Services and gaps in ear health and hearing

- Who are we, what do we do, how do we fit in?
- What we know about the impacts of the hearing loss caused by early onset, chronic ear disease for Aboriginal and Torres Strait Islander children.
- Some data: some good, some that worries us.
- Some thoughts

Samantha Harkus
Principal Audiologist, Aboriginal & Torres Strait Islander Services
Australian Hearing
Who are we, what do we do?

A national organisation, funded by the Australian Government.

**Aim** is to reduce the impacts of hearing loss in children and eligible adults.

In the 12 months to end June 2016:

- **4,300** Aboriginal & Torres Strait Islander adults, half of whom were seen in Hearing Centres, half at Outreach locations.

- **4,720** Aboriginal & Torres Strait Islander children, **29%** of whom are aided. 65% were seen at Outreach locations.

Approximately **4%** of the Australian child population are Aboriginal or Torres Strait Islander.

Closer to **9%** of our total aided child client group are Aboriginal or Torres Strait Islander, the majority of whom have hearing loss relating to ear disease.
Who are we, what do we do?

- **235** Outreach locations visited in the past FY
  - More than 100 in ACCHSs
  - More than 100 in remote locations
  - Average of four visits per site per year
  - Ranges from fortnightly to three visits per year.

- Outreach program emphasises importance of building relationships, providing training and awareness-raising for staff in communities.
How do we fit in?

We sit at the end of one of the pathways.

Looking back along the pathway to see who successfully travels it can help us identify gaps and work on bridging them.
‘We wouldn’t worry so much about ear disease if it didn’t cause hearing loss.’
Judith Boswell, Audiologist.

What we know about the impacts of the hearing loss caused by early onset, chronic ear disease for Aboriginal and Torres Strait Islander children.
We know that ear disease and hearing loss are prevalent in remote areas:

- Of more than 10,000 Aboriginal children included in the NT Child Health Checks, 30% had ear disease.
- Of 5,184 who were referred for hearing assessment, 32% had hearing loss, 10% moderate or worse.

We know that ear disease and hearing loss are prevalent even in urban NSW and QLD:

- Nearly 30% of Aboriginal children tested children have ear disease
- 10% of children tested had hearing loss at the time of testing
- 46% of 0-8 year olds assessed had a speech delay.
NAL’s LOCHI study
Longitudinal study of language outcomes for children with hearing loss.

Two of the research Qs:
1. Does UNHS and early intervention improve language outcomes, at a population level?
2. What factors influence outcomes?

- 451 children
- All levels of hearing loss: mild to profound.
- Half were first fit with hearing aids at < 6 months of age
These factors found to be significantly associated with poorer language outcomes in children with even mild hearing loss.

These factors in particular can often co-exist for Aboriginal children with hearing loss.

This raises our index of concern in relation to Aboriginal children, who are often first fitted with hearing aids late.
We know from a recently published WA study that having one chronic illness is sufficient to impact school readiness, and that the most common chronic illness in the study cohort was chronic otitis media.

Study population = 22,890 Western Australian children.
We know what there’s an association between language impairment at school entry and delinquent behaviour in later adolescence in young men.

Early Language Impairment and Young Adult Delinquent and Aggressive Behavior

E. B. Brownlie,1,5 Joseph H. Beitchman,2 Michael Escobar,3 Arlene Young,1,2 Leslie Atkinson,2 Carla Johnson,4 Beth Wilson,2 and Lori Douglas2

Clinic and forensic studies have reported high rates of language impairments in conduct disordered and incarcerated youth. In community samples followed to early adolescence, speech and language impairments have been linked to attention deficits and internalizing problems, rather than conduct problems, delinquency, or aggression. This study examines the young adult antisocial outcomes of speech or language impaired children. Language impaired boys had higher levels of parent-rated delinquency symptoms by age 19 than boys without language impairment, controlled for verbal IQ and for demographic and family variables. Language impaired boys did not differ from controls in self-reported delinquency or aggression symptoms on a standardized checklist; however, language impaired boys reported higher rates of arrests and convictions than controls. Language impairment was not related to aggression or delinquency in girls. We examine alternate models of the interrelationships between language, academics, and behavior, at ages 5, 12, and 19.

