

# **Newborn Hearing Screening and Early Intervention The situation in Australia**

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Cochlear - Central and Eastern Europe

Olomouc, CZECH REPUBLIC October 2012

*Hear now. And always*



One implant surgery.  
Five upgrades.  
Unlimited possibilities.

With my cochlear  
implant, I was  
able to happily  
attend mainstream  
school and  
successfully achieve  
my own personal  
and career goals.

- Holly McDonnell,  
recipient for 24 years



Cochlear™

Hear now. And always

# Hearing loss is growing (2010)

## Prevalence:

- 16% of adults have HL
- 71million adults (18-80yrs)
- HL > 25dB
- In EU alone, 55million adults
- In US 1in 10 have HL > 25dB
- Australia 16.6%

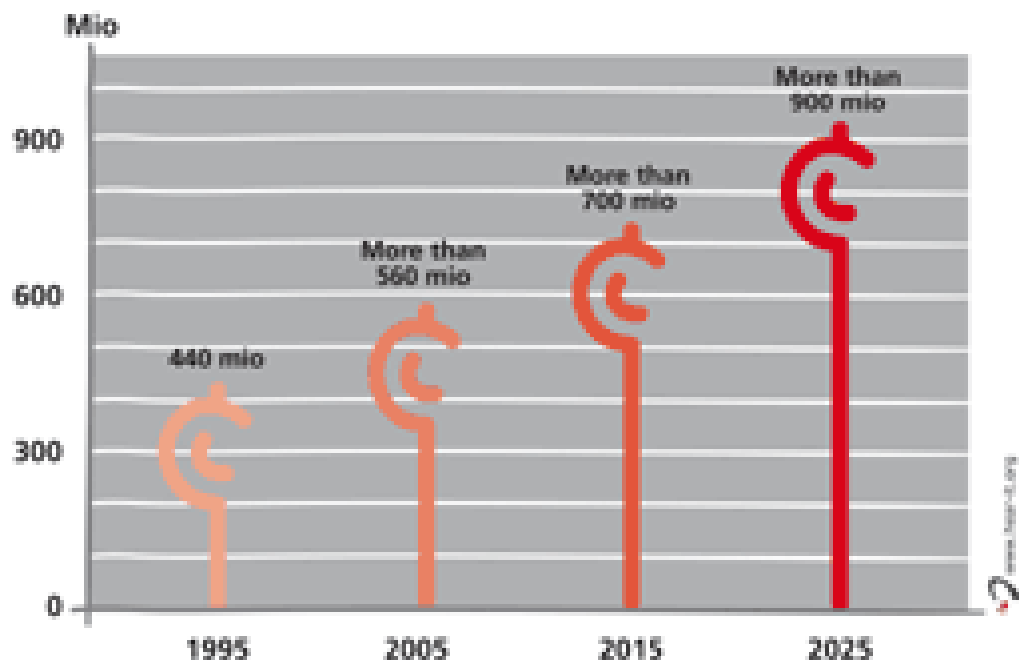
Ref: Hear It Report. Oct 2006

China 3/1000. 20million births/yr

60,000 born HL/yr.

India 11.9%

Number of people suffering from hearing loss of more than 25 dB



Source: Adrian Davis, British MRC Institute of Hearing Research

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# UNHS: 1-3-6

1. That all newborns have their hearing screened before **1 month of age**, preferably before discharge
2. That there is a definite diagnosis of hearing impairment before **3 months of age**.
3. Early intervention services begin before **6 months of age**



JCIH 2007 Position Statement (US)

# UNHS: 1-3-6

4. Coverage no less than 95% within 6 months of program start
5. Refer rate of 4% or less



# UNHS: 1-3-6 - 12

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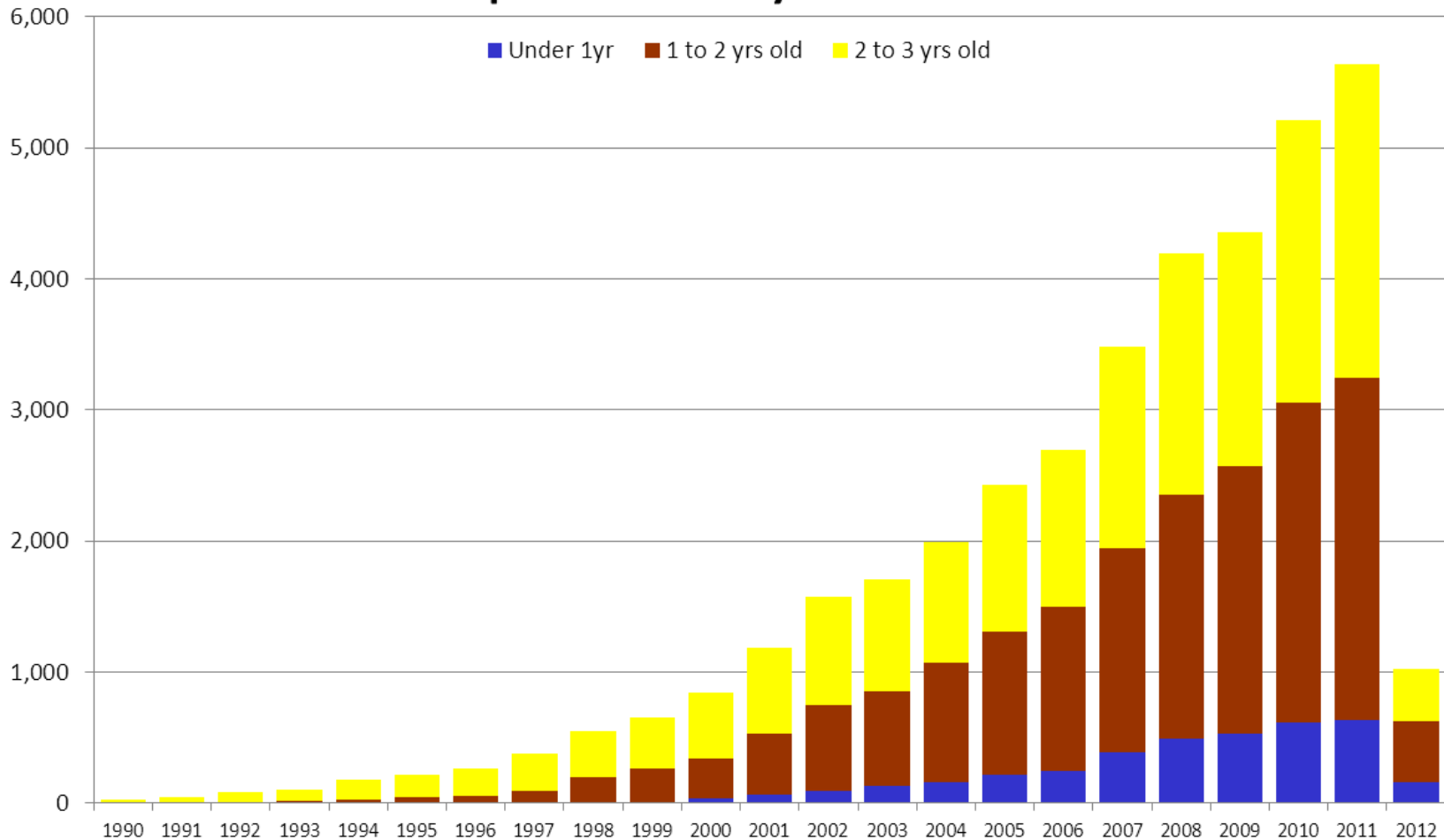
JCIH 2007 Position Statement (US)

- 4. That all newborns who need a cochlear implant will have one by 12 months of age**



