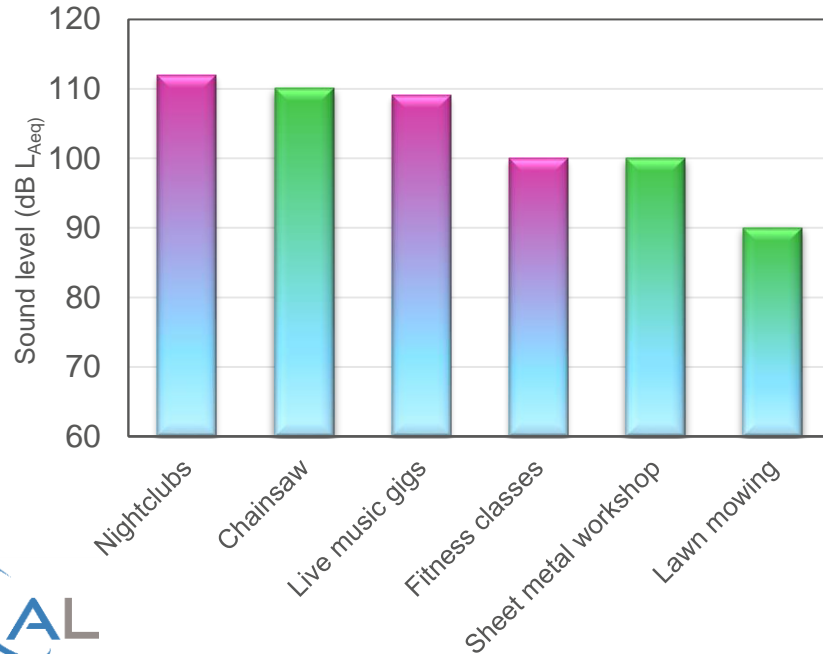
National Acoustic Laboratories  
Sydney, Australia



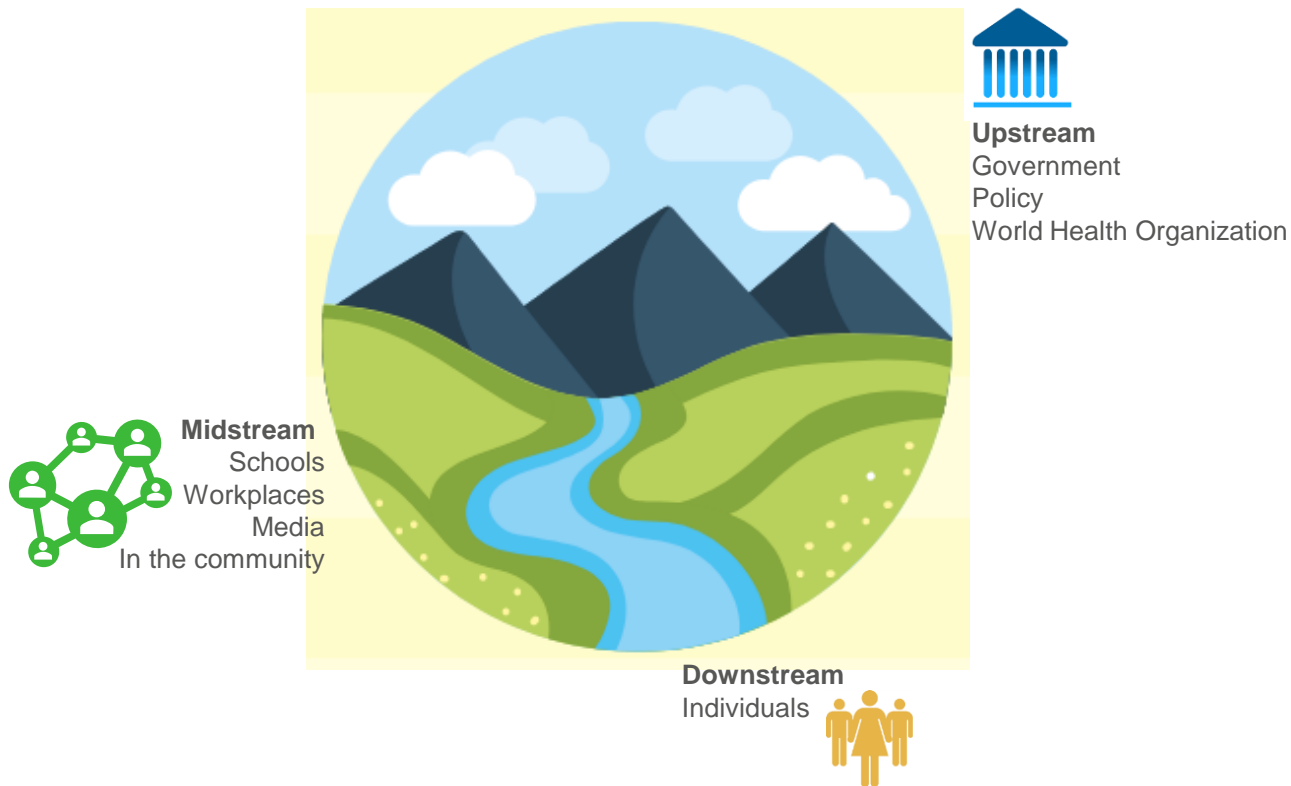
# Risk of noise-induced hearing loss: at work and leisure (pre-covid)

