

**Fellowship and Standards, Fellowship Services**  
**Telephone: +61 3 9276 7415**  
**Facsimile: +61 3 9276 7432**  
**Email: [indigenoushealth@surgeons.org](mailto:indigenoushealth@surgeons.org)**

4 March 2018

The Hon. Malcolm Turnbull, MP  
Prime Minister  
Parliament House  
CANBERRA ACT 2600

Dear Prime Minister,

### **Closing the Gap Refresh**

Established in 1927, the Royal Australasian College of Surgeons (RACS) is the leading advocate for surgical standards, professionalism and surgical education and training in Australia and New Zealand. RACS is a not-for-profit organisation representing more than 7,000 surgeons and 1,300 surgical trainees.

RACS is committed to ensuring the highest standard of safe and comprehensive surgical and patient care for the communities it serves, and as part of this commitment, it strives to take informed and principled positions on issues of public health. RACS formalised its commitment to reconciliation in 2016 with the launch of [RACS Reconciliation Action Plan](#). For RACS the journey towards reconciliation is focused on improving opportunities for Aboriginal and Torres Strait Islander doctors seeking careers in surgery, and medical education.

RACS was privileged to be represented on 5 April, 2018 at the Closing the Gap Refresh National Health Peak Body forum. It is clear that Australia's Aboriginal and Torres Strait Islander health peak body organisations are well placed to advise the government on how the current Close the Gap Refresh could be used to improve health outcomes for Aboriginal and Torres Strait Islanders. A clear message from that forum was the need for a shift in focus away from an individual gap towards a strength based thriving families approach.

A thriving families approach could support increased representation of Aboriginal and Torres Strait Islanders across the health workforce. Supporting Aboriginal and Torres Strait Islander doctors and aspirants to the medical profession is essential to improve outcomes in Aboriginal and Torres Strait Islander health. The Australian Indigenous Doctors' Association and Leaders in Indigenous Medical Education have been providing leadership in this area for medical schools and medical colleges for a number of years. This guidance from Aboriginal and Torres Strait Islander led organisations continues to be invaluable in assisting medical education organisations such as RACS to identify and support the needs of Aboriginal and Torres Strait Islanders to pursue a career in medicine and specialty practice.

Through our work as surgeons, RACS Fellows see the disparity in health outcomes between indigenous and non-indigenous Australians. As you may be aware RACS, in association with the Australian Society of Otolaryngology, Head and Neck Surgery and other passionate partners are seeking the government's support to improve ear health outcomes. The prevalence of ear disease starting within the first few weeks of life has a devastating impact on Aboriginal and Torres Strait Islander families and communities, is deeply rooted in the social determinants of health and has significant negative impacts in terms of educational achievement, employment and incarceration. The negative impact of ear disease on Aboriginal and Torres Strait Islander Australians is extensively investigated and documented by the World Health Organisation<sup>i</sup>, the Australian Senate<sup>ii</sup> and House of Representatives<sup>iii</sup> inquiries.

Thank you for taking the time to review our submission. Please find enclosed some additional information in support of Ear Health for Life: A national approach to monitoring ear health. RACS would be pleased to provide any additional information that would be of assistance as part of the refresh. Please contact Paul Cargill, Manager Fellowship Services on 03 9276 7415 or [paul.cargill@surgeons.org](mailto:paul.cargill@surgeons.org) in the first instance.

Yours sincerely



**Mr John Batten**  
President



**Dr David Murray**  
Chair, Indigenous Health Committee

---

<sup>i</sup> Acuin J: "Chronic suppurative otitis media: Burden of illness and management options." *World Health Organization (WHO) Child and Adolescent Health and Development Prevention of Blindness and Deafness World Health Organization Geneva, Switzerland*, 2004.