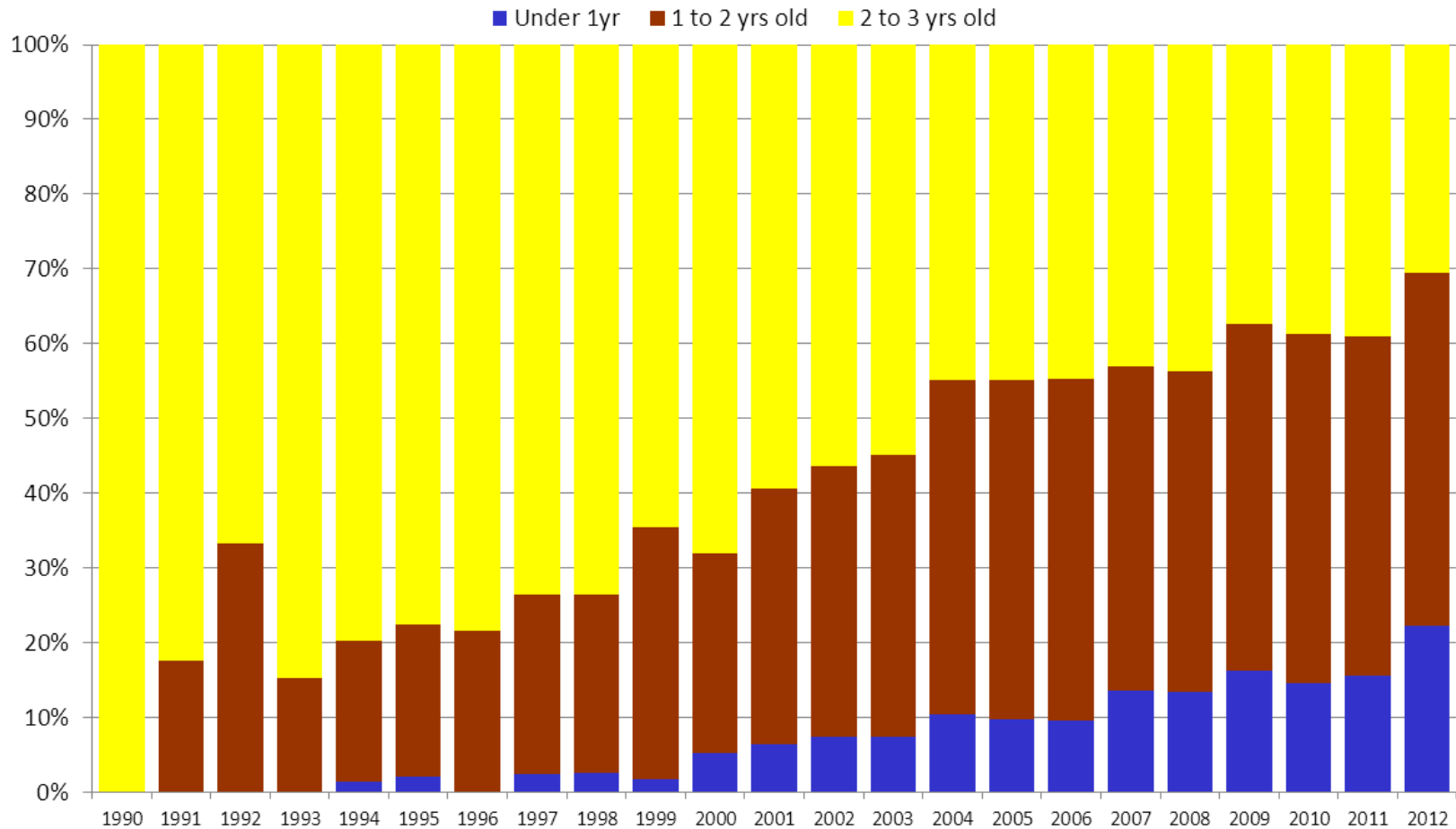
# Recipients under 3 years old - Global

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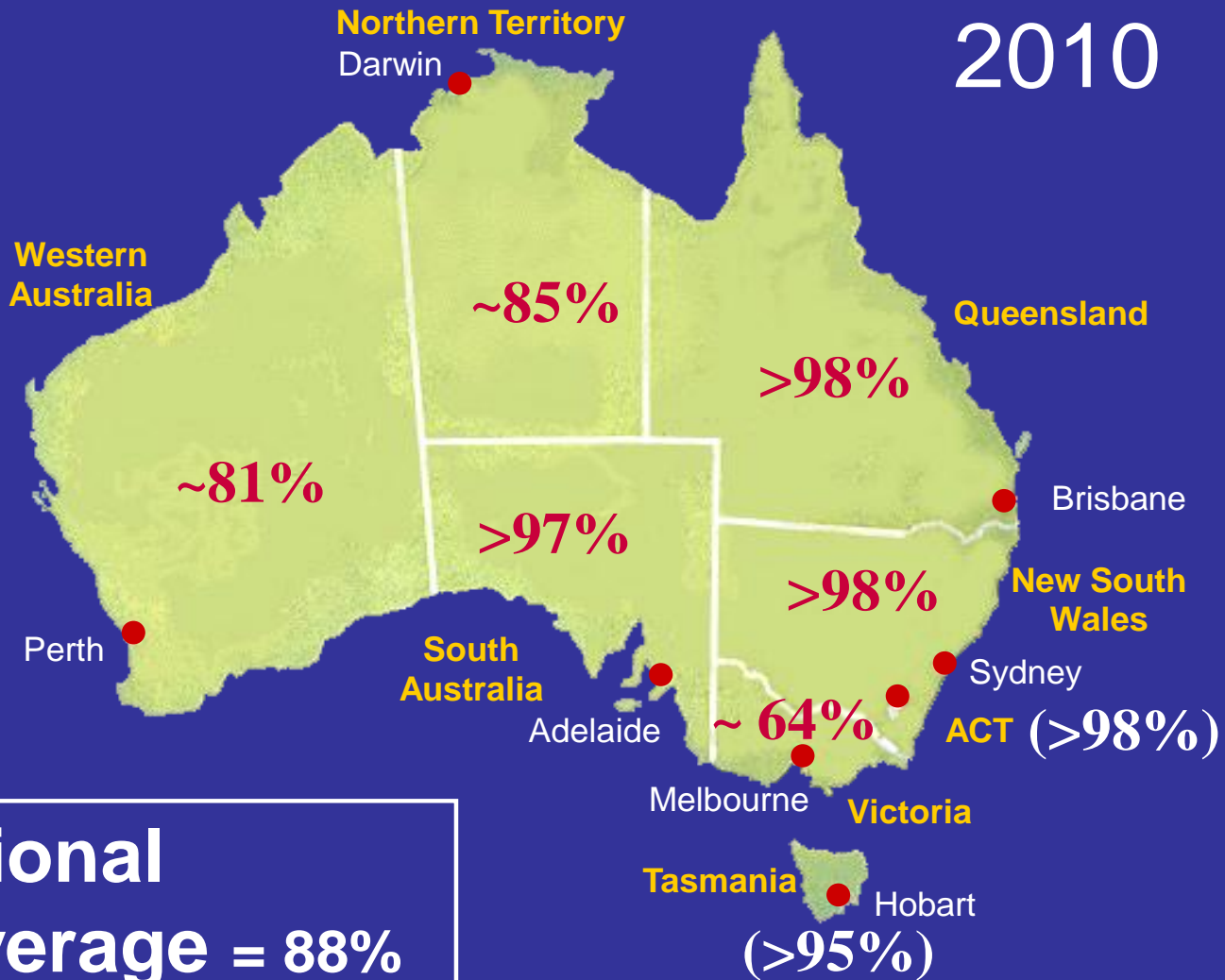
# Recipients under 3 years old - Europe

## Recipients under 3yrs old - Europe





# Status of UNHS in Australia



**National Coverage = 88%**

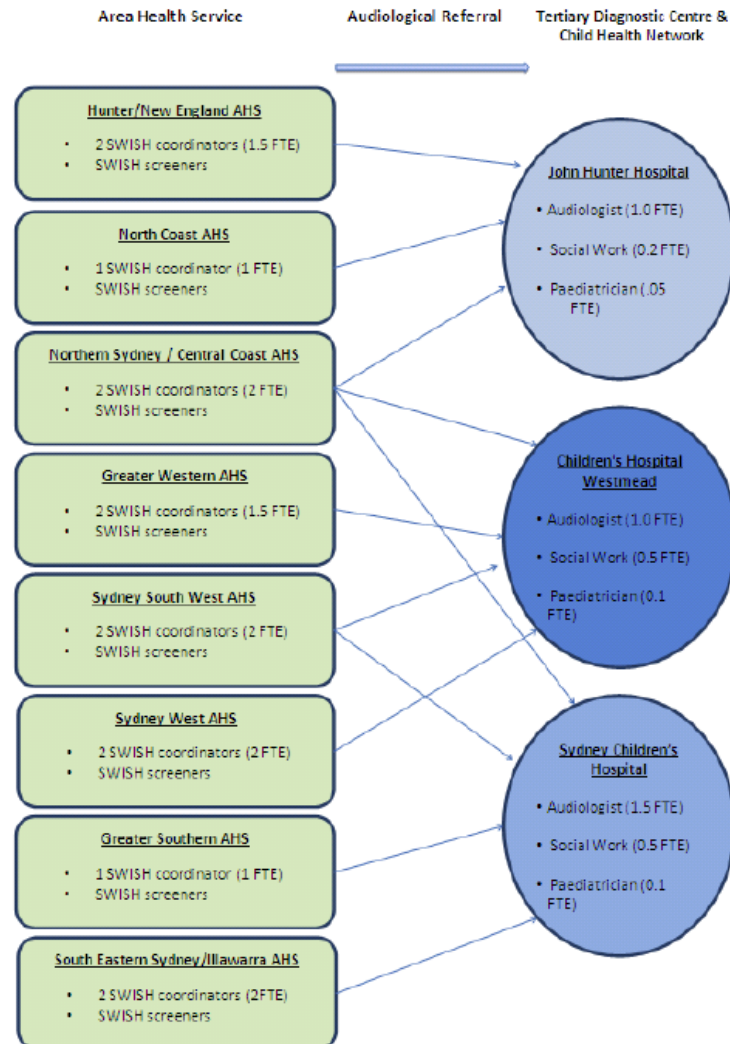
# NSW Department of Health- Evaluation of the State-wide Infant Screening – Hearing (SWISH) Program

Final Report - 2009

# NSW SWISH Program

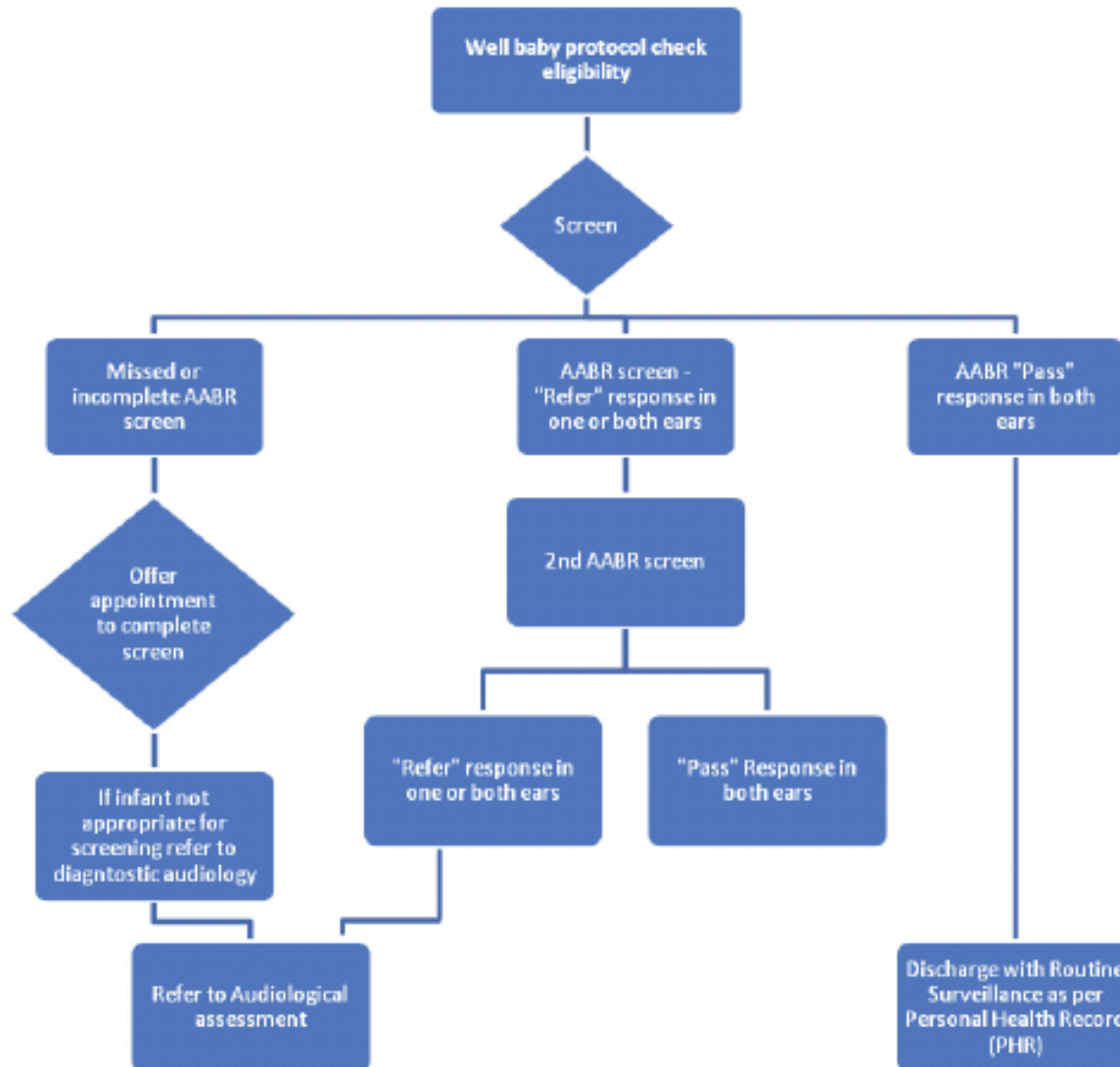
NSW Department of Health  
Evaluation of the SWISH Program