KEY WORDS: language impairment; delinquency; longitudinal; community sample.
We know that the critical time for making sure that children are hearing well is during the 0-4 yr age range, when neural pathways relating to language and speech are being laid down.

These are also the peak years of ear disease for many Aboriginal children.

We know it’s important to identify and intervene early, and what’s at risk if we don’t.

So, how are we going with that?
Age at first hearing aid fitting for children fitted for the first time with hearing aids in 2013

Comparison of first fitting age - children first fitted in 2013

What happens if we separate the client groups and remove ‘conductives’?
Age at first fitting, data aggregated over five years to offset small client numbers

Comparison of first fitting age - clients first fitted 2008-2013

‘Conductives’ removed, Aboriginal and Torres Strait Islander and non-Indigenous children separated

Aboriginal and Torres Strait Islander aided children
Non-Indigenous Australian children
Change in fittings pre- and post-introduction of UNHS

Impact of UNHS on early fitting rates: Aboriginal & Torres Strait Islander children vs non-Indigenous Australian children

What can we see?
1. A statistically significant improvement in fittings under the age of 6 months for both cohorts
2. A statistically significant difference between Under 6 month early fitting rates between Aboriginal and non-Indigenous Australian children.

Notes
UNHS coverage approximately 84% in December 2009, close to 100% by mid-2010
ABS advise likely Aboriginal and Torres Strait Islander birth data likely to be an under-estimate in earlier years.
What can we conclude?

That, after we adjust for:

1. Prevalence of conductive hearing loss
2. Small Aboriginal and Torres Strait Islander client numbers
3. Differences in size and profile of populations

There remains a significant difference between the age of first fitting of Aboriginal and Torres Strait Islander children and non-Indigenous Australian children with congenital hearing loss.
The ‘UNHS – Diagnosis – Habilitation’ referral pathway

Q: Is the screening rate different for Aboriginal and Torres Strait Islander babies?

Refer from screen

Diagnostic audiology

Australian Hearing

Q: Is the rate of congenital hearing loss different for Aboriginal and Torres Strait Islander babies?

Q: Following referral after screening, what proportion of families are not seen for diagnostic AABR?

Q: After diagnostic audiology referral, what proportion of families are not seen by Australian Hearing?
And what about Aboriginal children with hearing loss aged under five years?

Since we have become aware, we are doing significantly better at reaching under five year olds.

Early calculations are leading us think we are reaching around 50% of under 26 year olds with moderate hearing loss or worse.

Looking at under five year olds with moderate or worse loss of all types, our calculations suggest we may currently only be reaching around 20%.

We included an adjustment relating to likelihood by region of accessing an ENT ‘solution’ to their hearing problem at all, or within a 4-6 month period.
Primary Health identifies a persistent ear disease (> 3 months), refers to Diagnostic audiology, who assesses impact on hearing. If >35dBHL average, refers for Hearing improvement through surgery or specialist medical treatment (ENT) and/or rehabilitation (Australian Hearing). The community has timely/access to diagnostic audiology services. Diagnostic audiology services have skill and equipment to assess under three year olds. Accessible and timely ENT services. Accessible and timely Australian Hearing services.

Primary Health skills and awareness of treatment Guidelines. Patient information systems are used to flag children for follow up and referral.

Primary Health understands about the impact of early and chronic ear disease on language and life. Primary Health ear health & hearing activities focus on all-aged children, not mainly on school children.

What do we rely on for this pathway to work well?

Leaders who ‘get it’

Family and community understands the importance of children hearing well, by whatever means.

The community has timely/access to diagnostic audiology services.

Australian Hearing services

ABORIGINAL & TORRES STRAIT ISLANDER SERVICES
Emerging automated hearing assessment apps

Automated hearing assessment apps capable of both screening and diagnostic testing of children aged five and upwards are appearing.

Staff need to be oriented to the apps, but no formal training is required.

hearScreen: great sensitivity and specificity and the referral rate is the same as for conventional screening.

Sound Scouts is capable of closer to diagnostic assessment, enabling health services to move children further along treatment pathway without relying on visiting services. Gary Goldsmith from AHCSA trialling in SA.