Noise levels at recreational events mean that the risk of hearing damage is no longer confined to the workplace:

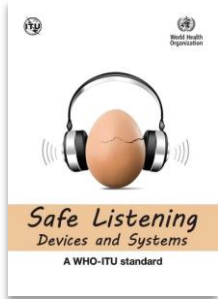
- Live music gigs: Up to 109 dB (NAL, others)
- Nightclubs: Up to 112 dB (Smith et al. 2000; Serra et al. 2005; 2007; Goggin et al. 2008).
- Fitness classes: Up to 100 dB (Beach and Nie, 2014)



# Three approaches to hearing loss prevention



# International cooperation makes a difference



2015: Make Listening Safe working group formed

includes experts from audiology, otology, public health, epidemiology, acoustics, sound engineering; member organizations of ITU; standards organisations; NGOs, professional bodies and consumer groups.

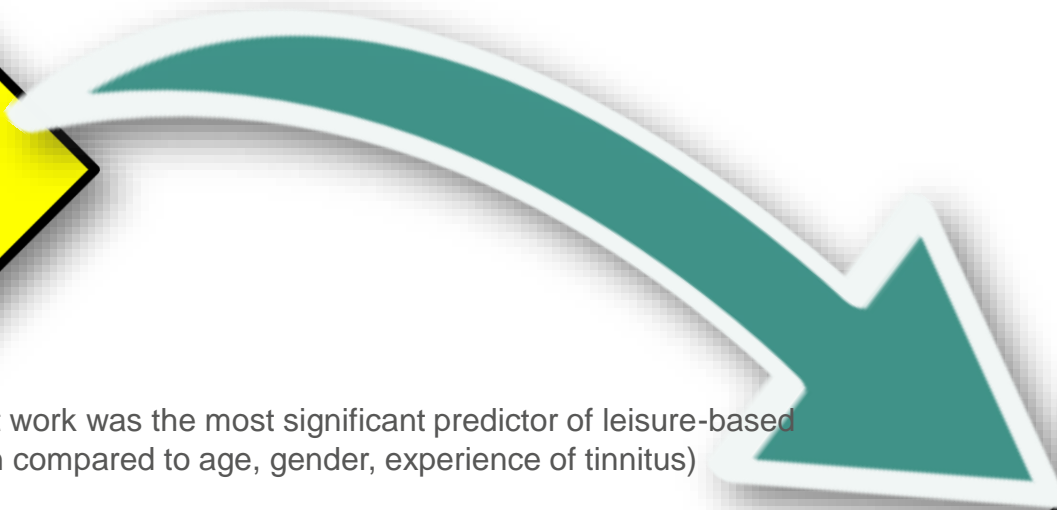
2019: released safe listening standards for personal listening devices