Figure 2.3: NSW Health SWISH Program



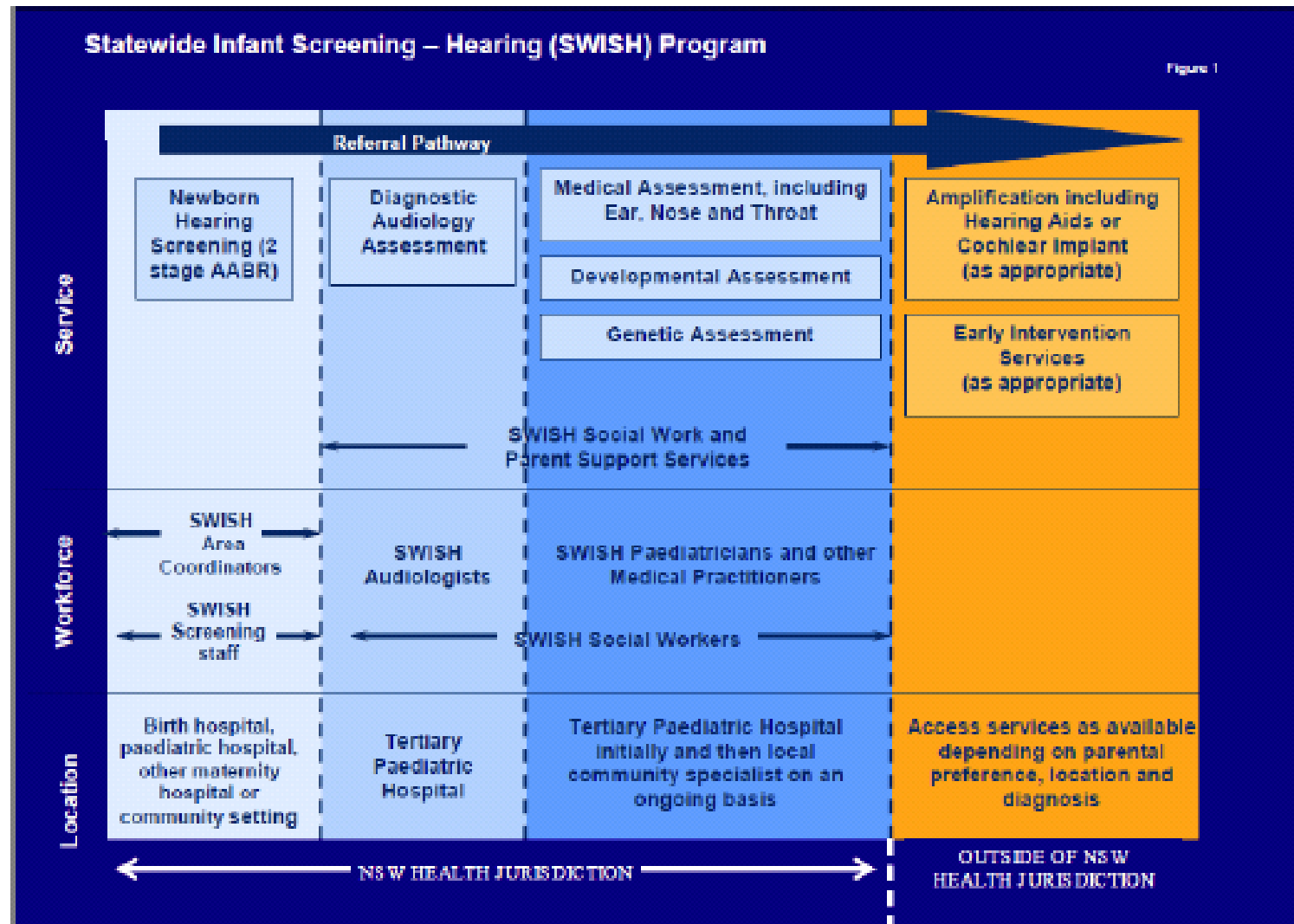
# Well Baby Screening Pathway

Figure 2.5: Well Baby Screening Pathway



# SWISH Referral Pathway

Figure 2.6: SWISH Referral Pathway



# SUMMARY – against international benchmarks

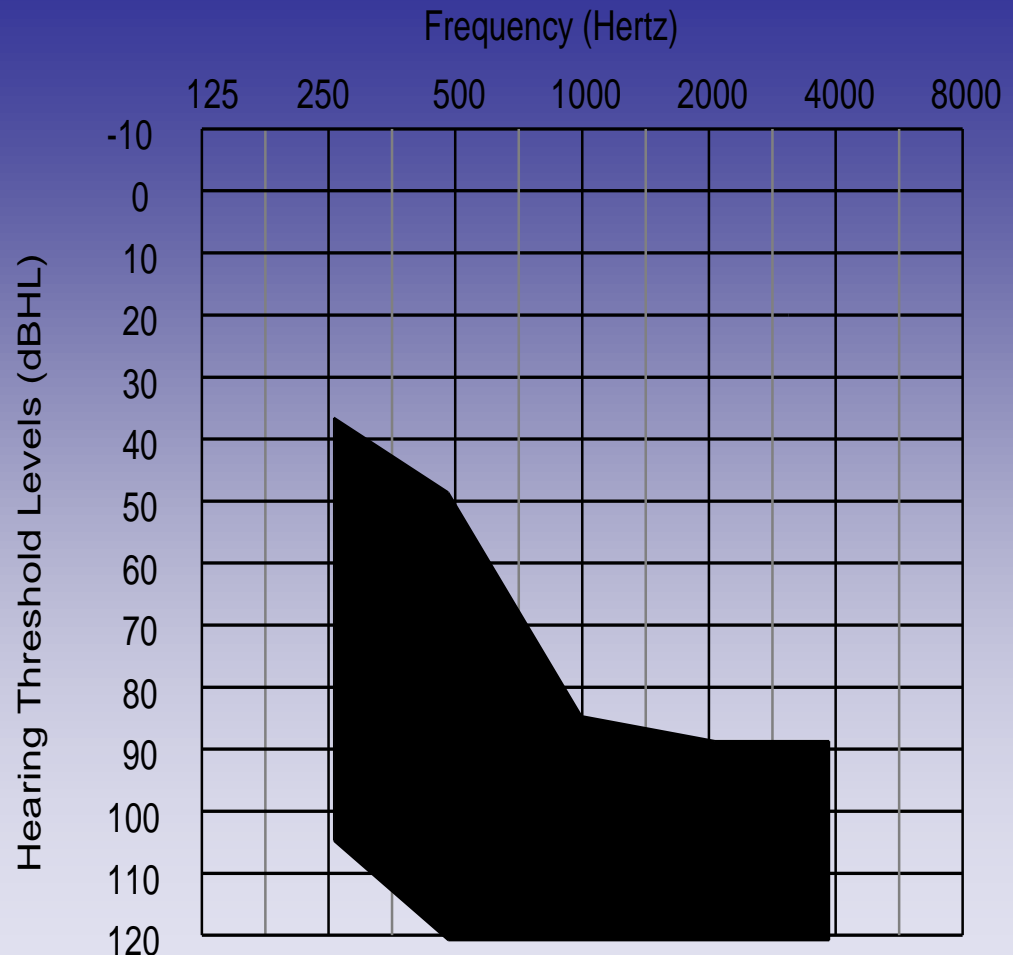
With respect to the performance of the SWISH program against international benchmarks the following can be concluded:

- The program has been highly effective in achieving and exceeding the benchmark of screening greater than 95% of the total number of live births. All AHSs are consistently screening 98% or more of live births in their area.
- There is evidence of good follow up with over 98% of children who require a second screen receiving one.
- Less than 4% of babies being screened are being sent to audiology. The model is therefore effectively funnelling a small number of babies who require diagnostic assessment.
- The program has identified significant permanent bilateral hearing loss (>40dB) at a rate of about 1 per thousand since the beginning of the program which is in line with international programs of similar nature.
- The deidentified aggregated data maintained by the Department indicates that more than 99 % of babies are screened. SWISH Coordinators maintain databases of personal client records which they monitor to ensure timeliness of screening (within one month of age) and referral.

# Early Intervention In Australia

# Current Australian Cochlear Implant Candidacy Guideline Criteria

Unaided hearing



- Moderate-severe sensorineural hearing loss in the low-mid frequencies (*and poor speech scores*)
- Severe-profound sensorineural hearing loss in the mid-high frequencies



**FIRST VOICE**

**Six Centre Alliance in Australia  
and New Zealand**

*Hear now. And always*



# firstvoice

CONFIDENTIAL

THE FUTURE IS HEAR

## A Nation Wide Review

### Early Intervention and Cochlear Implant Access, Timing and Services



**Presentation to Cochlear Ltd, July 2011**

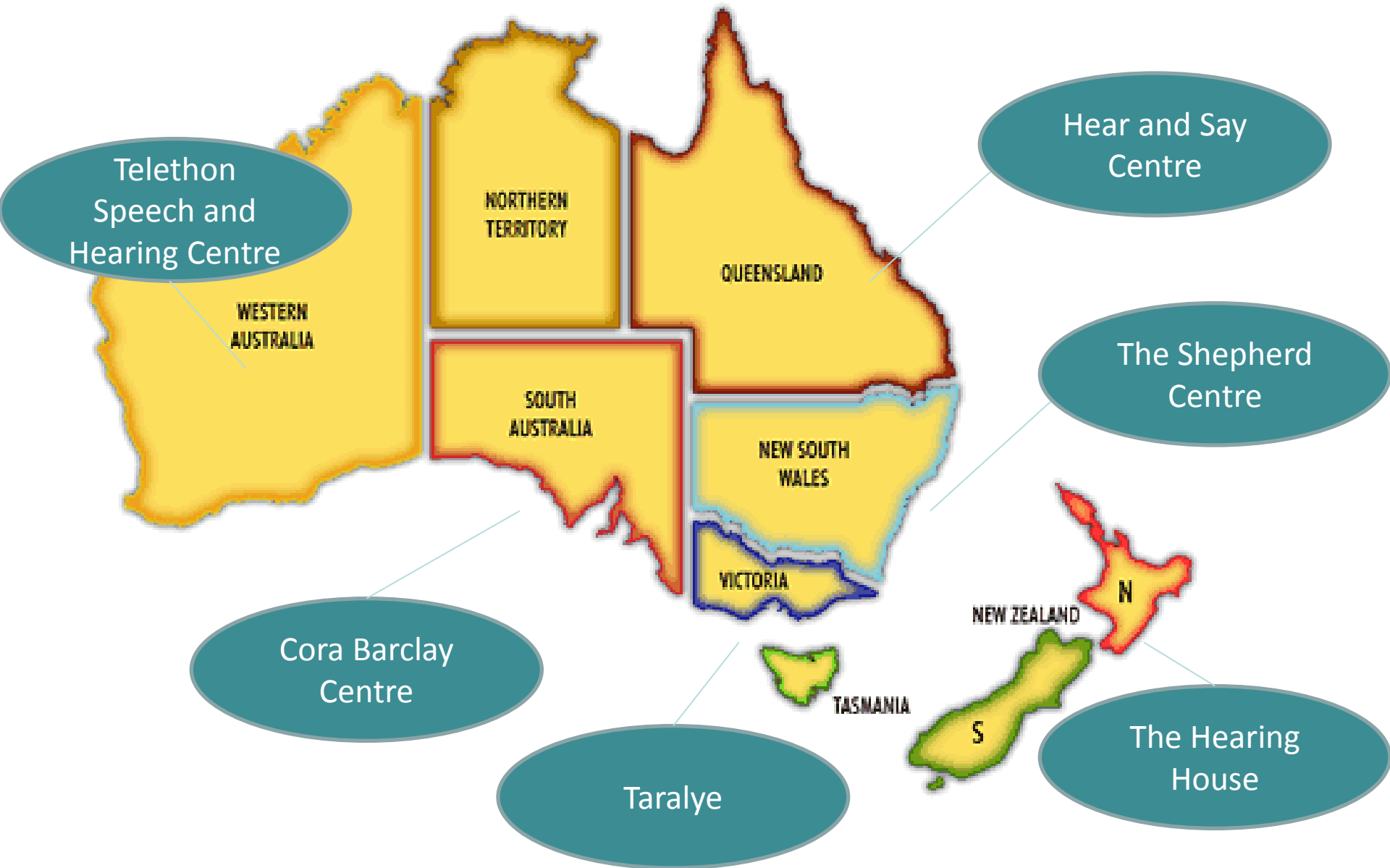
Aleisha Davis, Cheryl Dickson, Ellen Panjari,  
Robyn Philips, Emma Rushbrooke, Wendy Tunbridge

# First Voice

**CONFIDENTIAL**

- National voice for member organisations
- **Early Intervention services for children with hearing loss to develop listening and spoken language**
- Across Australia and NZ
- Evolved from The Alliance for Deaf Children (formed in 2002/3) and the 6 centre Alliance
- **Market share** ranging from 24% to 70% of EI children dependant upon states and other services.
- 36 SLP's, 32 Teachers of the Deaf, 21 paediatric audiologists, 7 social work/child and family counsellors, 8 psychologists, 3 OT's, 17 ENT specialists & 5 cochlear implant programs
- Of these, 31 LSLS Cert AVT's of 52 currently in Australia and NZ

