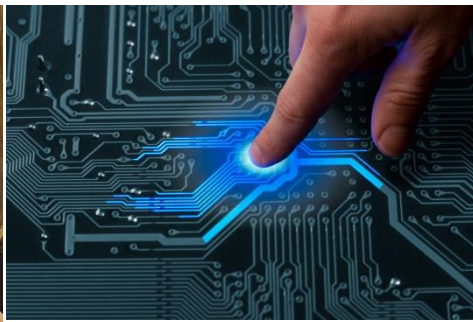


# Perspectives in Hearing Healthcare

*"Not being able to see isolates you from objects.  
Not being able to hear isolates you from people"*

Immanuel Kant 1821

creating sound value™

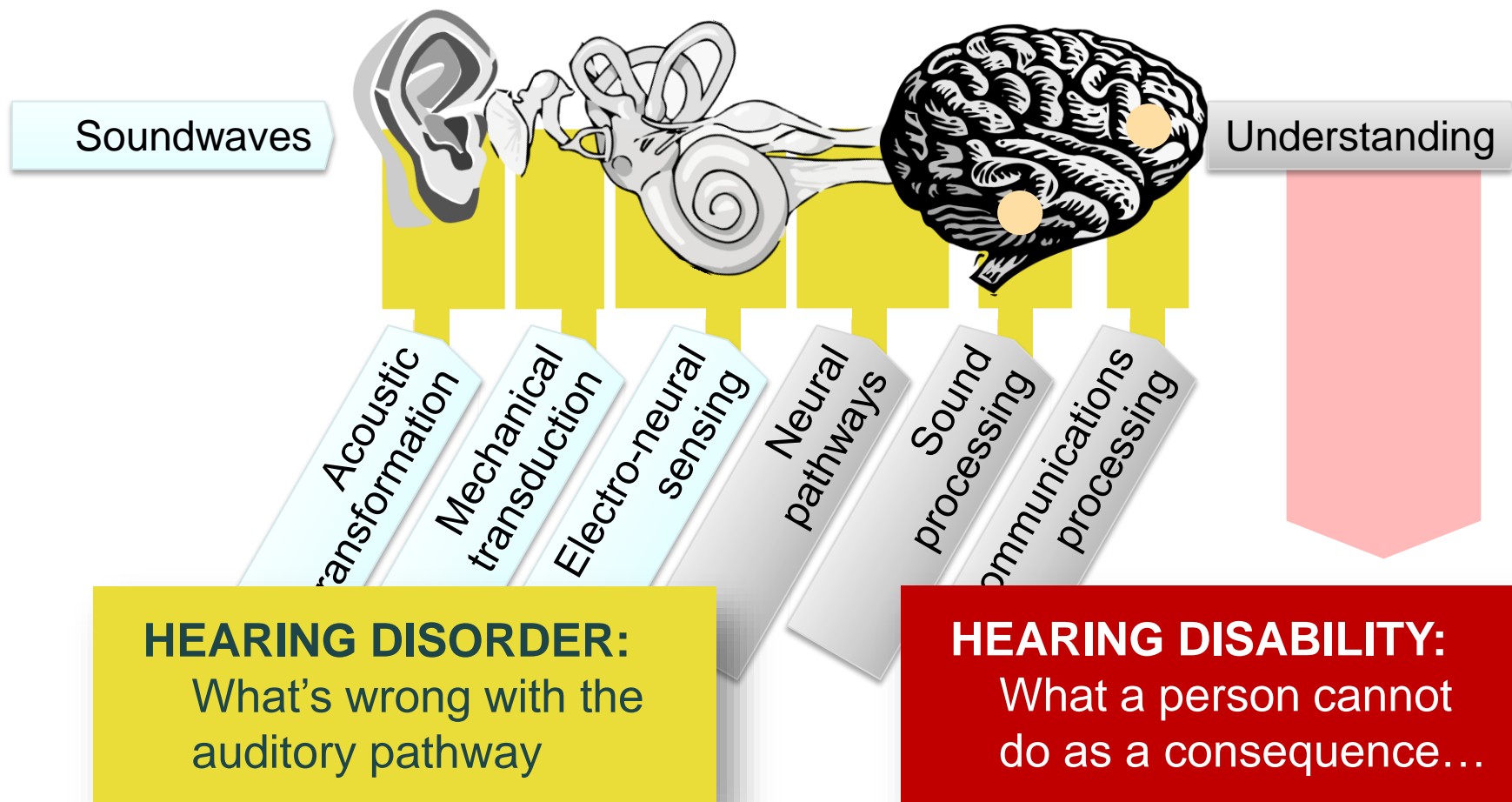




- **5.3% of the world's population** have a disabling hearing loss (360million, majority in developing countries)
- hearing disorders degrades communication and increase isolation, known factors contributing to cognitive decline

3 MARCH 2015 | GENEVA – Some 1.1 billion teenagers and young adults are at risk of hearing loss due to the unsafe use of personal audio devices, including smartphones, and exposure to damaging levels of sound at noisy entertainment venues such as nightclubs.



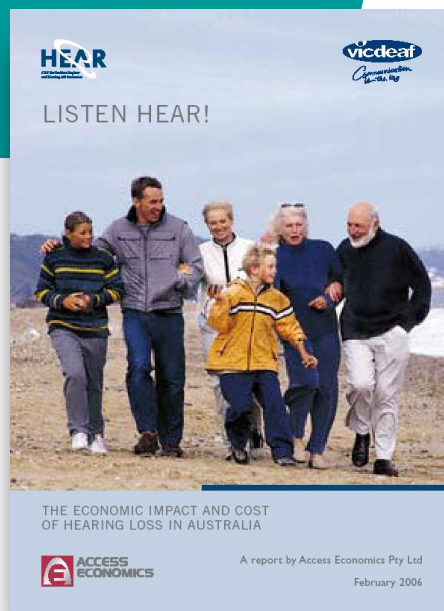


## Hearing Disorder vs Hearing Disability

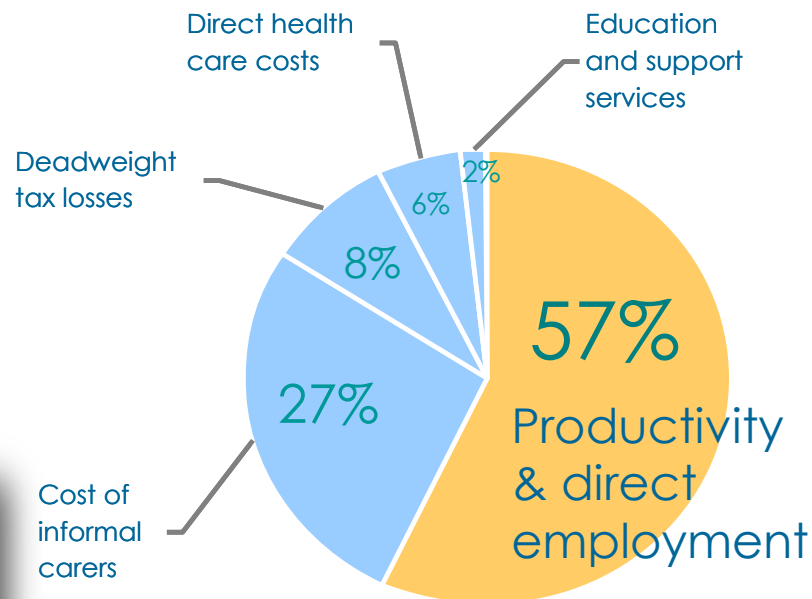
## Impact on Australia

\$11.75bn p.a. financial impact  
 +  
 \$11.30bn p.a. disability & lost well-being impact

\$23.05bn p.a.