Apple has included many of these standards in its latest update  
Samsung to follow

2020: next issue on the agenda – standards for music venues



# Workplace behaviours translate to leisure



Use of hearing protectors at work was the most significant predictor of leisure-based hearing protector use (when compared to age, gender, experience of tinnitus)

Up to **5-fold** increase in odds ratio that workplace users would use hearing protectors in 14/20 leisure activities

**Concert** 1.85, **Live gig** 2.11, **Pub** 2.21, **Nightclub** 2.31, **Party** 2.40, **Other live concert** 3.63, **Festival** 4.63  
**Play instrument** 2.59, **Play band** 3.60, **Play orchestra** 5.17  
**Chainsaw** 1.94, **Shooting** 2.41, **Garden tools** 2.38, **Power tools** 3.14



# Online tools reach large numbers



- Online tool developed by NAL
- Personalised risk assessment
- Results presented in relation to peer group
- Enables individualised action planning

# Know Your Noise



## 1. Your lifestyle - Going Out

For each activity, hit the button that best describes how often you

	More than once a week	About once a week	About once fortnight
Dance club or nightclub	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pop/rock concert at a large venue (eg stadium, entertainment centre)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

2.5  
very high

You are receiving too much noise from leisure and/or work activities. The amount of noise you are exposed to from these activities is more than twice the level of acceptable maximum noise exposure. Any additional noise exposure will further increase your risk for hearing damage. We recommend discussing your results with a hearing professional to learn more about how to reduce your exposure.

Your risk level is greater than the average for people of similar age.