# The centres

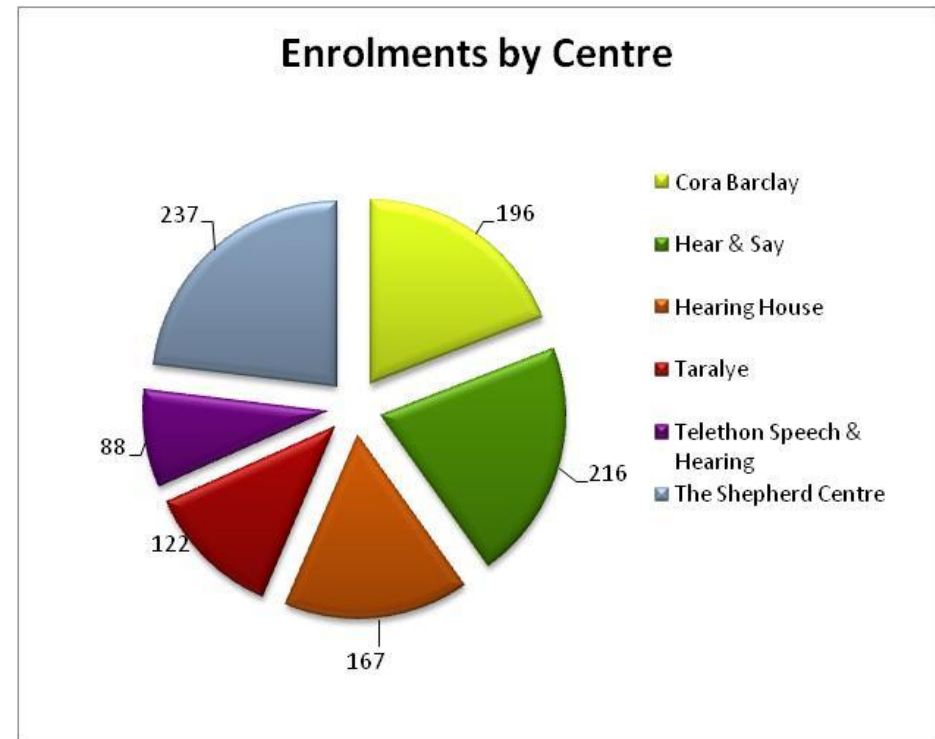




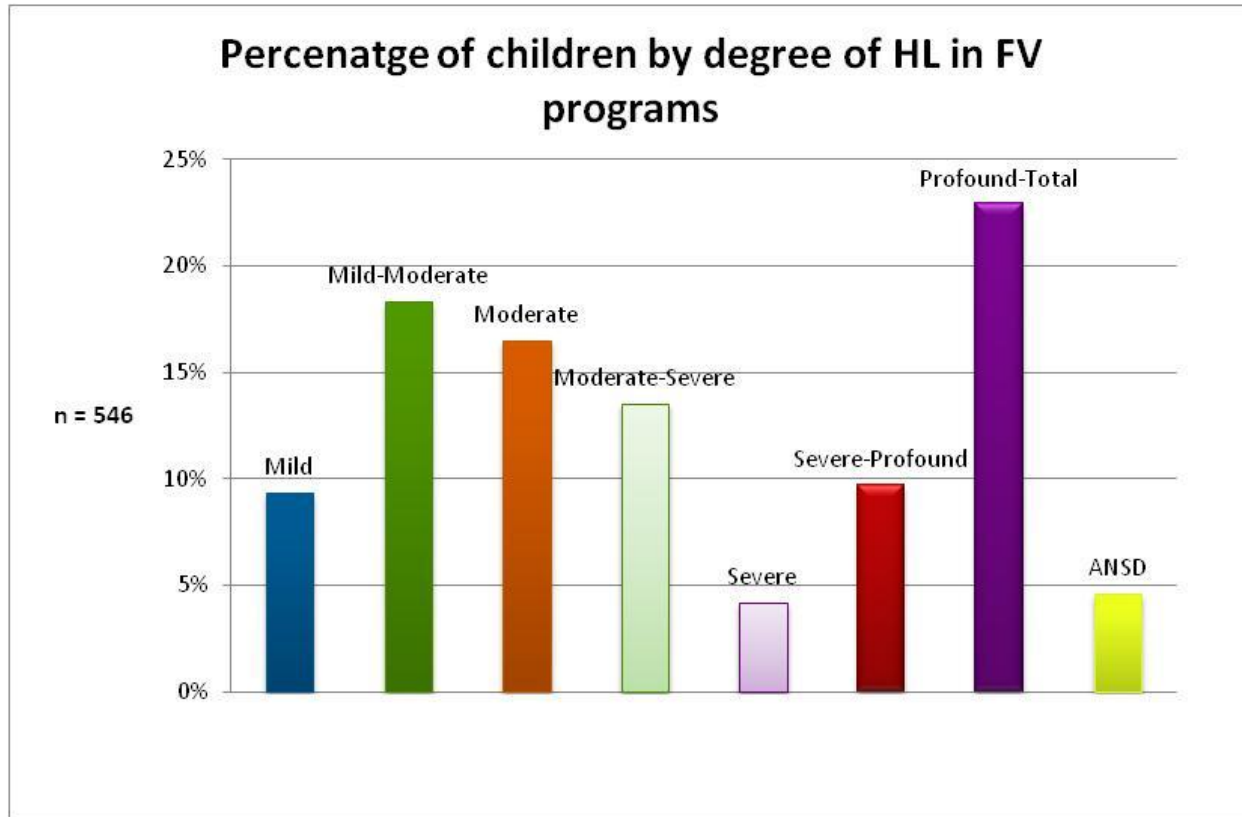
First Voice was officially launched by the Governor General, Ms Quentin Bryce AC,  
**7 October 2010.**

# Child Numbers across FV programs

- Total enrolments = 1,026
- Early Intervention = 2/3rds of this number (n=650)
- Remainder = school age CI (n= 376)



# Distribution of Hearing Loss

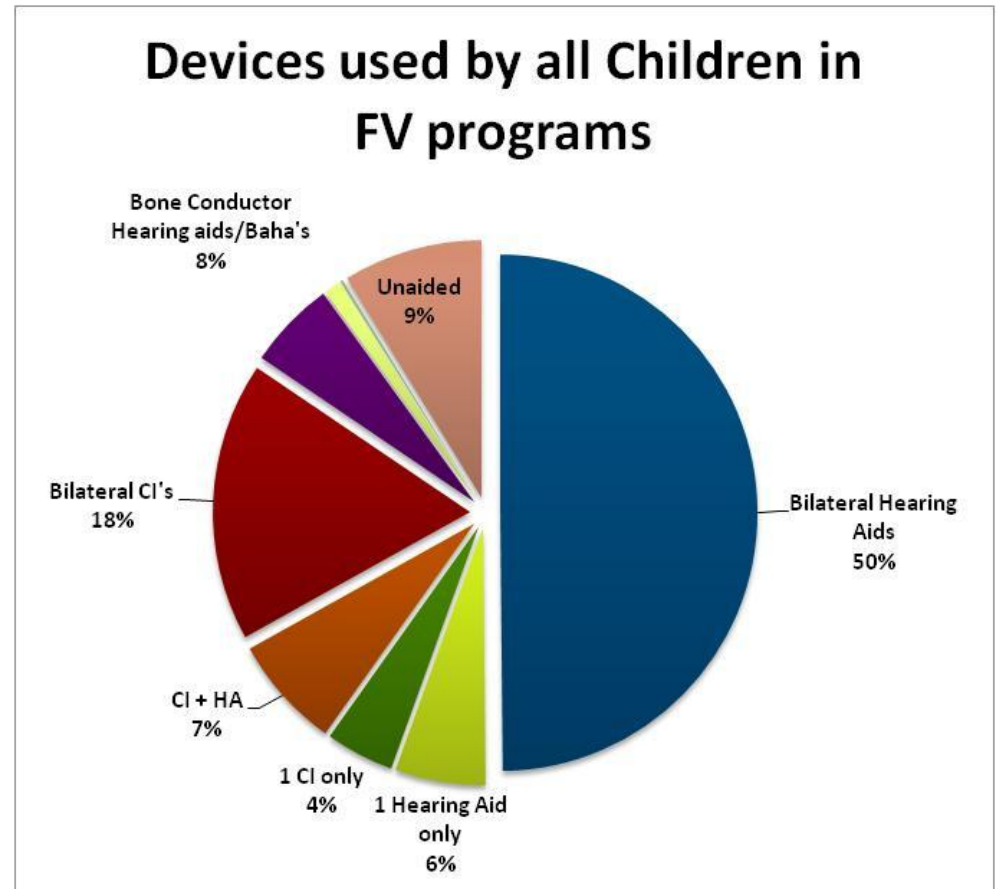


104 children in EI not included in this data set  
= unilateral losses, and  
= asymmetrical losses by some centres  
significantly skew percentages)

(does not

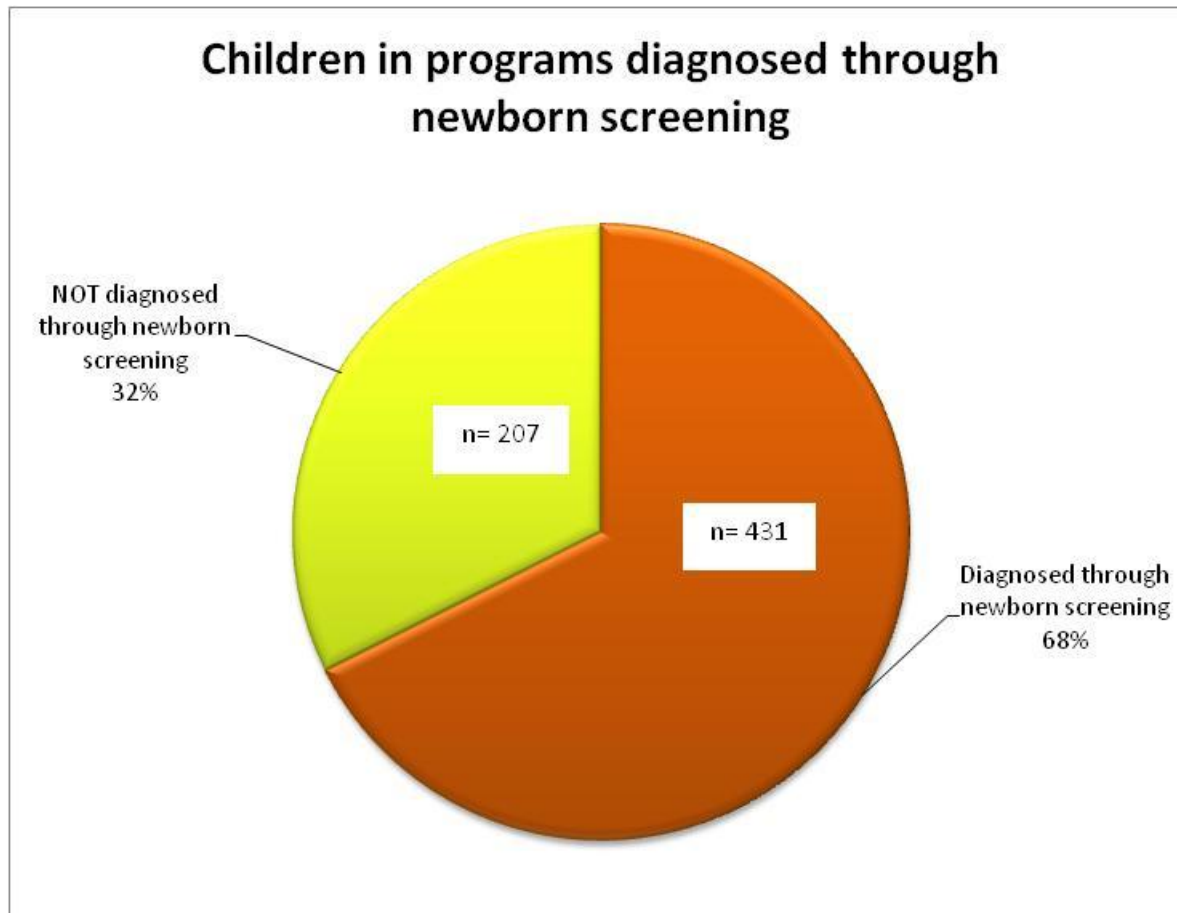
# Devices Used by all children in FV programs

- 50% Bilateral Hearing Aids
- 18% Bilateral CI's
- 9% unaided
- 8% Bone conduction hearing aids & Baha
- 4% unilateral CI
- 7% bimodal CI + HA