## Contributors to financial impact



... hearing loss affects a person's communication, and in turn, this impacts on the ability to participate in society...

Source: "Listen Hear Australia", Access Economics 2006

# Hearing Loss Prevalence by Age

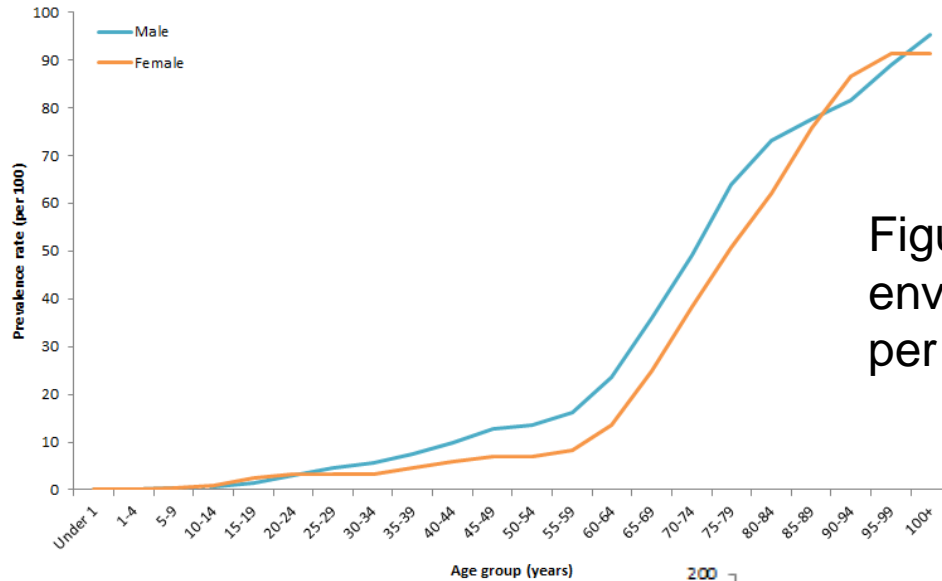
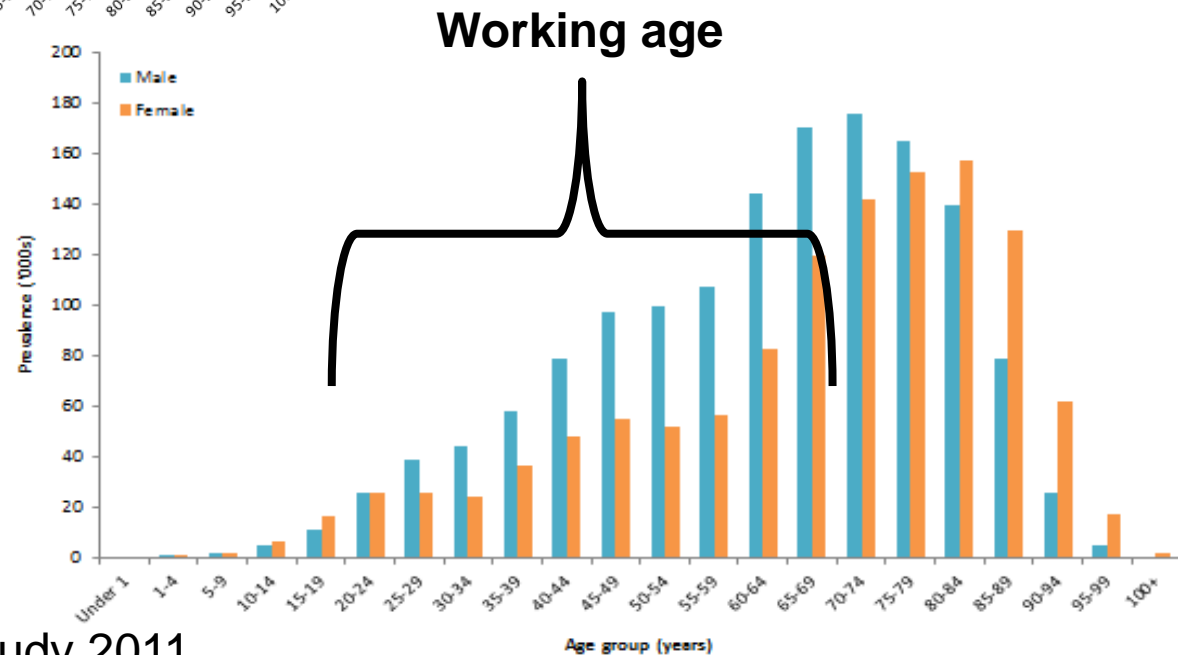


Figure 3: Preliminary hearing loss envelope in Australia, 2011 prevalence rate per 100 (a) and prevalence (b)