[http://www.who.int/pbd/publications/Chronicsuppurativeotitis\\_media.pdf](http://www.who.int/pbd/publications/Chronicsuppurativeotitis_media.pdf)

<sup>ii</sup> 'Hear Us: Inquiry into Hearing Health In Australia' The Senate Community Affairs References Committee. May 2010, Canberra. [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Community\\_Affairs/Completed\\_inquiries/2008-10/hearing\\_health/report/index](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2008-10/hearing_health/report/index)

<sup>iii</sup> 'Still waiting to be heard...' Report on the Inquiry into the Hearing Health and Wellbeing of Australia. House of Representatives Standing Committee on Health, Aged Care and Sport. September 2017, Canberra. [https://www.aph.gov.au/Parliamentary\\_Business/Committees/House/Health\\_Aged\\_Care\\_and\\_Sport/HearingHealth/Report\\_1](https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/HearingHealth/Report_1)

# EarHealth**ForLife**

A national approach to monitoring ear health



# THANK YOU FOR SUPPORTING

EarHealthForLife 





## INTRODUCTION

The #EarHealthForLife network is committed to a national Aboriginal and Torres Strait Islander Hearing Health Taskforce that can provide evidence-based advice to Government about hearing health.

Recognising the extent of missing data and inconsistent metrics on hearing health across Australia, we are also committed to better embedding hearing health in the Closing the Gap targets and associated strategies, and an agreed national standard, database and ongoing reporting.

We propose that governments support this taskforce to better measure outcomes rather than activity, by establishing national key performance indicators and improving data linkage. A taskforce could also help guide a more holistic approach to hearing health care.

Given the extensive expertise available within the #EarHealthForLife network, this paper will not go into the social determinants and causes of ear disease and other chronic health conditions such as overcrowding and the lack of health hardware in homes. The draft Australian Hearing Aboriginal and Torres Strait Islander Ear Health and Hearing Road

Map<sup>1</sup>, the Australian Indigenous HealthInfoNet 2013 Review of ear health and hearing among Indigenous Australians<sup>2</sup> and the Housing for Health Guide<sup>3</sup> provide excellent syntheses of these issues.

The importance of addressing these issues and supporting effective health promotion approaches as part of the long-term solution to poorer health outcomes cannot be overstated. Tobacco control activities, promotion of breast feeding, good nutrition and vaccination are all important preventative activities that will have multiple health benefits. An approach based purely on diagnosis, treatment and referral will require high levels of resources indefinitely to deal with an issue which is largely due to poverty.

There are multiple issues affecting education including overcrowded housing, physical health and family issues. Decreasing the likelihood that ear infections become chronic improves children's chances of achieving their educational and employment aspirations. Surveillance of hearing health as part of comprehensive primary healthcare is an essential component of this, and without coordinated electronic systems

that guide decision making and support treatment, children with ear disease will continue to fall through the cracks. These data need to be localised and regularly shared with relevant services involved in delivering health care to target efforts where resources are needed.

Sibthorpe et al (2017) outline seven evidence-based indicators which could be extracted from existing health records to enable continuous quality improvement (CQI) in the prevention and management of otitis media. CQI is now a requirement of all primary health care services receiving funding for care for Aboriginal and Torres Strait Islander people.<sup>4</sup>

As a baseline for establishing population prevalence, governments should commit to being able to report the number and proportion of Aboriginal children aged between one month and five years who have ear disease in each local area in their jurisdiction. This is based on the Northern Territory model and could be adapted over time to suit the ear health needs of other jurisdictions.

Below is a summary of existing approaches to monitoring ear health.

## BACKGROUND

The continuing prevalence of ear disease and hearing loss in Australia's Aboriginal and Torres Strait Islander populations is a clear barrier to closing the gap priorities.