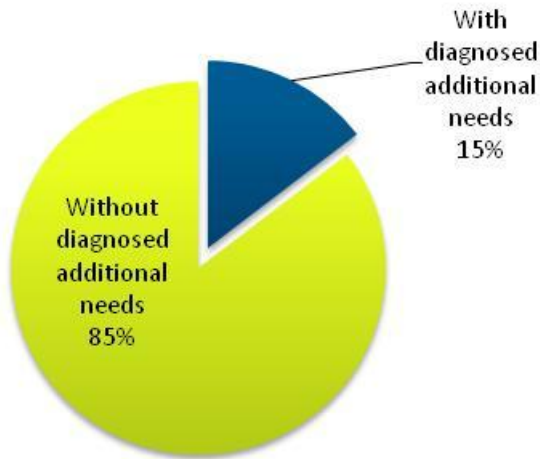
# Newborn Screening of children in FV programs



# Additional Needs and ESL of children in FV programs

15% of children in programs have additional needs

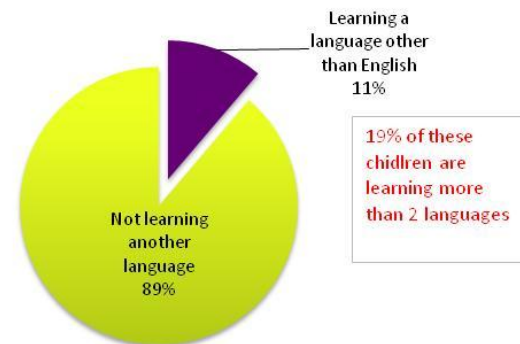
Children with Additional needs



- 11% are learning a language bilingually (Census shows 17% of Aust population have 2<sup>nd</sup> language)
- 19% of those learning another language are trilingual

Top languages
Arabic
Vietnamese
Cantonese
Mandarin
Hindi
Indian
German
Tagalog
Turkish

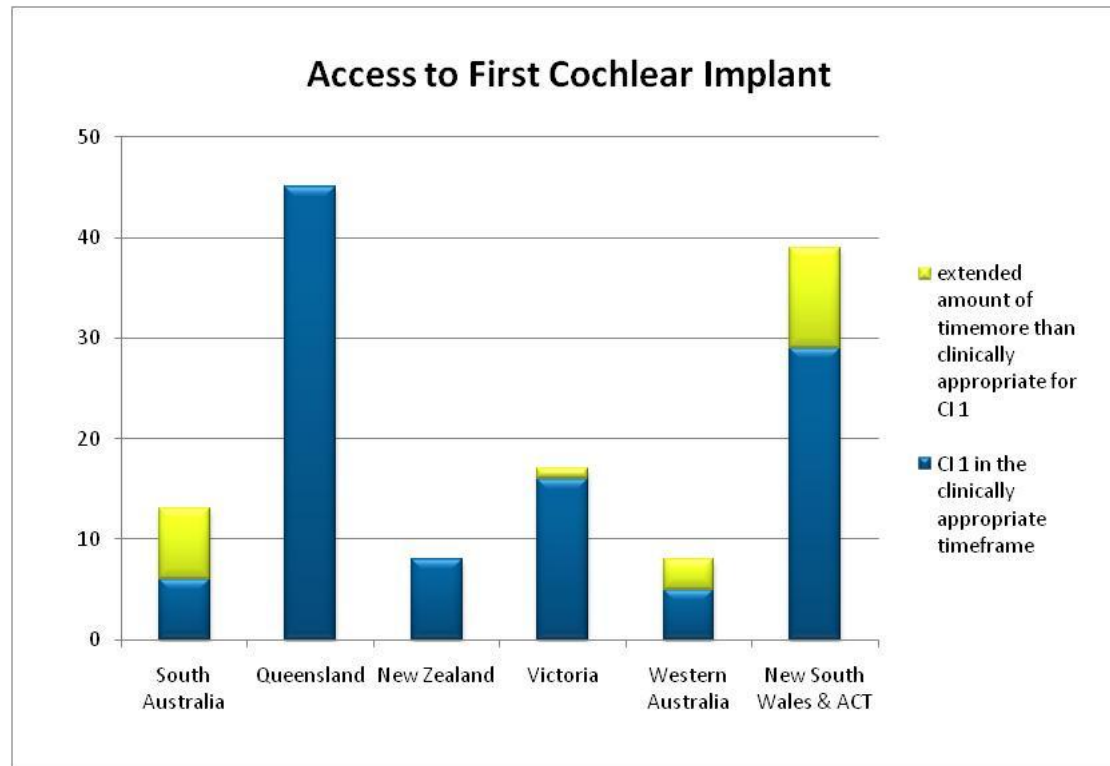
Children learning another language



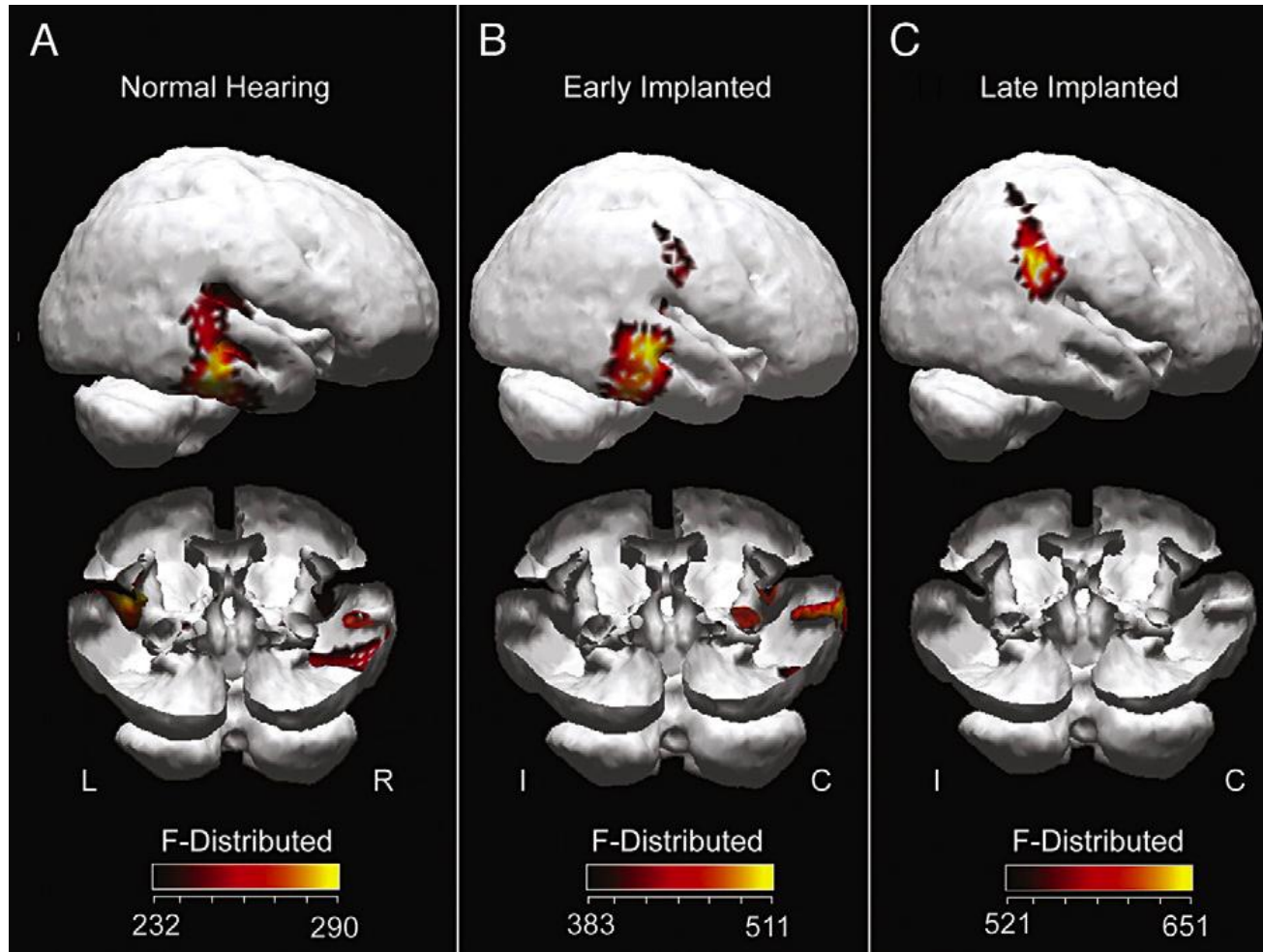
# Access to 1<sup>st</sup> CI in a clinically appropriate time frame?

## Of children in FV programs

- Qld, Victoria and NZ good access to 1<sup>st</sup> CI
- Some wait for 1<sup>st</sup> CI's in SA, NSW/ACT and WA



# The need for early intervention



# First Voice Contact us & position statements

<http://firstvoice.org.au/>

## AIMING HIGH

First Voice National Best Practice Policy for Children with Hearing Loss Using  
Listening and Spoken Language