# Hearing Loss Prevalence by Age & Degree

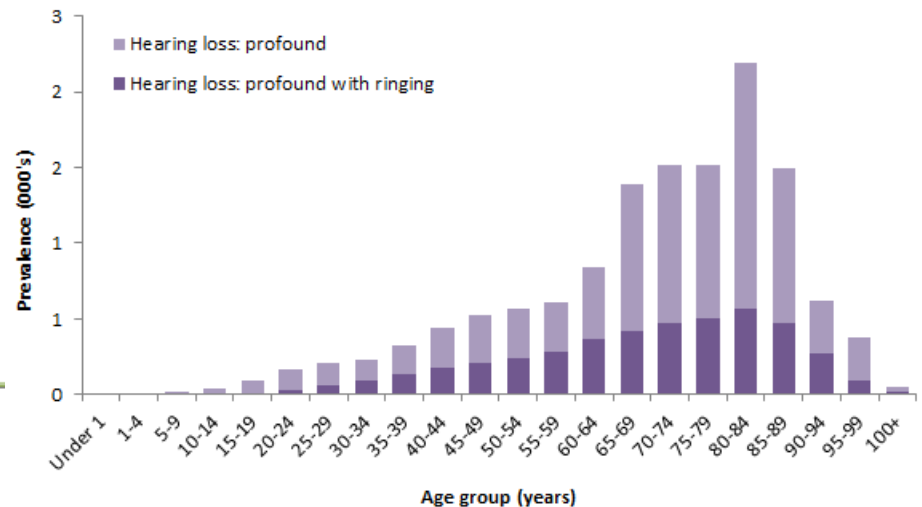
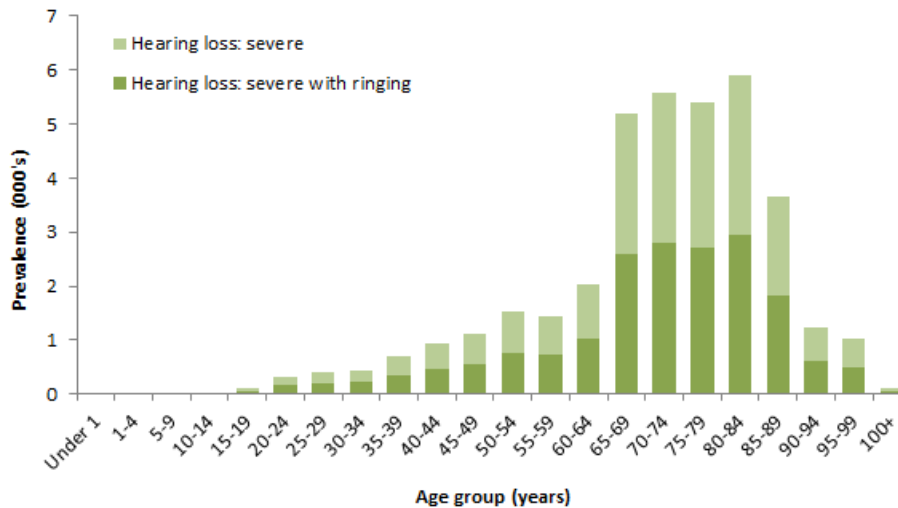
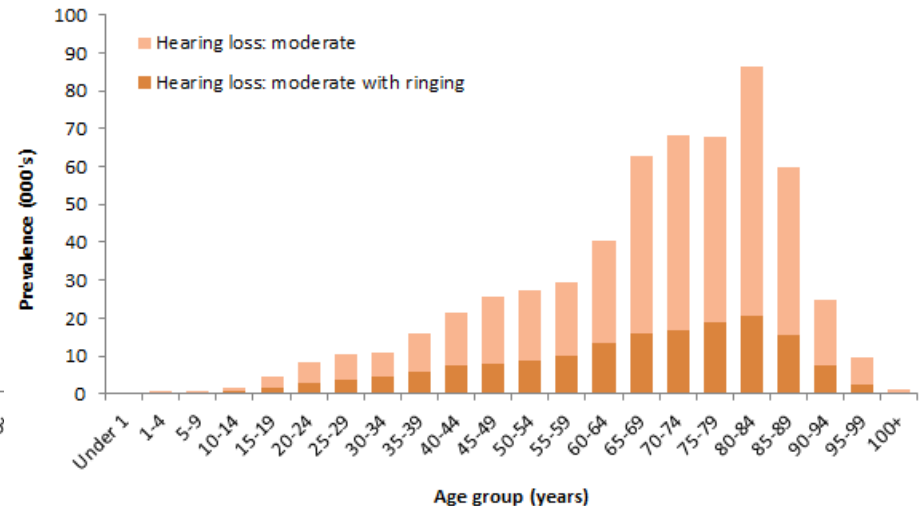
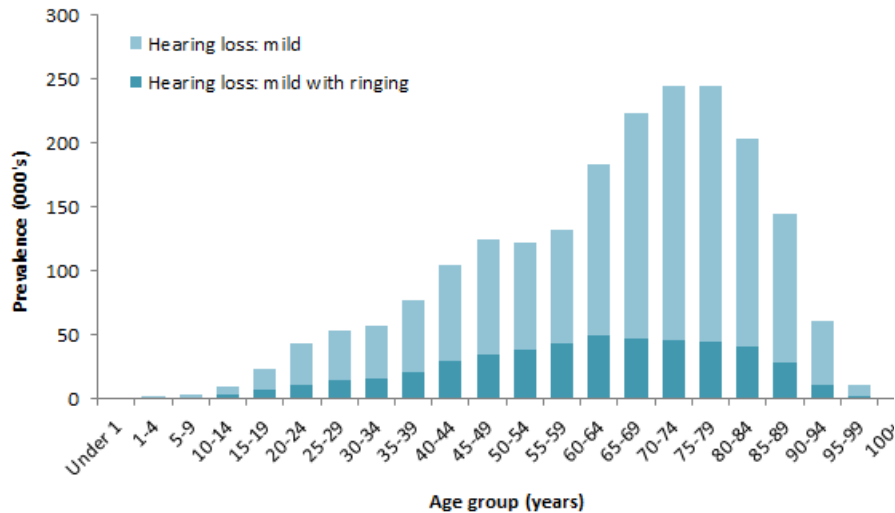


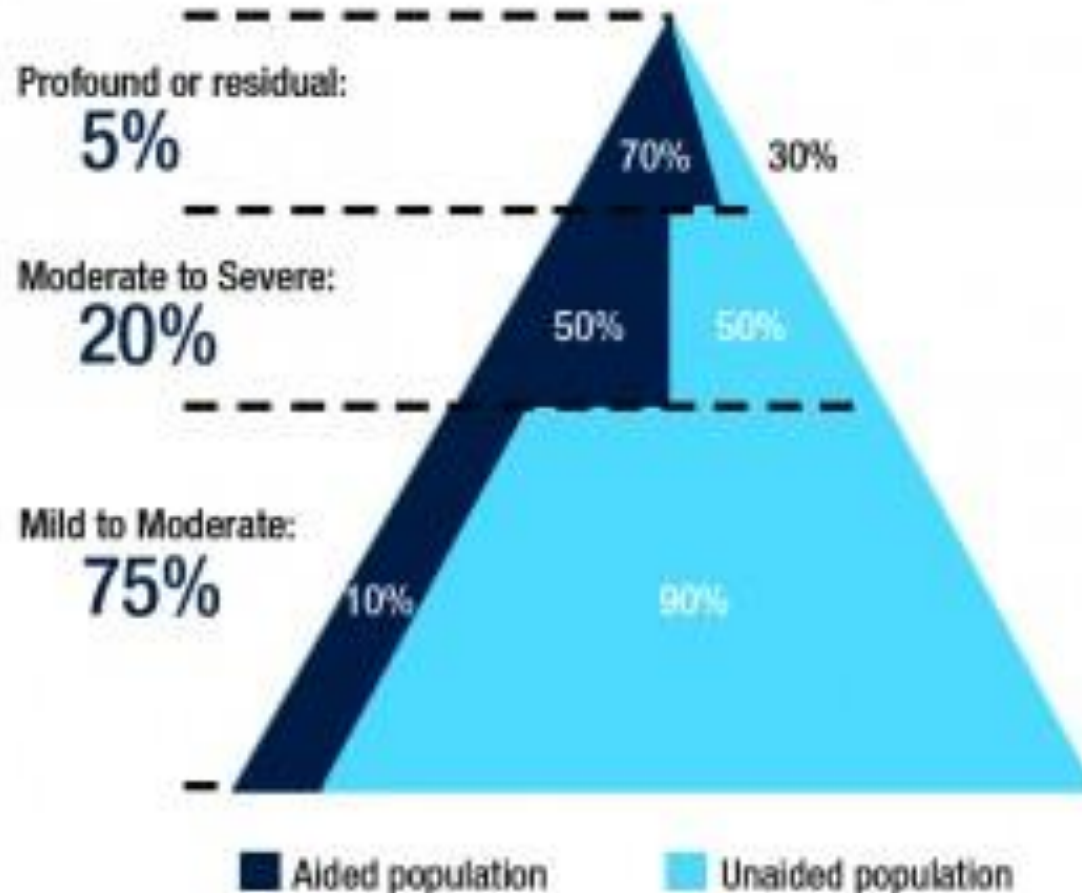
Figure 4: Preliminary hearing loss prevalence estimates by age, severity and with/without tinnitus in Australia, 2011 for mild hearing loss (a), moderate hearing loss (b), severe hearing loss (c) and profound hearing loss (d)