Gruen et al (2008) found that dynamic interactions between multiple system components is a core principle of a comprehensive approach to health-program sustainability, along with the program's context and resource availability.<sup>5</sup>

In the case of ear disease, Morris et al (2005) reported an overall otitis media prevalence of 90% among children less than three living in 29 remote Northern Territory communities.<sup>6</sup> Ongoing surveillance confirms that less than 10% of young children have bilateral normal ears.<sup>7</sup> Kong & Coates (2009) highlight the difficulty in establishing incidence and prevalence rates across Australia due to definitional and diagnostic differences and uncertainty.<sup>8</sup> One

estimate from the World Health Organization in 1996 reported Aboriginal people had among the highest rates of chronic otitis media in the world (12-25%), and cautioned that a prevalence of >4% indicates a massive public health problem requiring urgent attention.<sup>9</sup>

A 2010 Senate Inquiry into hearing health in Australia recommended a national dataset and register for neonatal hearing screening that could track children through neonatal hearing screening, diagnosis and intervention, and eventually all children diagnosed with a hearing impairment later in life.<sup>10</sup>

At the biennial Australian Otitis Media conferences in 2014 and 2016, experts in the field of chronic ear disease from all around Australia passed motions calling on governments to establish a national hearing health taskforce and program as a matter of urgency.



# EXISTING APPROACHES TO MONITORING EAR HEALTH

In 2017, we are still unable to monitor the national prevalence of ear disease, its geographic distribution, screening rates, wait times between referrals or whether timely and appropriate treatments are being delivered and are effective. Data are unlinked within various silos and infrequently released.

There are considerable missing data in the approaches listed below. For example although annual primary health checks are available to all Aboriginal and Torres Strait Islander people, the majority do not access them, may not identify their ethnicity when accessing health services, or the check may not identify the fluctuating state of the ear.

2014/15 data from the Indigenous health check data tool show that of the 0-4 age group, more than 63,000 children did not receive a health check, compared with 21,825 checks billed to the MBS.<sup>11</sup> The proportion of young people not receiving a check was even larger in the 5-14 and 15-24 age groups and the Australian Institute of Health and Welfare estimates about 50% of all Aboriginal and Torres Strait Islander people have not received a health check in the past five years (unpublished data).

It should be noted that most child health surveillance is carried out by nurses and Aboriginal health practitioners who cannot claim an MBS item without a doctor's review. As the MBS review can only be claimed every nine months and frequent review of ears is needed for timely detection, it is likely that incentives to review ears when children are seen for any reason may be the most effective way of increasing surveillance.

## ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH PERFORMANCE FRAMEWORK<sup>12</sup>

This comprehensive approach to monitoring progress in Aboriginal and Torres Strait Islander health outcomes, health system performance and the broader determinants of health is collated by the Department of Prime Minister and Cabinet, and released every two years. The most recent iteration was released in June 2017.

The report draws on statistics from a range of Commonwealth, state and territory government agency resources and experts. Much of the data included on ear health in the 2017 Health Performance Framework is analysed and provided by the Australian Institute of Health and Welfare (AIHW). The AIHW also compile online tables<sup>13</sup> from data provided by states, territories and the Commonwealth.

## MEDICARE STATISTICS

Medicare offers MBS item number 715 (Health Assessment for Aboriginal and Torres Strait Islander People),<sup>14</sup> however as noted above this is a poor measure of ear health surveillance in Aboriginal primary healthcare. The Associated Notes state that medical practitioners are required to undertake an ear examination, including otoscopy, in patients under 55. This will be recorded in the patient's file but there is no aggregation and public reporting of this data.

The Australian Institute of Health and Welfare hosts the Indigenous health check data tool which allows users to search 715 uptake by Medicare Local areas or Primary Health Network.<sup>15</sup> It is also possible to search for services provided by item number on the Department of Human Services website.<sup>16</sup> In some cases claims for health assessments are rejected because a 715 was claimed by another health service elsewhere in the previous nine months, which may affect the reliability of this data.

Aboriginal and Torres Strait Islander people can be referred by a medical practitioner for allied health follow-ups when a health assessment has been undertaken and a need for follow-up has been identified. These services are covered by 13 separate items in the 81300 to 81360 range, including audiologist (81310) and speech pathologist (81360), and can also be carried out by a practice nurse or an Aboriginal and Torres Strait Islander health practitioner on behalf of a medical practitioner (10987).

## EAR HEALTH PROGRAM DATA

The Commonwealth Department of Health's main commitment to improving the ear health of Aboriginal and Torres Strait Islander people is the Healthy Ears – Better Hearing, Better Listening program, which provides funding for outreach ear health services within primary healthcare.<sup>17</sup> The program received around \$24 million from 2013-14 to 2016-17 and \$29.4 million from 2017-18 to 2021-22.