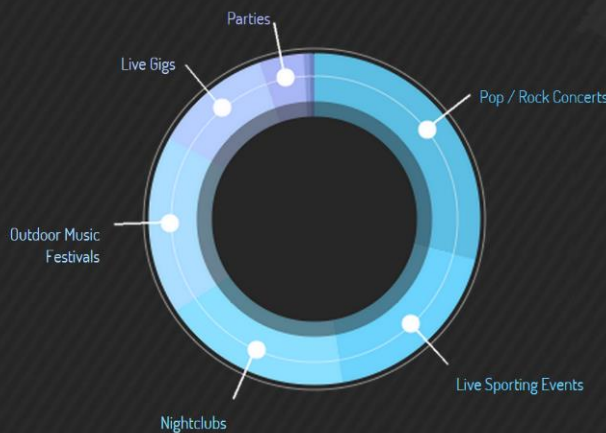
Medium
Medium-high
High
Very High

0.5      1      1.5      2      2.5      3

Other 25-34 year olds

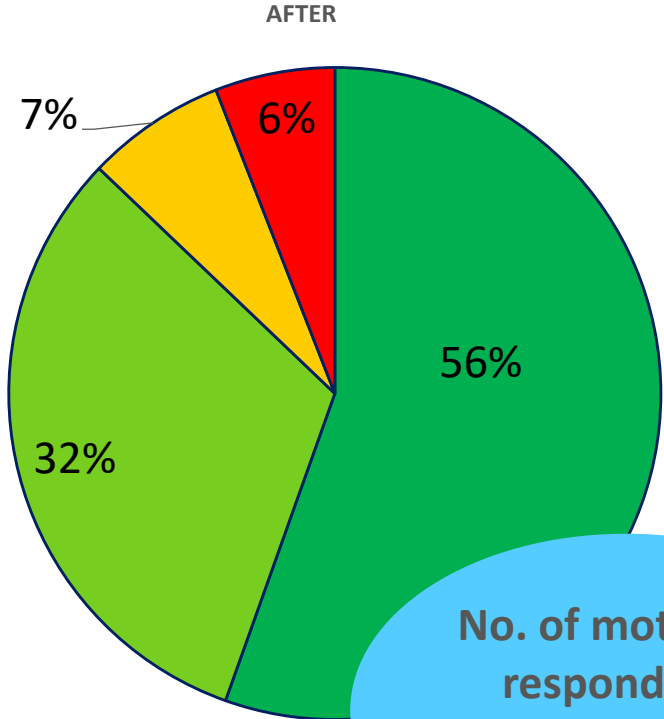
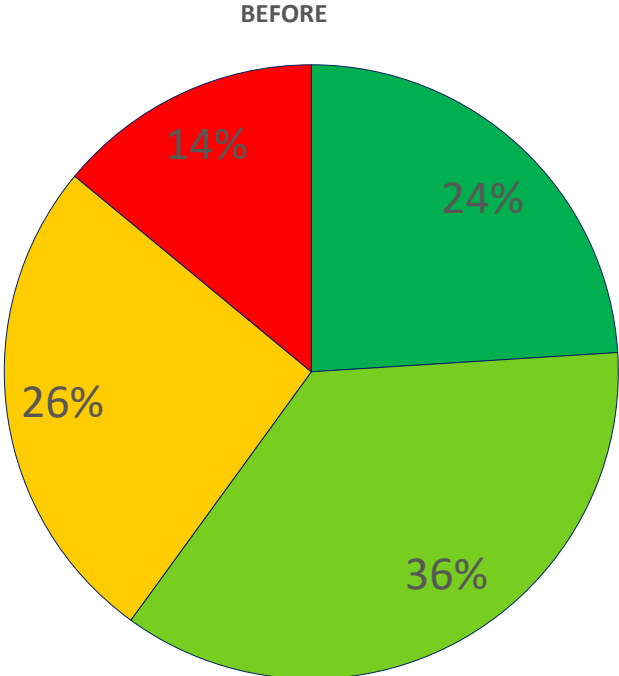
### Main Contributing Activities

Activity	Contribution
Pop / Rock Concerts	29%
Live Sporting Events	18%
Nightclubs	18%
Outdoor Music Festivals	17%
Live Gigs	12%
Parties	4%
Pubs / Bars	1%
Car/Home Stereo	< 1%



Next >

# Knowing your noise increases motivation



No. of motivated respondents increased from 60% to 88%



- always act
- sometimes act
- sometimes think
- never think or act



# Giving access to tools is more effective than providing information



We studied earplug usage in clubbers and music venue attendees.



Control group:  
earplugs only



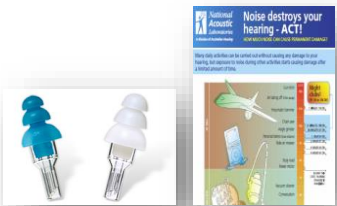
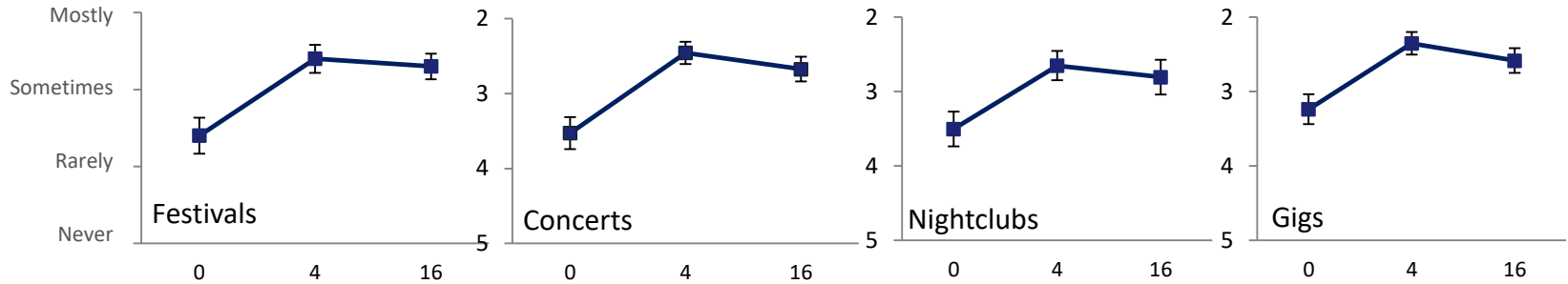
Intervention group:  
earplugs and educational material