# Australian prevalence and penetration

Estimated percentage treated for people with severe to profound bilateral SNHL in Australia by age group, prevalence, and CI surgeries in 2013

Age Range	Total population	Prevalence 65+ dB HL	CI Surgeries (2013)	% Treated
0-2 years	809,919	151	147	97.6%
3-17 years	4,071,901	1,122	197	17.6%
18-29 years	3,708,434	1,855	86	4.6%
30-49 years	6,278,387	7,516	268	3.6%
50-64 years	4,097,171	17,183	151	0.9%
65-74 years	1,806,843	25,547	337	1.3%
75+ years	1,465,264	71,298	209	0.3%
Total	22,237,919	124,672	1,345	1.1%

# Hearing Aid Service Penetration



- (ASHA 2012 – 29 million hearing-impaired adults in USA not in hearing-care process, [www.asha.org/aud/articles](http://www.asha.org/aud/articles))

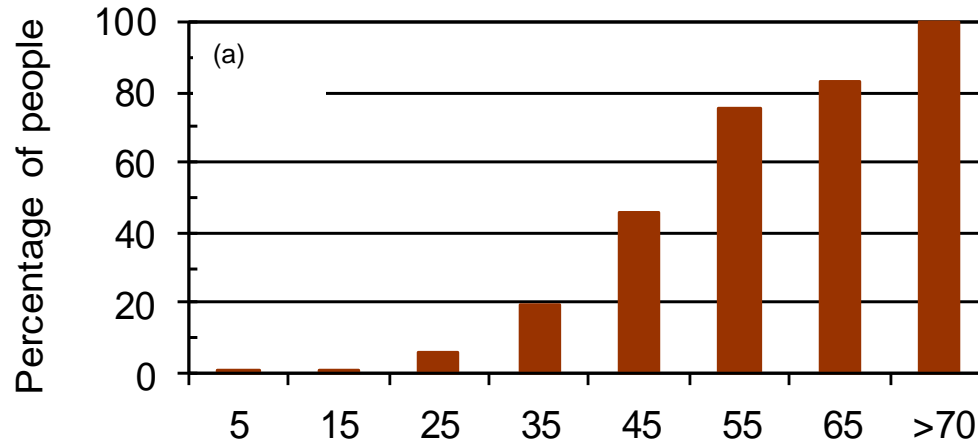


# Aid ownership and Usage by Hearing Loss

*Ownership*  

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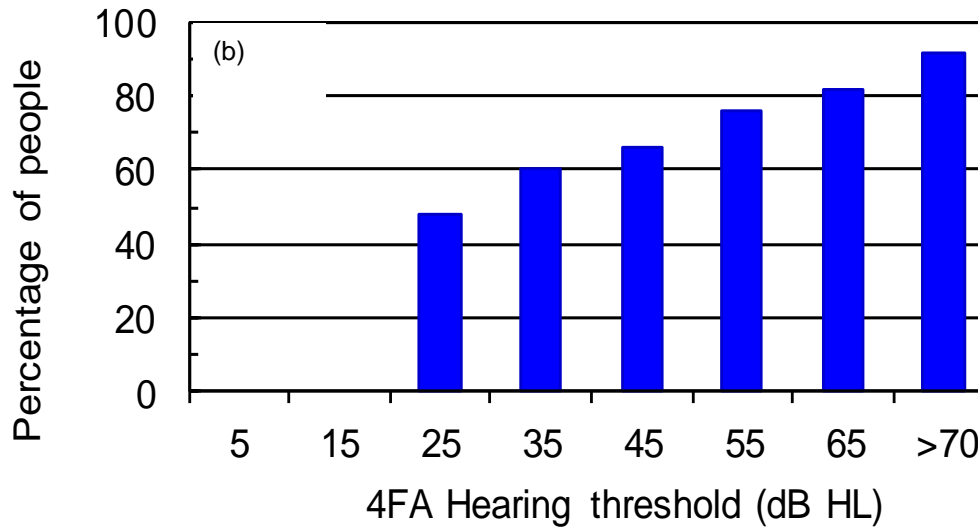
*Population*



*Use*  

---

*Ownership*



**Figure 9.2** Part (a) shows the proportion of a population who have obtained hearing aids, by degree of hearing loss in the better ear. Part (b) shows those people who use their hearing aids as a proportion of those who have obtained hearing aids. The data are from a population survey of people over the age of 50 years in the Blue Mountains region of Australia (Hartley et al., 2010).