Gap is children under the age of five: critical!
We know quite a bit about what Aboriginal & Torres Strait Islander families know and think about ear disease and hearing loss, from this CIRCA social research...
...from Caroline Jones’ research in the NT into families’ perceptions of ear disease, hearing loss and early language programs...

An early childhood language and hearing program in the context of chronic otitis media in remote Australian Aboriginal communities: Feedback from families

14 July 2016

Caroline Jones, Mridula Sharma, Samantha Harkus, Catherine McMahon, Mele Taumoepeau, Katherine Demuth, Karen Mattock, Lee Rosas, Raelene Wing, Sulabha Pawar, and Anne Hampshire

‘Most other parents reported that from what they had observed, hearing aids were not viable for very young children in the community because they tend to pull them out.

There also seems to be the perception among some parents at least that hearing aids are most important, that children are ready to benefit, only when they are three, four or five years of age, not when aged one or two.’
...and Corinne Walsh’s PhD research in Yarrabah over the next few years into knowledge and beliefs around hearing loss and ear health will inform us all further.

Summary of PhD Research Project

Miss Corinne Walsh
PhD Scholar at the National Centre for Indigenous Studies, Australian National University

Project: Anthropological analysis of Indigenous ear disease (‘otitis media’) and hearing loss

Summary:
Middle-ear disease (‘otitis media’ [OM]) and associated hearing loss is one of the most significant health issues facing Indigenous people, especially the Aboriginal and Torres Strait Islander people of Australia. As many as 95% of Indigenous children in some regions of the country have ‘sick ears’, prompting the World Health Organisation to pronounce it a public health crisis requiring urgent attention. While there is a reasonably robust literature regarding the causes and impacts of ear disease, the approach to date has been overwhelmingly from the angle of biomedicine and public health, focused on treating Indigenous ear hearing issues as a physical pathology caused by living in disadvantaged conditions, to be addressed through interventions such as antibiotics and surgery.

While the mainstream medical paradigm has made some headway in alleviating infections and improving the hearing of many individuals, rates of ear and hearing problems among Indigenous Australians nonetheless continue to escalate. Research on OM in Aboriginal and Torres Strait Islander communities has focused primarily on identification, treatment and management and very little on prevention. My PhD research starts from the premise that otitis media and hearing loss needs to be addressed at its source. In order to do this, it is crucial that close consideration be given to the broader structures (social, cultural, political, historical, economic, environmental), as well as the local circumstances, beliefs, explanations and experiences of the condition.

Using an in-depth, community-based methodological approach, my research will analyse a full range of perspectives surrounding OM and hearing impairment – from high-level policy to the lived accounts of Aboriginal community members themselves. Extensive fieldwork in the Aboriginal community of Yarrabah is planned, and the research methods used will be largely qualitative and locally-determined.

Indigenous communities each have unique perceptions and experiences of the body, the ear, hearing, health, illness and healing – and there is a pressing need for these to be better understood. Very little is known about ear and hearing issues from the perspective of the Aboriginal people on the ground who have to live with it. While clinical and public health research is essential, cutting-edge interventions for OM and hearing loss will fail to have positive impact if they are not designed and implemented with culturally-situated consideration.
We know of some ways that work to get health messages across.

Circa evaluated the two components of the National Indigenous Ear Health Campaign: the Care for Kids Ears posters and brochures, and the Indigenous media partnerships approach.

Through this, 35 local Indigenous media organisations were funded to develop locally appropriate radio and video content to get the message out on ear disease and hearing loss.

The combination collateral + Indigenous media partnerships approach was extremely well evaluated:

- Those exposed to the campaign were more likely to say they had taken their child to have their ears checked in the last 12 months when they did not have any signs or symptoms (70.4% compared to 43.7% of those not exposed).

- In terms of asking a health professional to check their children’s ears when they were seeing them about something else, those exposed to the campaign were more likely to say they had done so compared to those not exposed (66.7% compared to 50.4%).
Returning to the relationship between language impairment at school entry and delinquent behaviour in later adolescence in young men.