While the team members of outreach services in receipt of Healthy Ears funding need to demonstrate that they have undertaken cultural awareness and safety training (although whether this is locally specific is not mandatory), there is no mention of data requirements in the service delivery standards. Funding agreements also do not include clear requirements about data that must be collected and in some cases the Commonwealth has not capitalised on jurisdictional efforts to improve the usefulness of data collection efforts.



Data that are provided comes from a range of services with different service delivery models and information collected.

It is hoped that through the current COAG Health Council process which is exploring the feasibility of a national approach to reducing ear disease, we can gain a greater understanding of what the various states and territory programs are collecting and data gaps. National Key Performance Indicators should be introduced.

### **NORTHERN TERRITORY REMOTE ABORIGINAL INVESTMENT: EAR AND HEARING HEALTH PROGRAM**

This report presents data on the Indigenous children and young people who participated in the audiology, ear, nose and throat teleotology and Clinical Nurse Specialist services delivered under the National Partnership Agreement on Northern Territory Remote Aboriginal Investment.

Data captured include:

- Outreach audiology services provided
- ENT teleotology services provided
- Clinical Nurse Specialist visits
- Levels and type of hearing loss and impairment recorded
- Ear conditions recorded
- Type of referral
- Demand for services

As at 30 June 2016, 2,462 children and young people were on the ENT teleotology service waiting list and 90% of them had an outstanding referral.<sup>18</sup>

This program has shown some improvements in hearing health among children in the Northern Territory, with a reduction in the proportion of children with some type of hearing loss (49% in 2015-16 compared with 52% in 2012-13). There was also a reduction in the proportion of children with a hearing impairment (32% compared with 37% in 2012-13) and from August 2007 to June 2016 the proportion diagnosed with any ear condition decreased from 78% to 49% between their first and last service.<sup>19</sup> These data are not adjusted for confounders and do not attribute causality.

The report highlights the ongoing high demand for effective prevention strategies and hearing and ear health services.

### **THE NATIONAL ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH SURVEY**

This survey was last conducted in 2012-13 as part of the wider Australian Bureau of Statistics Australian Health Survey. Its next cycle will be in 2018-19. It is designed to produce data about health status, risk factors, socioeconomic circumstances and physical

measurements including height, weight, waist circumference and blood pressure.

The last sample included a representative group of around 11,500 Aboriginal and Torres Strait Islander people from approximately 6,000 households. The next survey will include questions on some new topics including mental, behavioural and cognitive conditions, experiences of violence, e-cigarette use, and a hearing test. The National Acoustic Laboratories are developing a laptop-based application that will use an automated paradigm to find air conduction thresholds at two frequencies in each ear; however this will only capture a single point in time for survey participants who are old enough to be tested. Children under three years of age (the critical age for language development) are not able to be tested.

### **AUSTRALIAN ATLAS OF HEALTHCARE VARIATION**

The Australian Commission on Safety and Quality in Health Care collaborated with the Australian, state and territory governments, specialist medical colleges, clinicians and consumer representatives to develop the first Australian Atlas of Healthcare Variation released in 2015.

The first edition includes sections on antimicrobial dispensing and hospital admissions for myringotomy and/or ventilation tube (grommet) insertion. The second edition, released in June 2017, builds on some areas identified for action in the first edition but omits antimicrobial dispensing and myringotomy.

The first edition reports significant variation between local areas in antimicrobial prescription rates per capita. Further analysis could focus on factors that contribute to local variations in antimicrobial dispensing. This requires an understanding of data sources. In non-remote areas, primary healthcare medications are usually provided through the PBS scheme and provided through pharmacies. In remote areas, the S100 scheme supplies medications directly to Aboriginal primary healthcare services which are not captured by PBS statistics.<sup>20</sup>

In 2012-13 there were 34,065 myringotomy admissions to hospital representing 621 admissions per 100,000 people aged 17 years and under. The number of admissions was 6.8 times higher in the area with the highest rate (Onkaparinga, SA) compared to the area with the lowest rate (Alice Springs, NT).<sup>21</sup> These findings warrant further investigation as variation could be due to a range of factors such as poor social determinants and higher rates of infection which are likely predictors of myringotomy failure.