# Productivity Loss ~ 57% of Total

People in paid work aged 45-64 years

Source: "Listen Hear Australia", Access Economics 2006

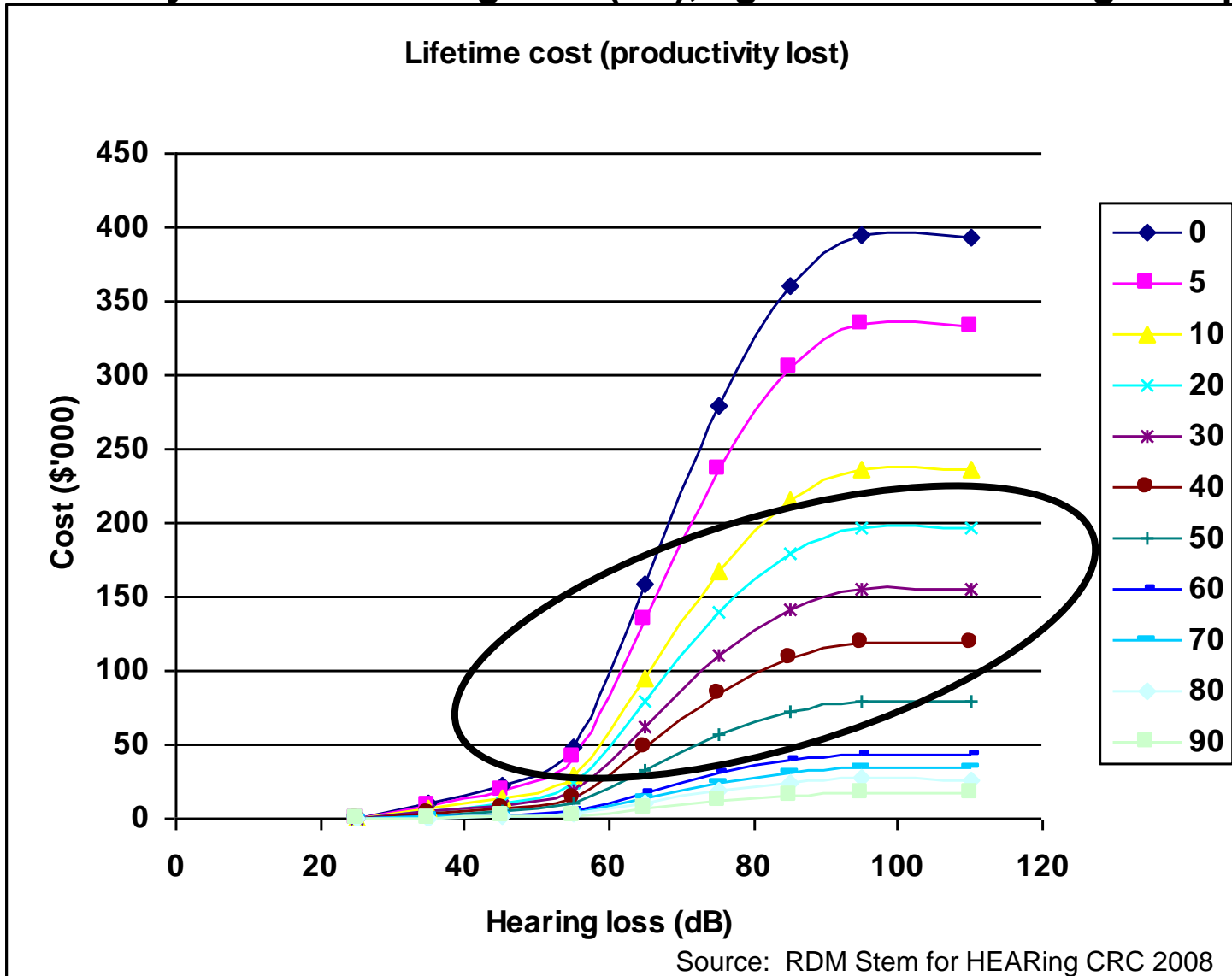
	Hearing Status	In Paid Work	Not in Paid Work
Male	Hearing Loss	47.4	52.6
	Normal hearing	67.9	32.1
Female	Hearing Loss	30.2	69.8
	Normal Hearing	46.7	53.3

Source: South Australian Health Omnibus Data Males  $\chi^2(1) = 13.1$   $p < 0.001$ ; Females  $\chi^2(1) = 5.04$   $p < .025$

- \$6.7 billion pa lost earnings and 158,876 people not employed due to hearing loss

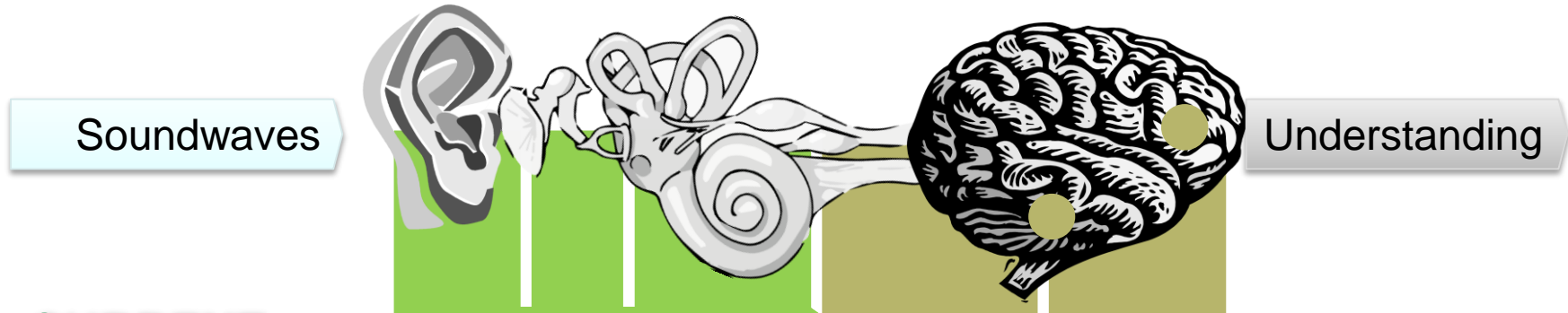
# Productivity Loss ~ All Ages

Lifetime cost by level of hearing loss (dB), age at which hearing is impaired



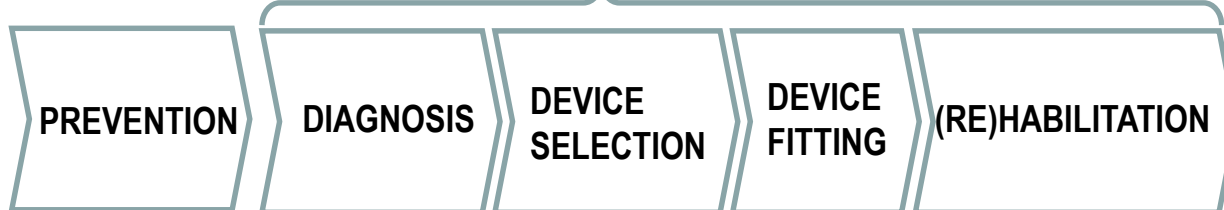
# Treating Hearing Disorders

“Clinician-centric” treatment of sensory issues



## CURRENT MODEL

CLINICIAN-DRIVEN      SENSORY ISSUE FOCUSED

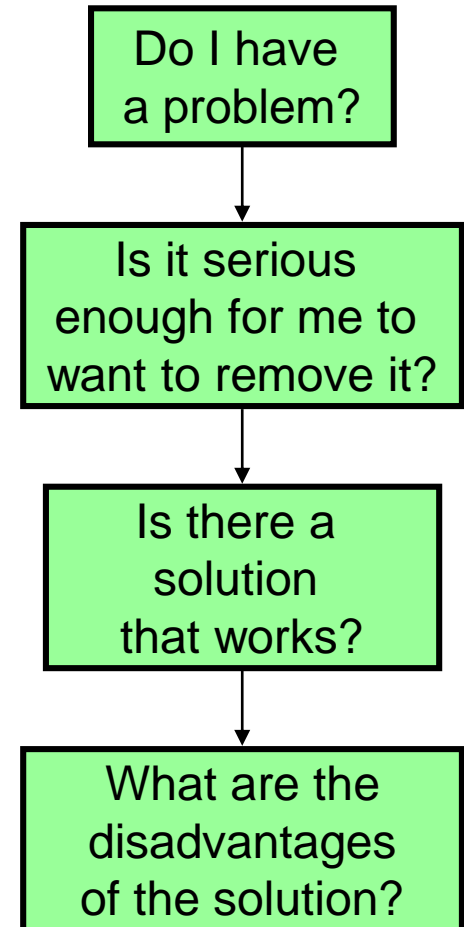
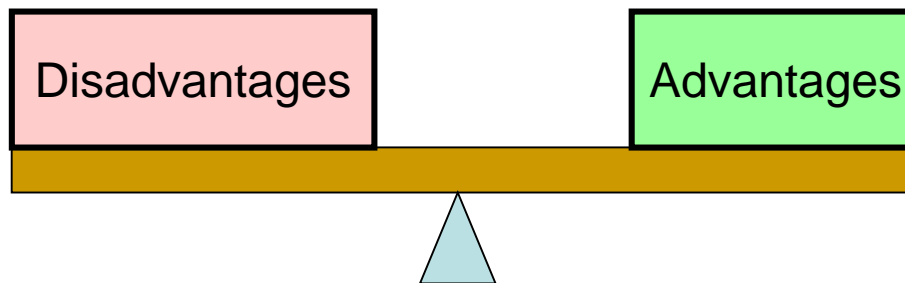