# Motivation to act can be sustained

There was an increase in participants' intention to use earplugs at 4 weeks & this was maintained at 16 weeks

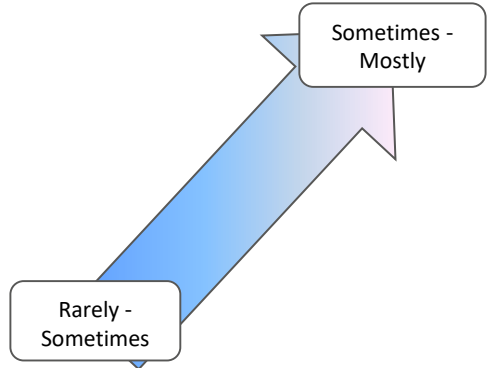
...but no significant difference between intervention and control groups



Intervention group:  
earplugs and educational material



Control group:  
earplugs only



# Tinnitus, love of music, taking a long-term view motivate protective action

Qualitative studies with musicians and clubbers reveal the key triggers that motivate action

**Ring**ing was starting to become an **issue** in my 40s so I invested in a good quality set of earplugs that reduce the volume. **Going to gigs is far more enjoyable with them and the sound is crisper.**

I worry about what my hearing will be like **in 20, 30 and more years' time.**

**It's because I love music that I wear [earplugs].** The stigma has to die. Ruining your hearing would be one of the worst personal injuries I could imagine.



# The media is an important partner for promoting hearing health



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## 'Don't be as stupid as I was': How Natalie's nights out left lasting tinnitus and hearing damage

[Double J](#) By music and pop culture reporter Paul Donoghue  
Updated 28 Feb 2018, 10:09am



PHOTO: Natalie Pestana has heard a ringing in her right ear since a show last year. (Double J: Paul Donoghue)

It was a regular night out for Natalie Pestana — a small rock show at a Melbourne club, like the kind she's been going to once or twice a week

**RELATED STORY:** Practise some digital manners on your daily commute: start by turning down the volume

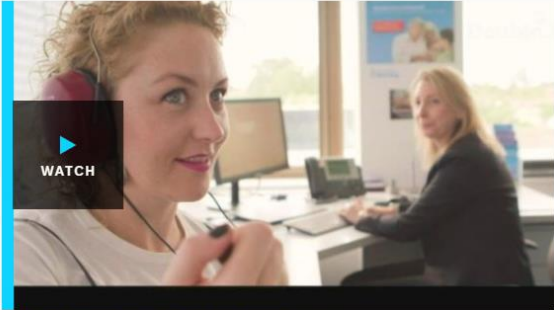
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## We sent Double J's Zan Rowe to get a hearing test. Here's what happened

[Double J](#) By music and pop culture reporter Paul Donoghue  
Updated 3 Mar 2018, 6:30am



VIDEO: After two decades of live gigs, Zan Rowe gets a hearing test. (ABC News)

In a quiet room in a Sydney office block, Zan Rowe is experiencing some trepidation.

**RELATED STORY:** 'Don't be as stupid as I was': How Natalie's nights out left a lasting effect

The Double J radio presenter and long-time music journalist has been going to gigs for two decades, sometimes standing so close to the speaker stack she feels like her *ribs* are vibrating.