08 June 2011

<http://firstvoice.org.au/userfiles/file/110608%20Aiming%20High.pdf>



**The Shepherd Centre**

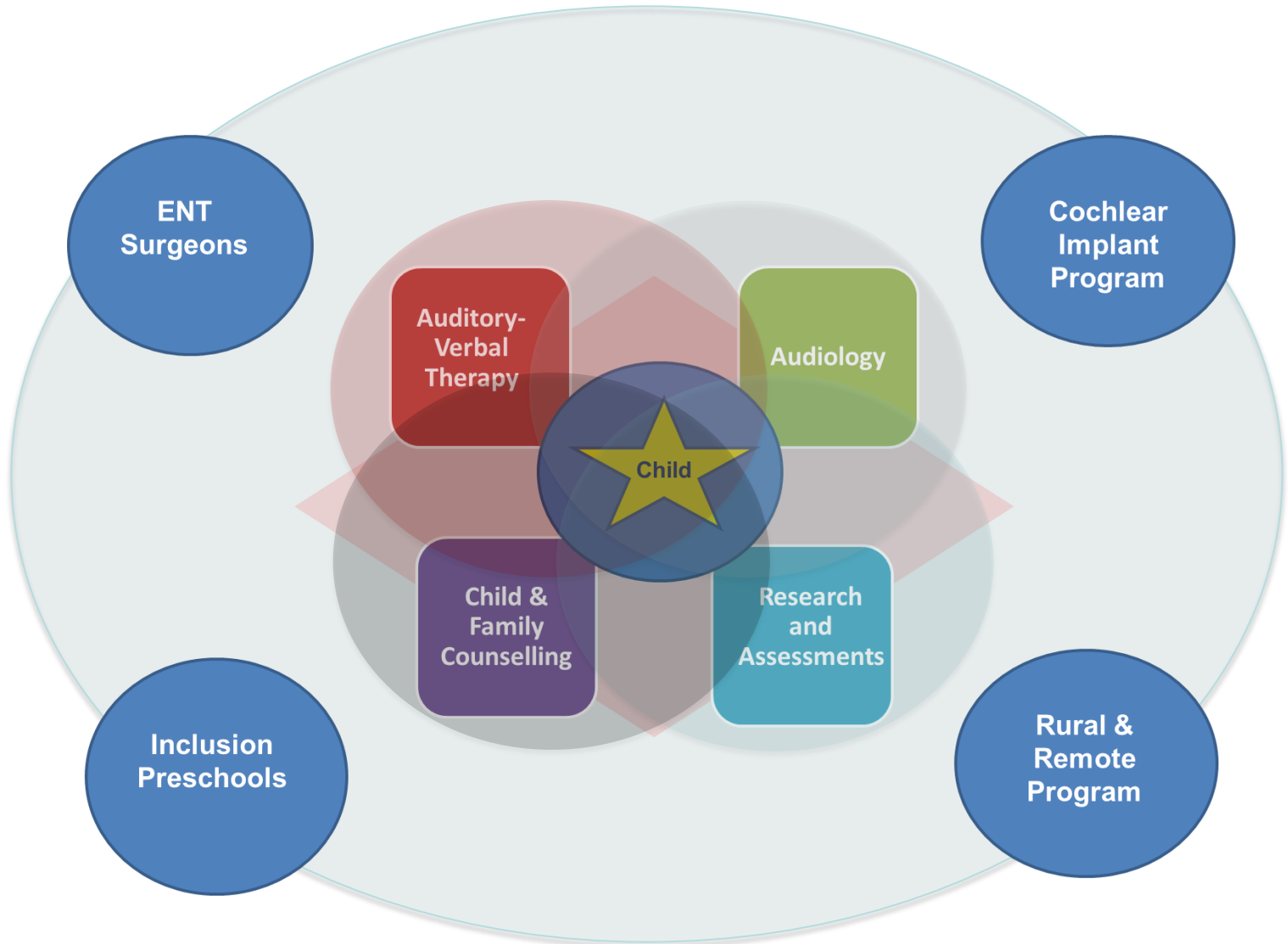
Giving deaf children a voice



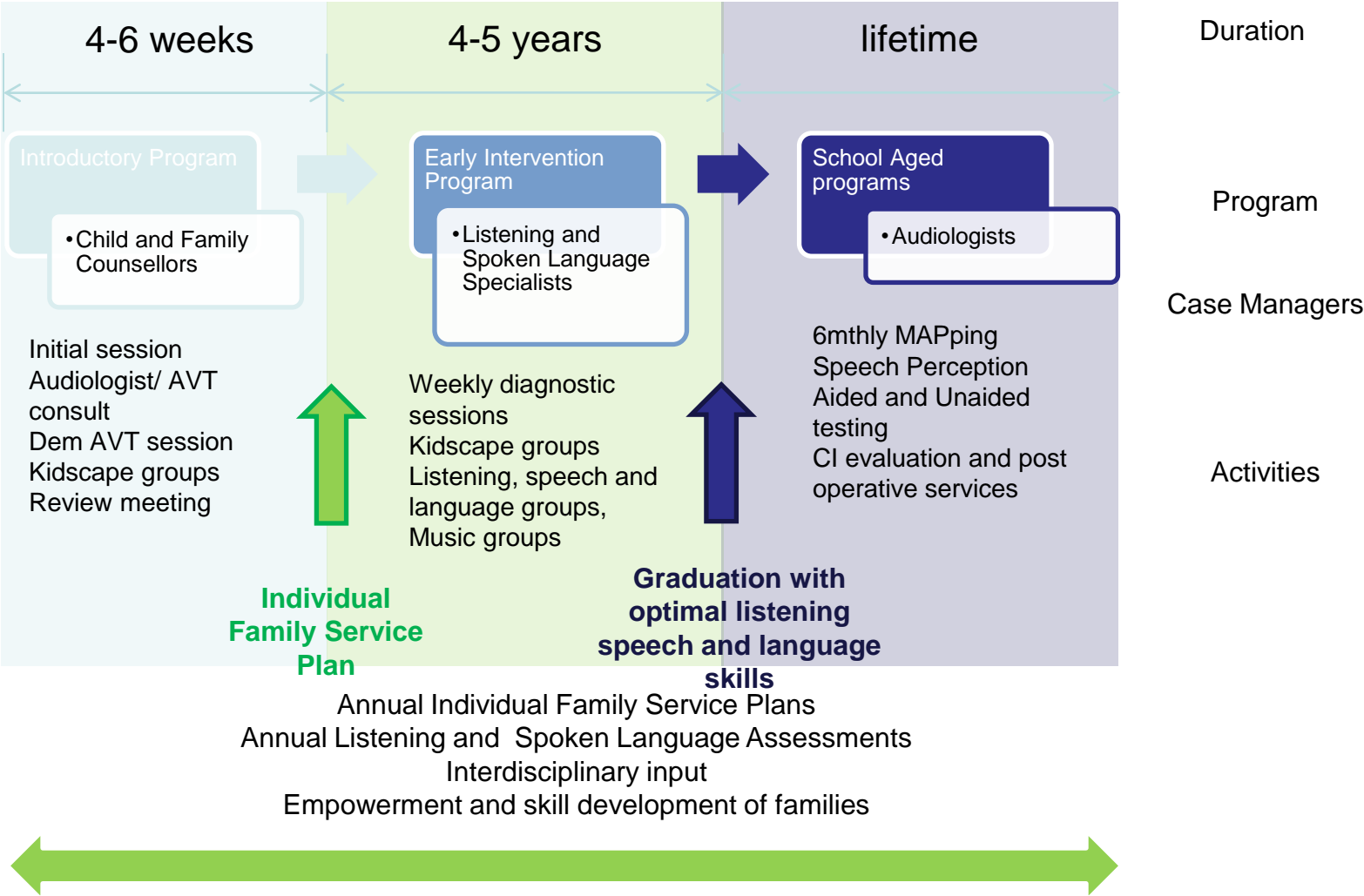
# THE SHEPHERD CENTRE



# Interdisciplinary team at TSC



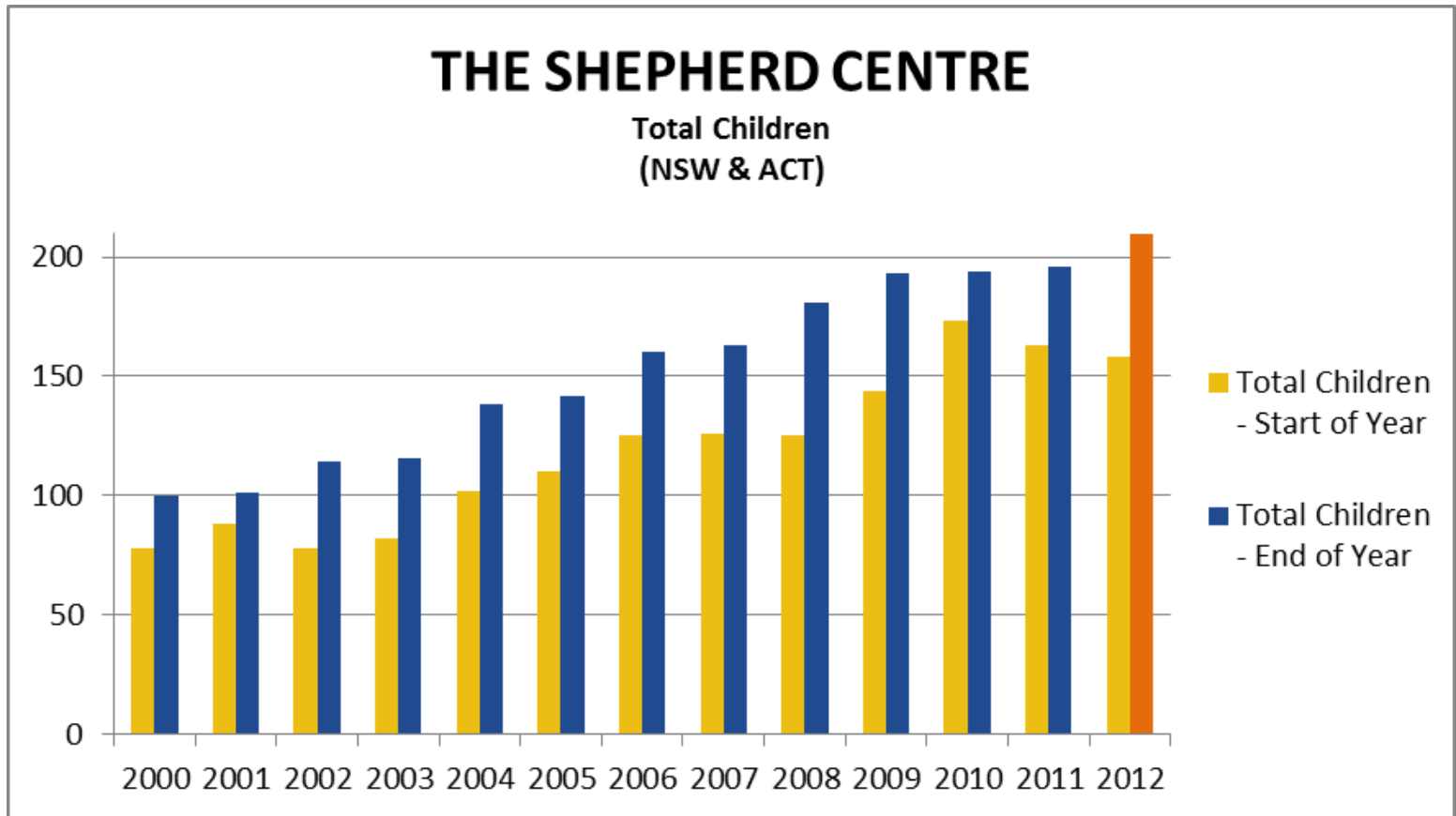
# The client journey: Simple



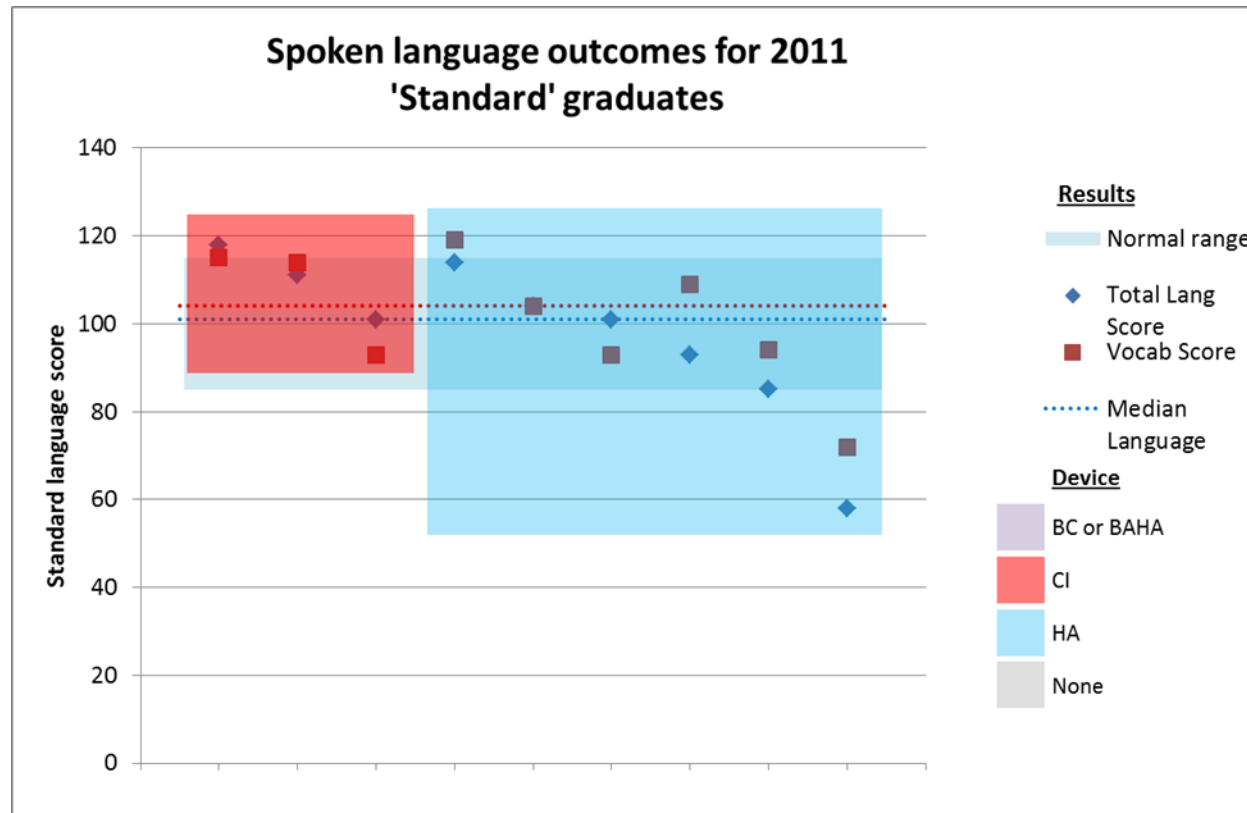




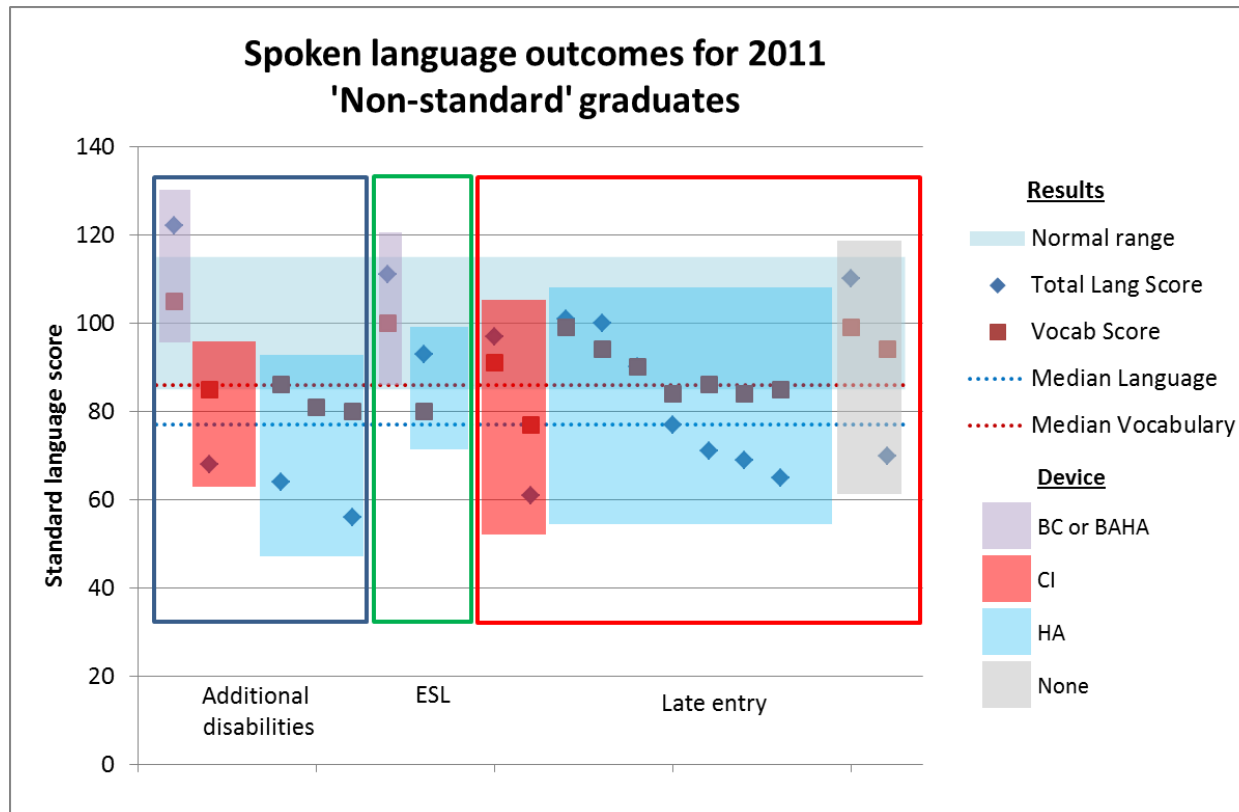
# Enrolments 2000 - 2011



# Outcomes



# Outcomes





**The Shepherd Centre**

Giving deaf children a voice

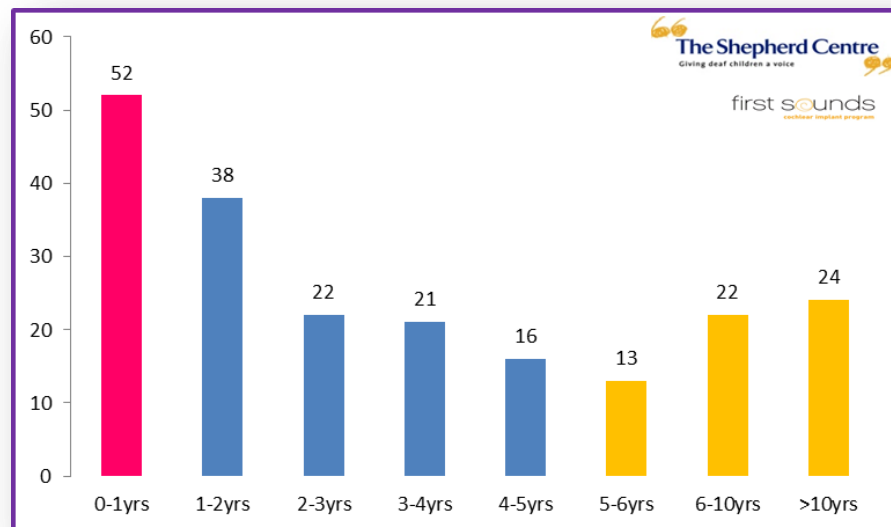


# FIRST SOUNDS COCHLEAR IMPLANT PROGRAM



# First Sounds Cochlear Implant Program

- Established in 2001
- In collaboration with The Sydney Children's Hospital
- Small number of publicly funded per year including bilateral, others private health insurance
- Young paediatric focus, over 210 CIs



# Statistics

- Paediatric focus – the program has performed 45 implants with infants less than 12 months of age.

In the 2011/12 financial year:

- 32% of implants were with children under 12 months;