# Health Belief Model

“My hearing loss is not bad enough to need them” (Kochkin, 1993)

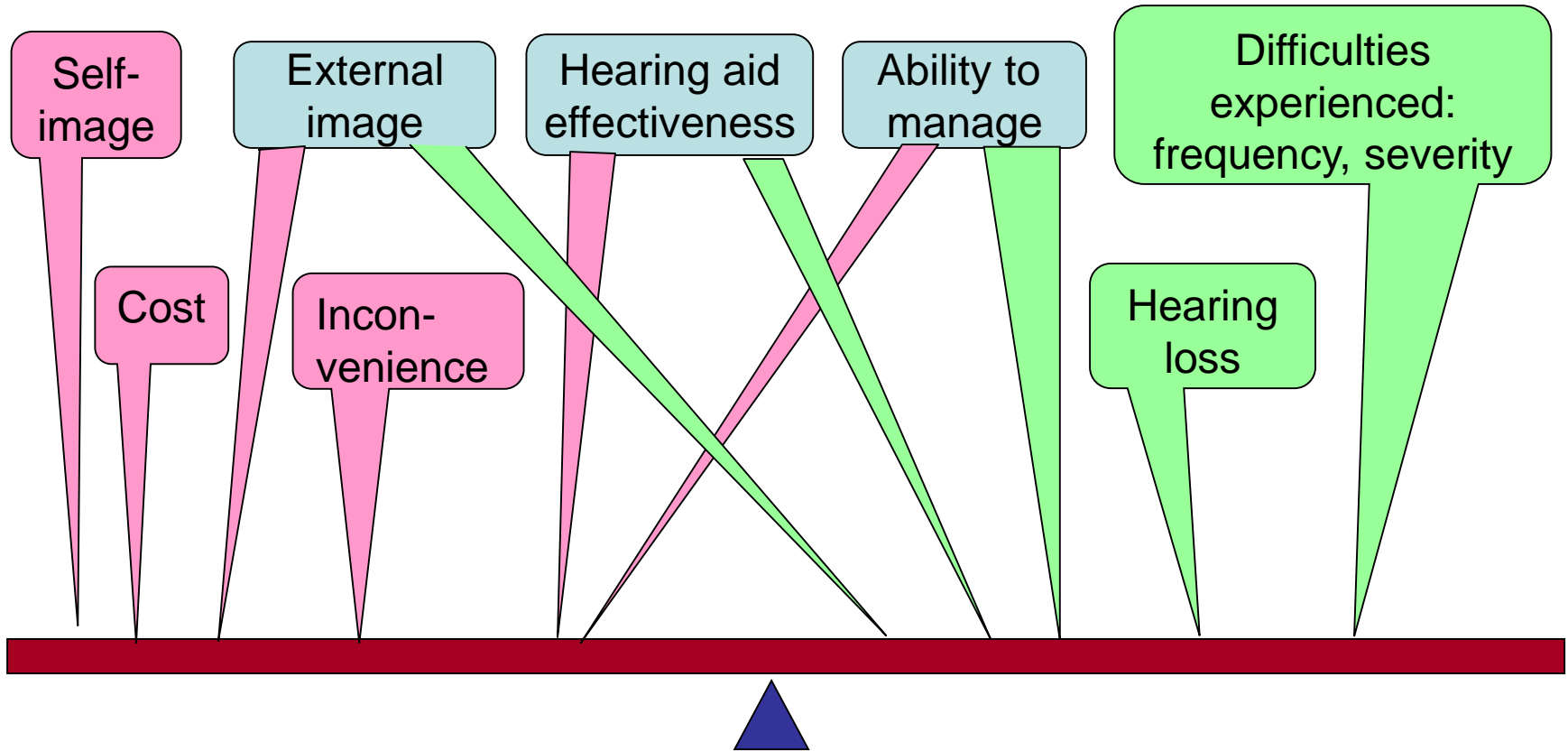
People act rationally, in their best interests, based on their beliefs