# Media stories can trigger protective behaviour in individuals



The media can motivate action  
and facilitate peer-to-peer advice



Will earplugs become the norm?

A single light blue speech bubble with a dark purple outline, containing the text: 'First feed I've ever read where other people are saying they wear earplugs at concerts!'. This bubble is positioned on the right side of the slide, following the arrow from the conversation bubbles.

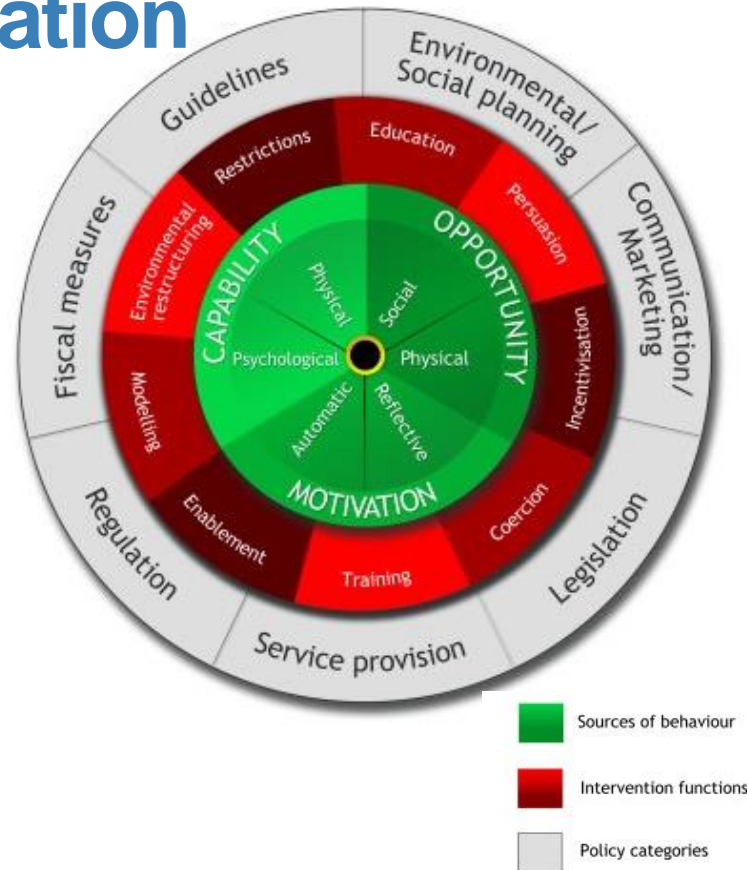
# Behaviour change requires capability, opportunity, motivation

If we are to change hearing health behaviour, our prevention activities and campaigns need to focus on improving the individual's

- capability
- opportunity
- motivation

to perform the protective behaviours









We need to resist the urge to educate and instruct!





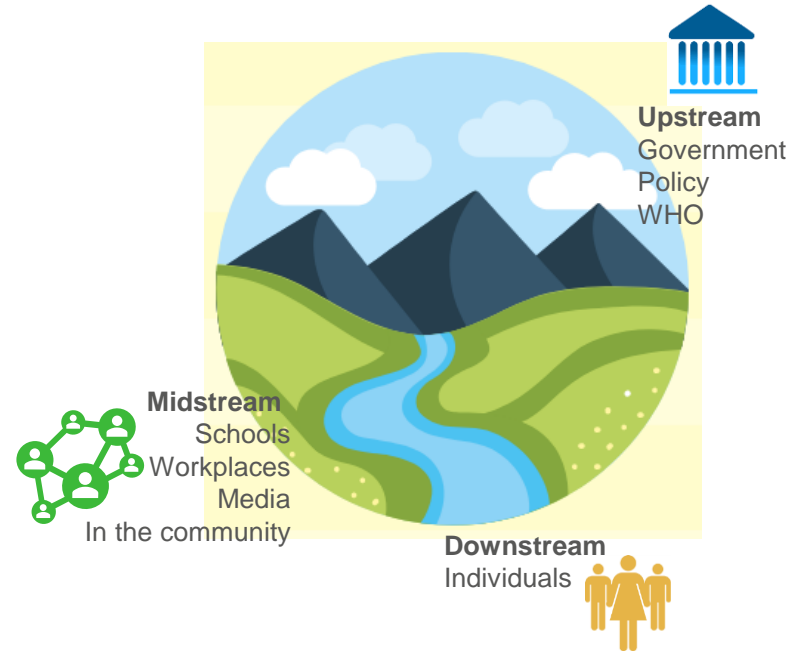
# Campaign strategies for key target groups