- 44% were simultaneous bilateral; and
- Median age at first implant (for those diagnosed at SWISH) was 7 months.

Median duration of activities in the program are:

- Evaluation: 2 months,
- Completion of evaluation to surgery: 1 month;
- Total from commencement of evaluation to surgery: 3 months;
- Ongoing therapy: in excess of 3 years

# Statistics

Of SWISH diagnosed children,

- 100% were implanted by 9 months of age (the clinically appropriate timeframe).

No surgical complications in last 3 years

- In 10 years there have been 2 re-implants due to infection/failure to heal from initial surgery (<1%).

Over 90% of children (without additional needs) go on to mainstream school.

# Program measures

1<sup>st</sup> CI in clinically appropriate timeframe

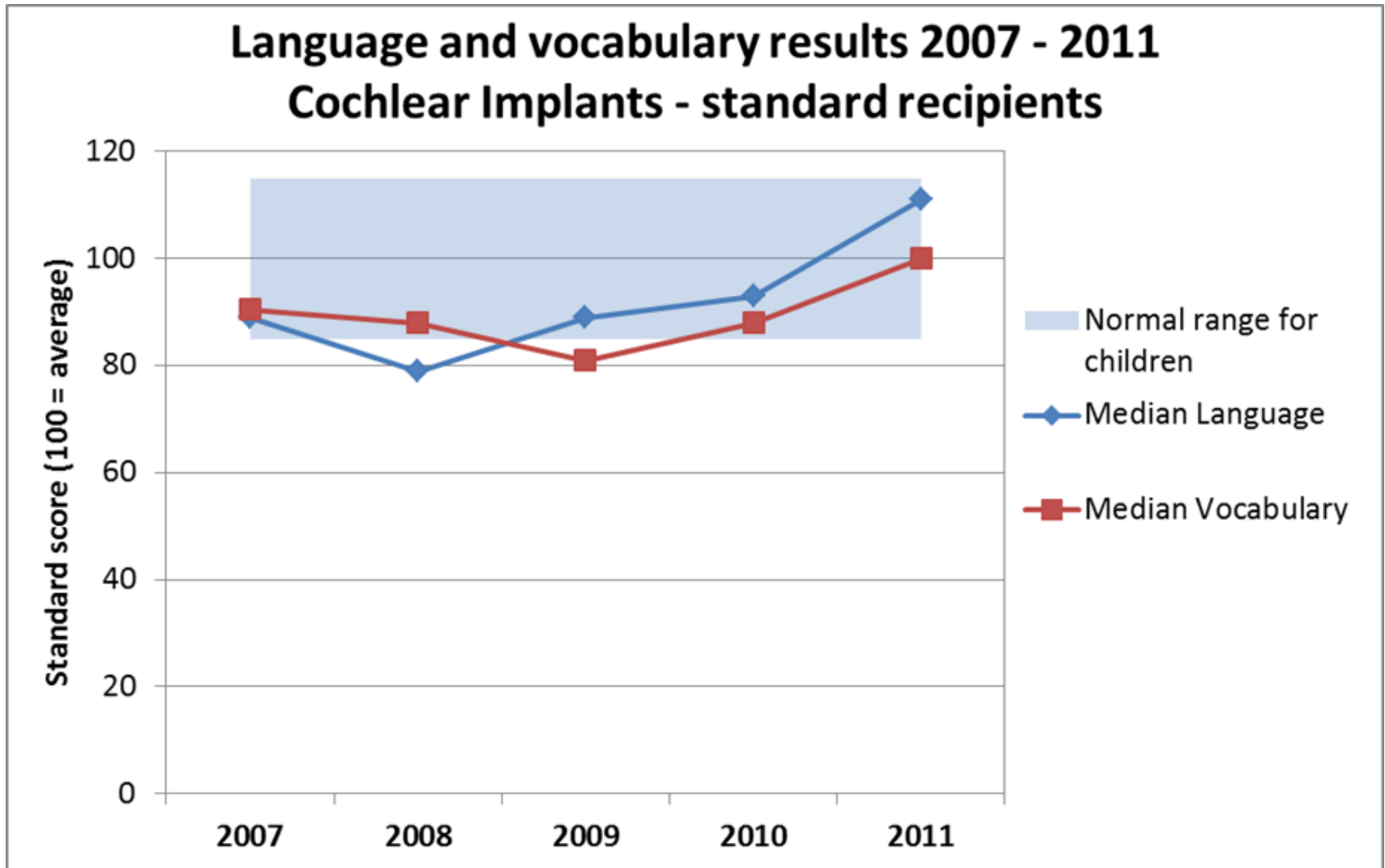
‘For children with a hearing loss that clearly calls within the evidence based thresholds for cochlear implantation’

- a) Simultaneous cochlear implants between 6-8mths old
- b) A very short sequential gap under 3 months



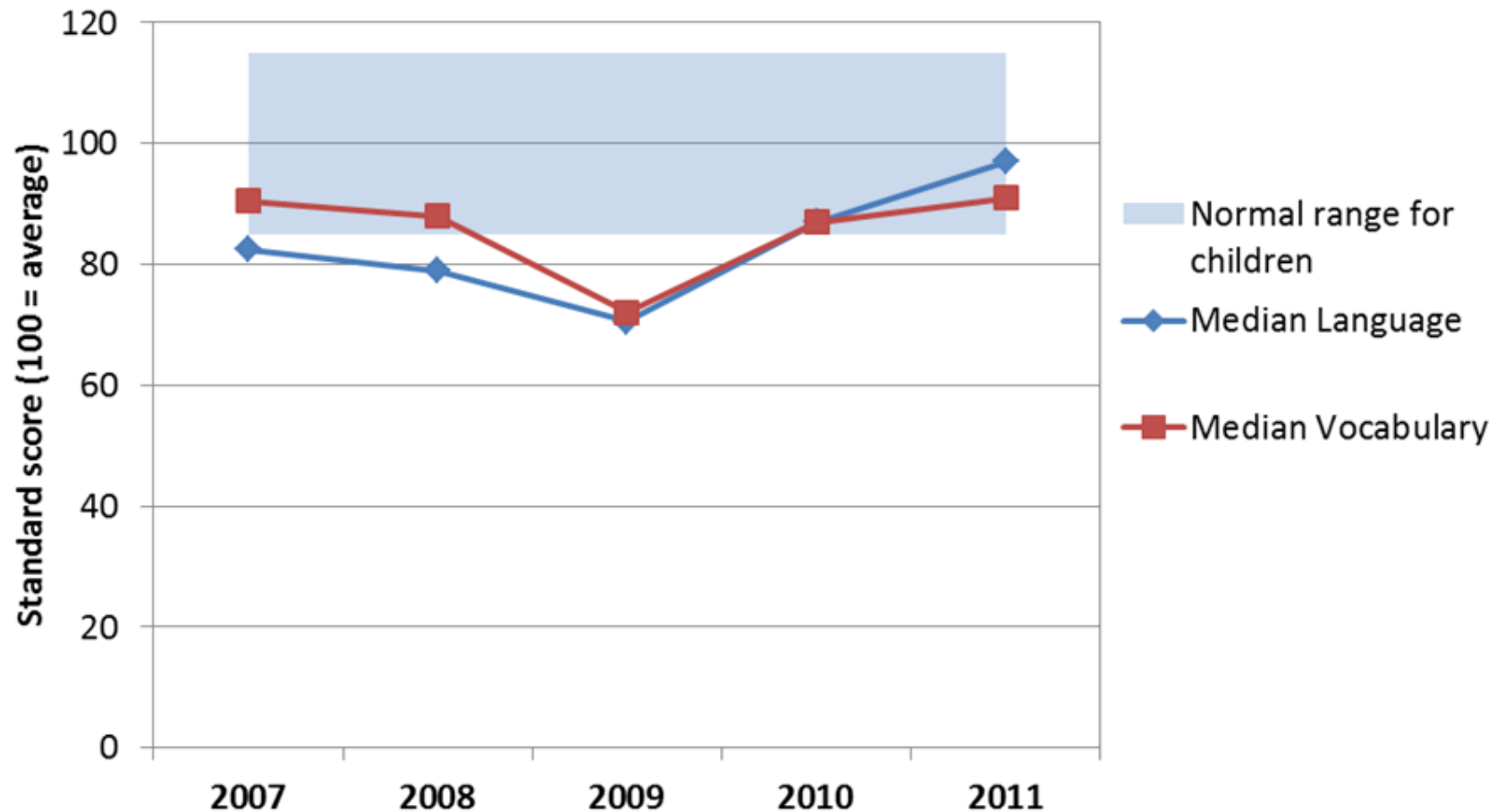
# Spoken language outcomes:

Children who are early diagnosed, with no additional needs, English as a first language



# Spoken language outcomes: All children

**Language and vocabulary results 2007 - 2011**  
**Cochlear Implants - all recipients**



# **Sydney Cochlear Implant Centre**

**SCIC**

# Some Facts about SCIC

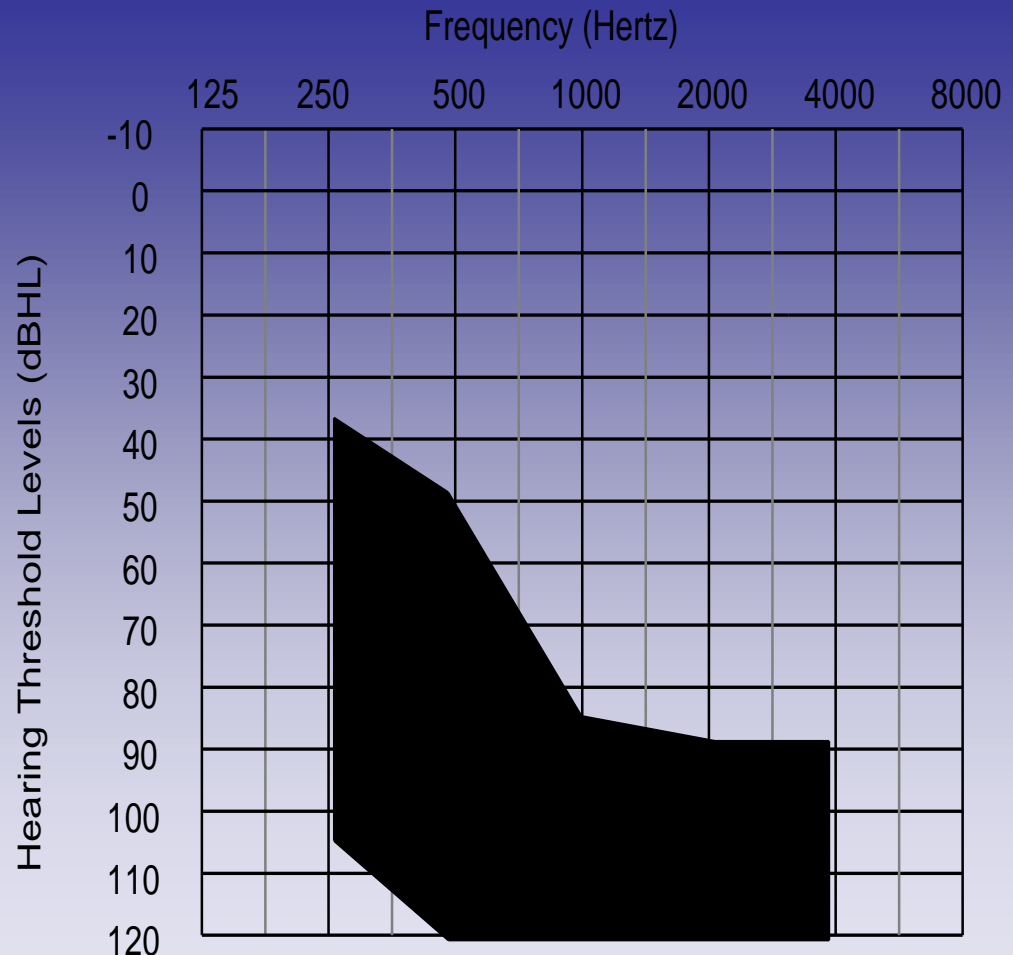
27 years of experience, research and pioneering work with complex populations

- Total CIs through SCIC = 2500
- 344 surgeries in 2010
- First Brainstem Implant at SCIC 2010
- World's first congenitally deaf child = 1987
- Youngest congenitally deaf child = 3 months
- Youngest child to receive bilateral CI = 7 months
- Oldest adult implanted = 94 years



# Current Australian Cochlear Implant Candidacy Guideline Criteria

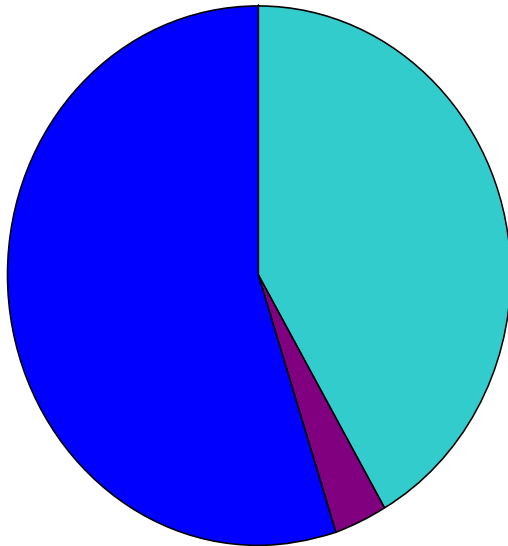
Unaided hearing



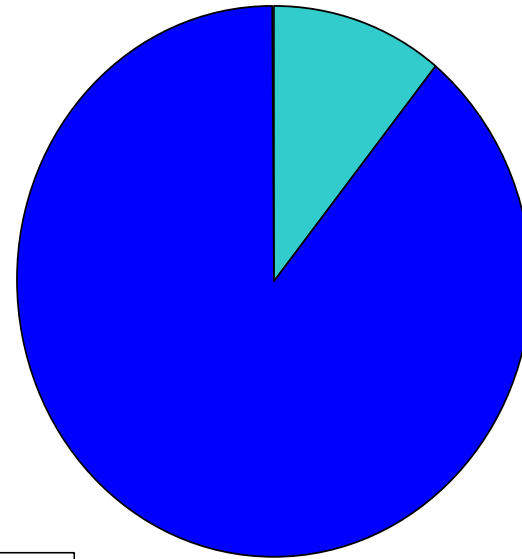
- Moderate-severe sensorineural hearing loss in the low-mid frequencies (*and poor speech scores*)
- Severe-profound sensorineural hearing loss in the mid-high frequencies

# SCIC CI Funding

First CI



Second CI

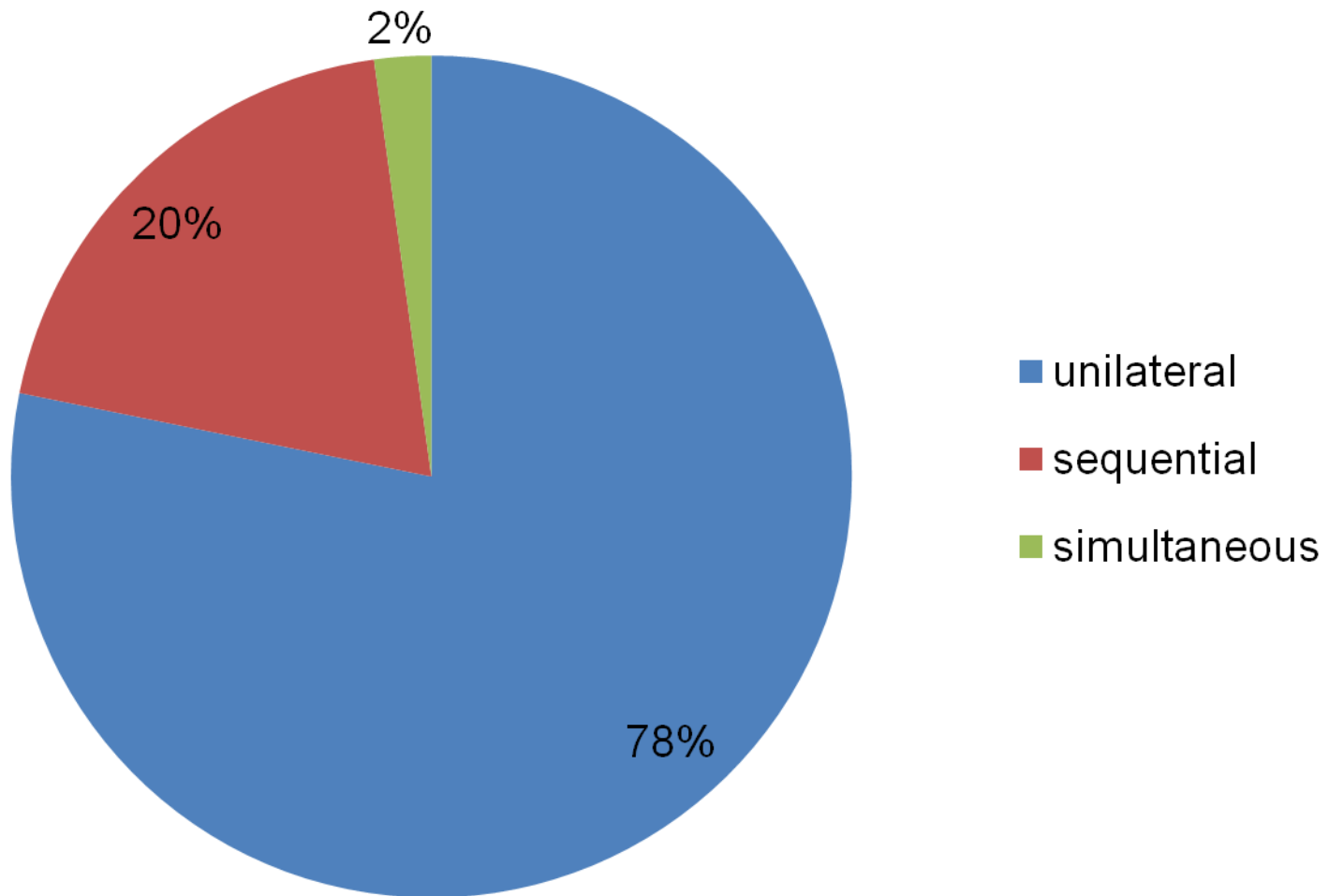


No public funding for bilateral CI's except for cases outlined

# Who is suitable for funded bilateral?

- Visual impairment (deaf-blind or Usher's Syndrome)
- Current CI compromised (e.g. limited electrodes)
- Children with additional needs
- Children with auditory desynchrony (hearing aid interferes with bimodal listening)
- No demonstrated bimodal advantage

# CIs in children at SCIC N=917





Hear now. And always

Hear now. And always