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KEY WORDS: language impairment; delinquency; longitudinal; community sample.
Hearing loss among Aboriginal & Torres Strait Islander inmates

<table>
<thead>
<tr>
<th>Date of study/Researchers</th>
<th>Jurisdiction</th>
<th>Results</th>
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<tbody>
<tr>
<td>2004 Dr Narelle Murray, National Acoustic</td>
<td>New South Wales</td>
<td>640 inmates from 26 correctional centres assessed. Hearing of all inmates poorer than normative Australian population. Hearing of Aboriginal inmates poorer than non-Aboriginal inmates.</td>
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<tr>
<td>2009 Susan Quinn, Gary Rance</td>
<td>Victoria</td>
<td>12% of 109 Aboriginal prisoners had hearing loss greater than 25d8HL average in at least one ear, compared with 5% in age-matched Australian population.</td>
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<tr>
<td>2010 Telethon Speech and Hearing</td>
<td>Bandyup Women’s Prison, WA</td>
<td>45% of &gt;150 Aboriginal inmates did not pass hearing screening, compared with 12% of non-Indigenous inmates.</td>
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<tr>
<td>2011 Damien Howard, Phoenix Consulting</td>
<td>Darwin and Alice Springs</td>
<td>94% of 134 Aboriginal inmates had ‘significant hearing loss’ = mild or greater. Hearing loss is normalised and under-reported by inmates.</td>
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Attention paid to hearing loss among Aboriginal inmates

The final report of the Royal Commission into Aboriginal Deaths in Custody (1991) first commented on the relationship between childhood ear disease, hearing loss and poor school performance, and their connection to involvement in the criminal justice system.

The Senate Inquiry into Hearing Health in Australia (2010) noted the relationship between hearing loss, language impairment and criminal activity, and recommended:

*Hearing assessments be made available for people serving custodial sentences who have never been tested & that prisoners be encouraged to participate.*

No jurisdictions have implemented this. Identification of hearing loss relies on self report.
The Barkly Work Camp trial, Tennant Creek

- NT Corrections, Anyinginyi Aboriginal Health Service, National Disability Insurance Scheme & Australian Hearing.

- Trial outcomes:
  - To evaluate whether self report is a reliable indicator of ‘significant’ hearing loss
  - To evaluate whether the South African hearing screening smartphone app hearScreen is ‘fit for purpose’ for use in a prison context.
Summary of results

- 22% of prisoners assessed do not pass hearing screening at 35dBHL (= moderate or worse hearing loss).
- Data to date suggests that self report is not a reliable indicator of hearing status
  - Sensitivity of self report: 38.4%
  - Specificity of self report: 80.43%
- Based on this data, hearing screening is recommended over self report.
- hearScreen is a fast, easy and accurate way to screen hearing, but not yet commercially available here
- There will be security issues to overcome with use of a smartphone-based app in prisons
A Leader who ‘got it’
We have a pretty good idea of what broadly needs to happen at the macro, service and individual levels in order for us to make greater gains in closing the ear health gap.
Guiding principles for closing the ear health and hearing gap

Work on the social determinants of ear and hearing health
Funding is directed towards addressing the social factors that cause inequity in ear health and hearing for Aboriginal and Torres Strait Islander Australians

Evidence based
Data is utilised to support better planning and delivery of services to improve ear health and hearing outcomes.

Engage Community
Service providers work in consultation with communities to plan, design and deliver services that respond to population requirements and individual needs

Integrated with primary health care
Ear health and hearing screening is integrated into routine clinical care for Aboriginal and Torres Strait Islander babies and children

Access in mainstream
Aboriginal Community Controlled Health Organisations and mainstream services work in partnership to ensure that Aboriginal and Torres Strait Islander people are able to access the spectrum of secondary and tertiary hearing health services.

Population based
Service providers are adequately funded to organise services based on the projected ear health care needs of each community

Appropriate and quality services
Aboriginal and Torres Strait Islander people are able to access locally available, comprehensive and co-ordinated, high quality ear health and hearing care that is provided by culturally competent hearing health workforce.

Efficient use of resources
Identify gaps and reduce duplication of services and effort so as to optimise the outcome for communities

Governance
To ensure that there is national delivery of ‘Close the Gap in Ear Health and Hearing’

Health Promotion and Awareness
To improve awareness and knowledge of hearing health in communities to support individuals and families to make informed decisions.

Health Financing
To ensure adequate funding is allocated to ‘Close the Gap for Ear Health and Hearing’
Thank you

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