Hearing health journeys in Australia: Needs and gaps in **capability, opportunity, and motivation** to change hearing health behaviours

	0-1 years	1-5 years	5-12 years	12-25 years	25-45 years	45-65 years
<p>Anne was diagnosed with permanent hearing loss as a baby</p> 	Newborn hearing screening, moderate hearing loss diagnosed	Starts early intervention and has hearing aids fitted by <i>Hearing Australia</i> 6 weeks after birth	Support from itinerant teachers of the deaf at school and <i>Hearing Australia</i> care continues	<i>Hearing Australia</i> care continues until age 25	Transfers to private hearing service provider and self-funds hearing aids and maintenance costs	
<p>Barney was diagnosed with hearing loss when he started school</p> 		Parent notices a language delay and school teacher notices disruptive behaviour	Referred to GP, speech pathologist, paediatrician, audiologist. Mild hearing loss diagnosed at age 6	Hearing aids fitted by <i>Hearing Australia</i> , care stops at age 25		
<p>Colin experienced a sudden hearing loss in his 40s</p> 					Experienced sudden hearing loss. Severe-to-profound hearing loss diagnosed at age 45	Referred to ENT implant surgery applies for HSP I
<p>Deidre first noticed hearing difficulties when she was getting ready to retire</p> 						Family members to notice hearing difficulties, TV volume high, gets hearing aids at age 55 but ignores them
<p>Ella has had multiple ear infections throughout her childhood</p> 	First ear infection 3 months after birth	Ear infections become chronic. ENT referral at age 5	Hearing aids fitted by <i>Hearing Australia</i> while waiting for surgery for grommets	Hearing problems continue intermittently		Hearing loss detected, accesses hearing aids, HSP CSO program
<p>Flynn is a music lover with early signs of noise damage</p> 				Listens to music on headphones for several hours a day at high volume, plays in band, has ringing in the ears often	Works in noisy pub, goes to gigs twice a week, plays in band occasionally, doesn't consider earplugs	Has trouble hearing in noisy places, at age 41 gets hearing aids
<p>Garry is a tradesperson with workplace noise exposure</p> 				Trains as a carpenter and gets job on building site	Works on noisy building sites, wears earmuffs sometimes, spends weekends at motorcross track	Starts new job at age 45 and gets hearing aids, shows noise-induced hearing loss
<p>Hilary is a farmer with lifelong exposure to farm noise</p> 			Rides motorbikes and tractors	Learns to use a gun and power tools around the farm	On the tractor for hours at a time and regularly shooting pests, never wears earplugs	Starts to have trouble hearing at age 60 but ignores it, withdraws from social situations

# Conclusions

- To prevent noise-induced hearing loss, we need strategies at upstream, midstream and downstream levels
- Personalised online tools are effective for young adults
- Workplace protection promotes protection at play
- Giving people the tools to act is more important than knowledge
- Traditional and social media can generate peer-to-peer advice and motivate action.
- Prevention campaigns and activities should be based on enhancing **capability, opportunity, motivation** to change **behaviour**.





# Thanks to...



**Megan Gilliver**  
Behavioural Scientist, NAL



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# Q&A

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