The report also noted that rates of myringotomy in Indigenous children aged under four are about one-

third lower than in non-Indigenous children in NSW, and that variation in myringotomy admissions across Australia may be due to the distribution of Indigenous people and their access to targeted ear health services. Telethon Kids Institute in WA has done a data linkage study on hospitalisation for otitis media to better understand the burden of the disease and access to services.

### **NATIONAL KEY PERFORMANCE INDICATORS**

In return for Commonwealth Department of Health funding, primary healthcare organisations providing services primarily to Aboriginal and Torres Strait Islander people are required to capture data for the Commonwealth's national Key Performance Indicators data collection. Appendix 1 lists the 19 indicators.<sup>22</sup> Hearing health is not addressed.

The recently developed Northern Territory Aboriginal Health KPI on ear health which examines the proportion of children with ear discharge when examined by otoscopy over a 12 month period was reported for the first time in July 2017. It is hoped this data will soon be publicly available.

### **DATA COLLECTED BY ABORIGINAL COMMUNITY CONTROLLED ORGANISATIONS**

The Australian Institute of Health and Welfare's Aboriginal and Torres Strait Islander health organisations: Online Services Report - key results 2015–16 provides data on services delivered by ACCHOs. It notes that over half the organisations providing primary health care services reported mental health/social and emotional wellbeing services as a service gap (54%); and the recruitment, training and support of Aboriginal and Torres Strait Islander staff as a key challenge to delivering care (67%).<sup>23</sup>

Some organisations felt that clients with high needs had to wait too long for some services, in particular access to specialist and dental services. This was more commonly reported by organisations in remote or very remote areas. Around half reported the coordination of clinical care with other providers (50%), and appropriate health service infrastructure (49%) as challenges.<sup>24</sup>

### **STATE AND TERRITORY ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH PLANS AND PROGRAMS**

The Aboriginal and Torres Strait Islander Health Performance Framework summarises state and territory actions to address Aboriginal and Torres Strait Islander health priorities more broadly.

In the Northern Territory, the Healthy Under 5 child health surveillance program contains a schedule for regular review of children, normally carried out by a nurse or Aboriginal and Torres Strait Islander Health Practitioner, and it is hoped data from this program will be available in the future.

### **AUSTRALIAN EARLY DEVELOPMENT CENSUS**

The Australian Early Development Census (AEDC) is a population-based measure of children's development as they enter their first year of full-time school, and takes place nationally every three years.<sup>25</sup> Data are released in the year following its collection. Some of the results are subjective, as it is based on teacher perception.

Teachers complete the Australian version of the Early Development Instrument (AvEDI) for each child in their class, which is collected using a secure data entry system. This is completed based on the teacher's knowledge and observations of the children in their class. The AvEDI includes approximately 100 questions across five domains of child development:

- Physical health and wellbeing
- Social competence
- Emotional maturity
- Language and cognitive skills (school-based)
- Communication skills and general knowledge.<sup>26</sup>

The latest results show that while there are some positive outcomes, over the period 2009-2015 the gap between the proportions of developmentally vulnerable children in the most disadvantaged areas, relative to the least disadvantaged areas, widened across all five domains.<sup>27</sup>

Section D of the AvEDI focuses on emerging needs and asks specific questions related to hearing impairment; however these data are not publicly available. History of otitis media or hearing difficulties was included for all children in the 2009 and 2012 data collections based on findings from the Indigenous Australian Early Development Index project, which would suggest that its impact was considered important enough to warrant inclusion.<sup>28</sup> In a Western Australian study, chronic disease was the most significant predictor of vulnerability for children entering school, and chronic otitis media accounted for 70% of chronic disease.<sup>29</sup>