Weighing up of beliefs for and against a health decision



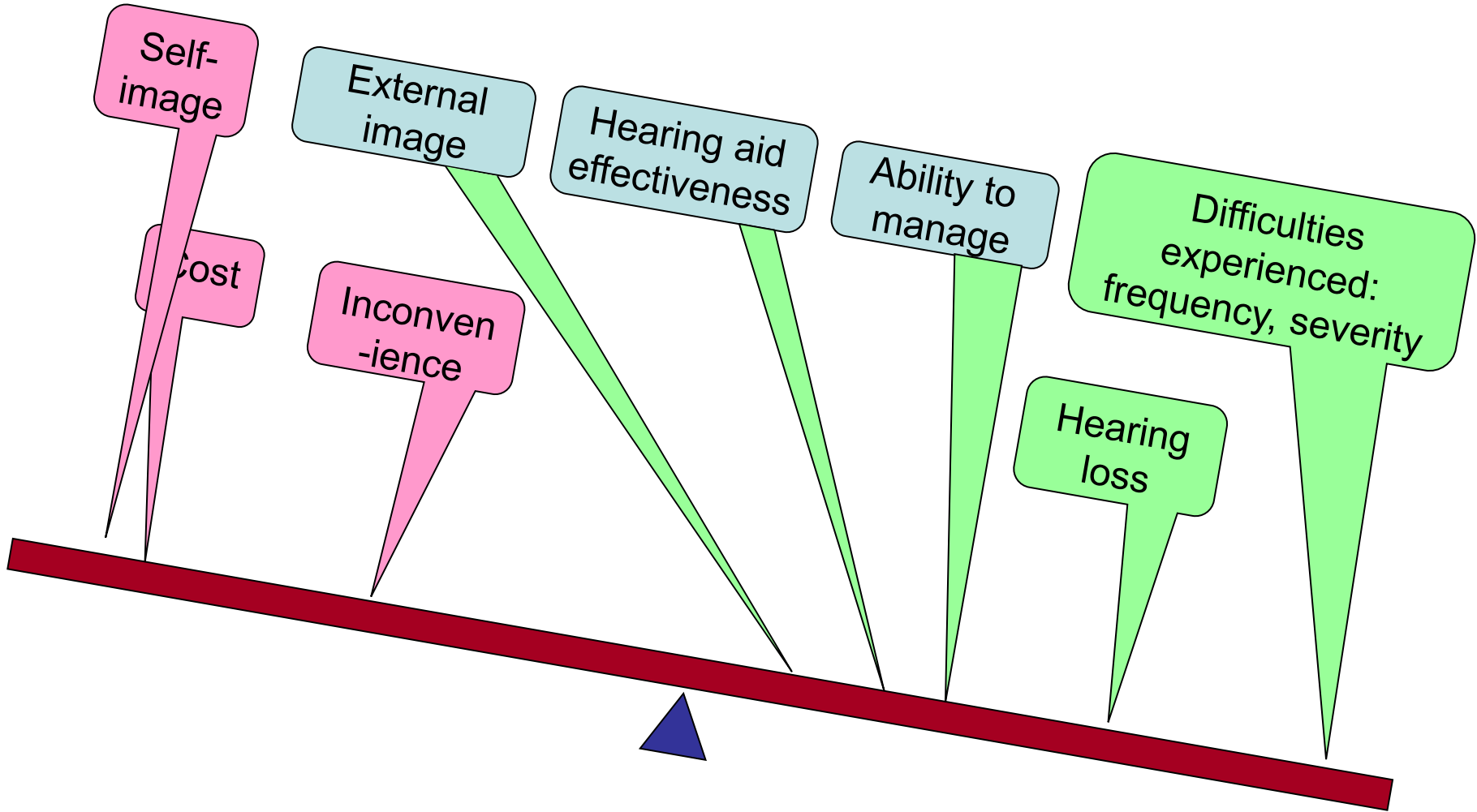
Source: Dillon, Hearing Aids 2012

# Health Belief Model



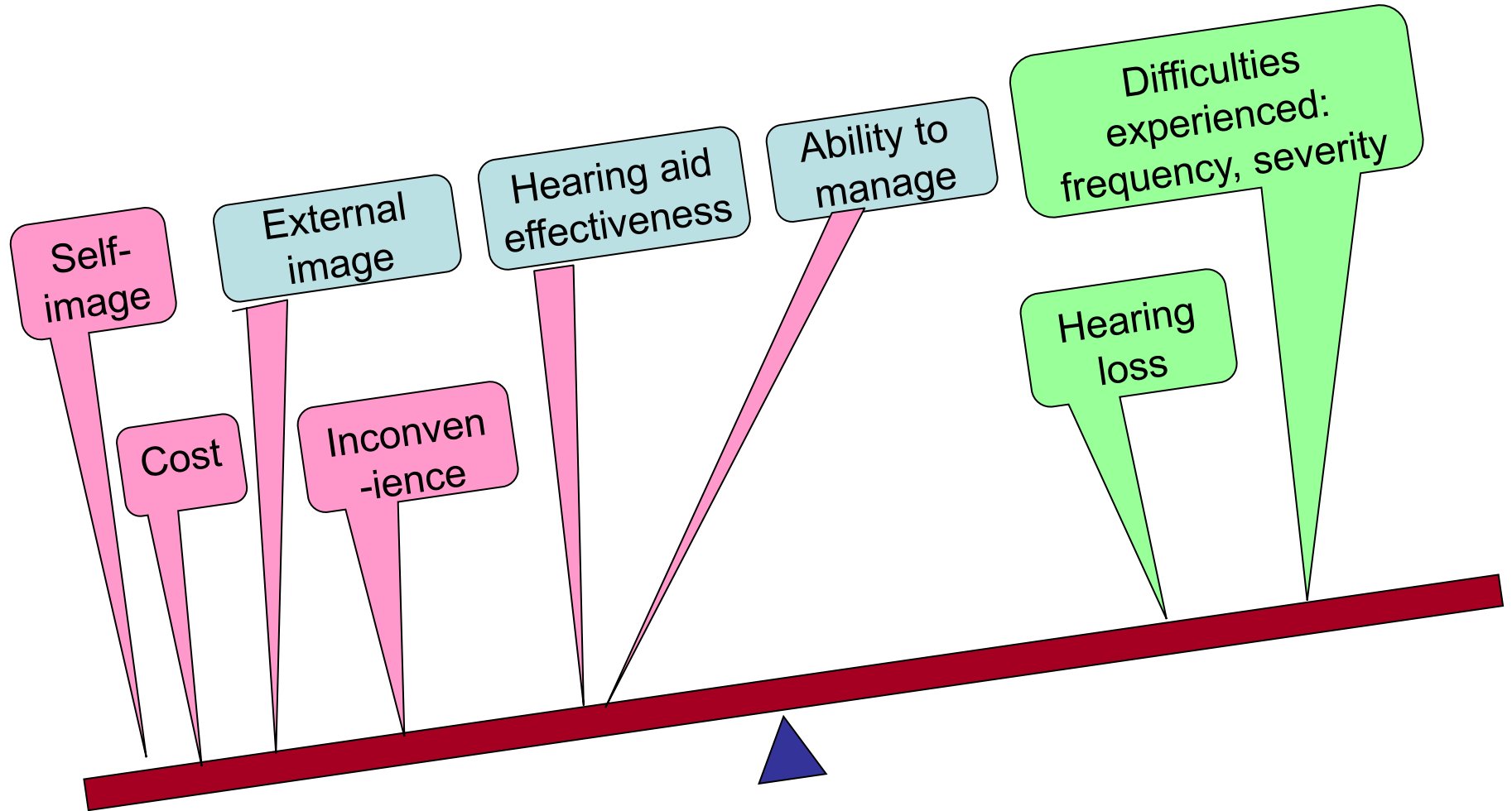
Source: Dillon, Hearing Aids 2012

# Health Belief Model



Source: Dillon, Hearing Aids 2012

# Health Belief Model

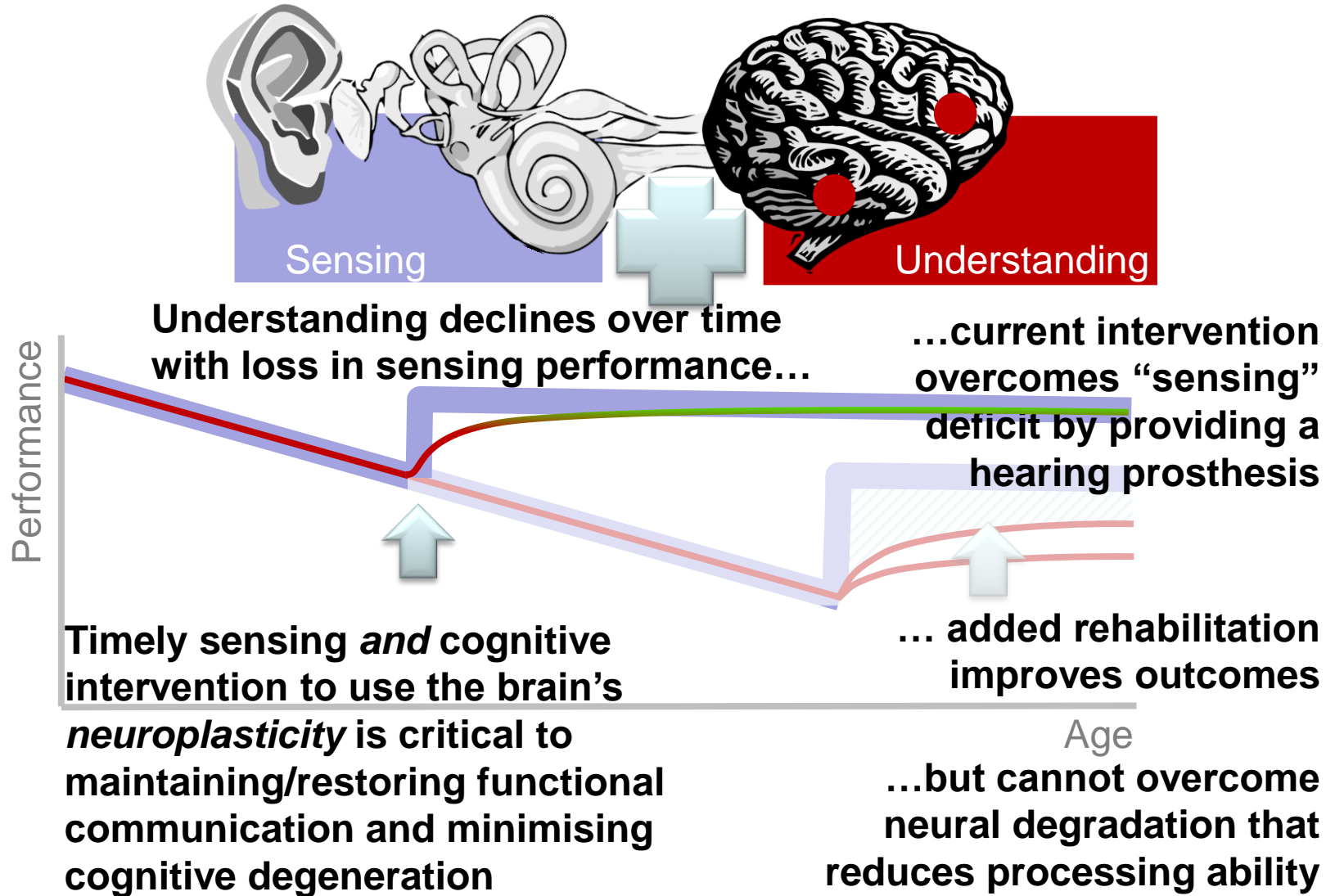


Source: Dillon, Hearing Aids 2012



# Preventing Hearing Disability

The need for integrated intervention

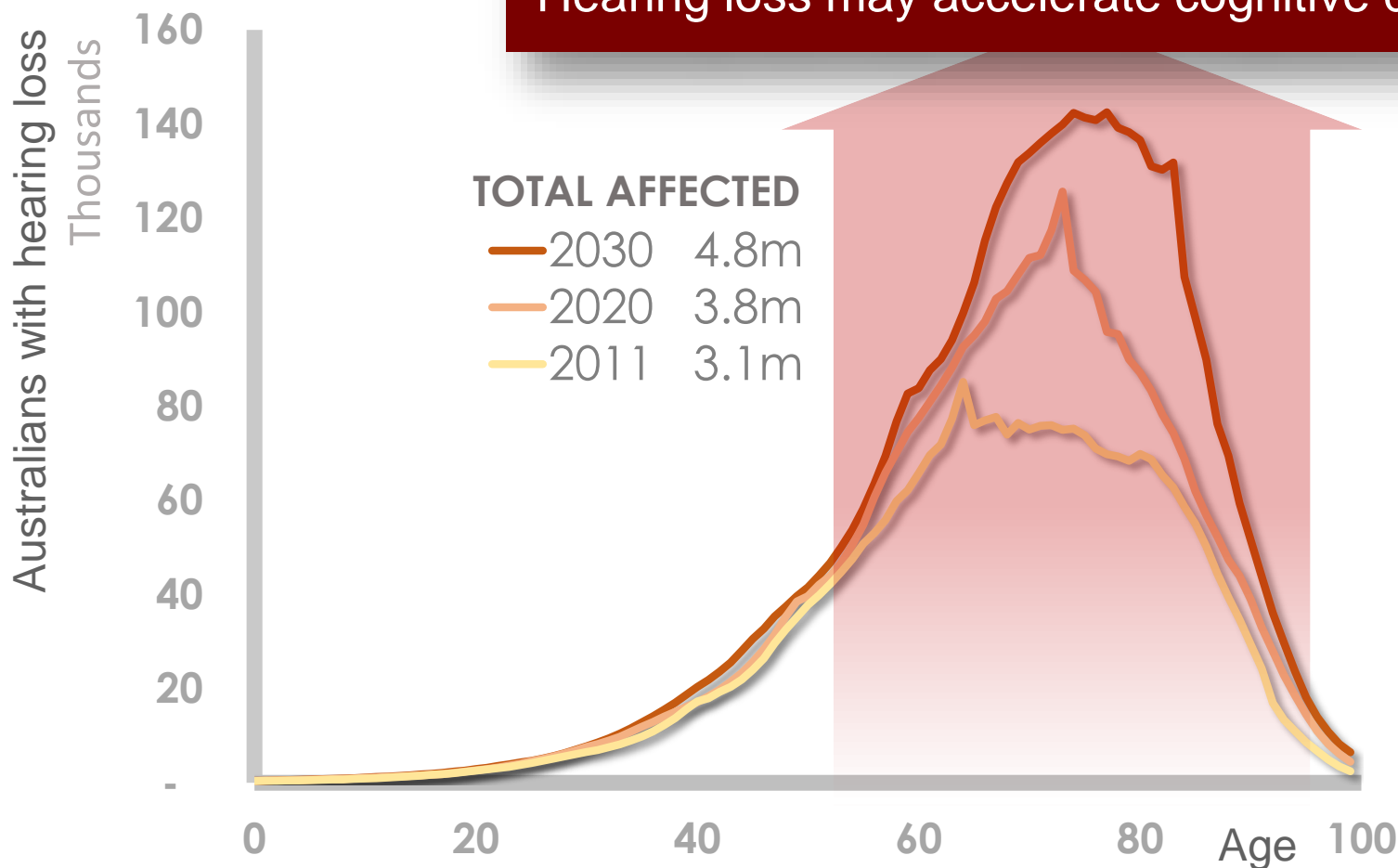


# Hearing Disability – the “Boomers”

A future epidemic

>88% increase in numbers of people over 65 with hearing loss over the next 20 years

Hearing loss may accelerate cognitive decline



1. Focus on earlier intervention for less sensory degradation
2. Personalised disability service delivery model based on assessed needs
3. New technologies that address performance, ease of use, and utilise connectivity
4. Gamifying hearing healthcare treatment tracking to enable greater patient participation
5. Empowered patients as partners in client-centred care that focuses on preparedness to accept services
6. Telemedicine & remote care, including diagnosis, fitting and rehabilitative solutions via AI based on connectivity