## INNOVATIVE PRACTICES

Effective primary prevention strategies have typically addressed prevention and awareness; early identification; and treatment and support.<sup>30</sup>

There are several examples of best practice collaboration, data collection and monitoring that could guide a national approach to monitoring ear health including:

- The Deadly Ears program, which has developed and implemented a state-wide framework, Deadly Kids, Deadly Futures, to improve coordinated service delivery across health, early childhood and education in Queensland. It also provides a range of clinical outreach to communities across this state.<sup>31</sup>
- The Northern Territory's Hearing Health Information Management System (HHIMS) – a Department of Health custom-built hearing health record that stores specialist ear and hearing clinical data to support multidisciplinary care and outreach, launched April 2017.
- The NSW Hearing Ear Health and Language Services project demonstrated the ability to deliver a high number of services in very tight timeframes due to strong, longstanding relationships between the research, medical and Aboriginal community controlled health sector.<sup>32</sup>



## KEY ISSUES FOR GOVERNMENT CONSIDERATION

It is crucial that any Government funding provided to address ear health is supported by robust data and good clinical services in both urban and regional settings.

Surveillance and services should be delivered by a skilled, well-resourced primary healthcare and specialist workforce. Services need to be strengthened by clinical quality improvement using robust clinical data and access to resources and training that support the workforce to deliver timely evidence based care.

Remote areas generally have high rates of staff turnover and an Aboriginal workforce that is often not well supported. It will be important to develop an approach that takes into account the constraints and complexities of Aboriginal primary healthcare particularly in remote areas.

Otitis media is not just a remote problem – there are a significant number of children in urban areas who cannot hear and may not be able to access services, and inadequate data to monitor the situation.

Benchmarks are important to monitor the outcomes of care and to highlight areas that require more support. These might include more children with bilateral normal ears, improvement in hearing, numbers of adults with adequate hearing for daily communication, fewer tympanic membrane perforations, less bilateral otitis media with effusion, and language outcomes. Coordination between the different services providing hearing health services is critical.

As a minimum basis for benchmarking, we recommend governments measure:

1. Ear disease ratio: number of children with any type of ear disease at least once over a 12 months period/ number measured at least once, by age group.
2. Coverage ratio: number measured/total population, by age group.

Over time, this baseline prevalence would help to inform additional metrics, such as:

- The proportion of Aboriginal and Torres Strait Islander children by age group who have received an age-appropriate ear assessment in line with the national clinical care guidelines on the management of otitis media in the past year, and data captured (preferably type of middle ear infection where detected, action taken and outcome).
- The proportions of Aboriginal and Torres Strait Islander children by age group who have received a hearing check in the past year, and data captured (preferably level of hearing loss detected, action taken and outcome).
- The extent of follow up services for children who had a hearing problem diagnosed.
- The proportion of children failing hearing checks.
- The proportion of children failing medical interventions.
- The proportion of children failing surgical interventions.
- Needs assessment at the local level so that efforts can be targeted.
- Wait times for hearing checks and ENT assessment, and the proportion of children by age group seen within the clinically recommended time.
- Rates of hospitalisation for respiratory and ear infections.
- Rates of ENT surgical interventions for Aboriginal and Torres Strait Islander children vs non-Aboriginal and Torres Strait Islander children by age group. Rates of children achieving better or worse hearing outcomes should also be measured at multiple post-surgical points in time.
- Rates of rehabilitative audiological interventions (hearing aid fitting) for Aboriginal and Torres Strait Islander children vs non-Aboriginal and Torres Strait Islander children by age group, and rates of improved outcomes (eg language development).
- Wait times and participation in follow up consultations.
- Cumulative history of ear disease and hearing loss among children beginning school who have or have not received a hearing test previously, compared to when the program began.

Consideration should also be given to continuing medical education opportunities for people working in Aboriginal Community-Controlled Health Organisations and local practices to gauge staff confidence in conducting ear health checks, the use of equipment, and knowledge of referral pathways. It is essential that practice nurses and Aboriginal and Torres Strait Islander health practitioners have the skills and confidence to deliver these services. Given the high turnover of non-local staff, training needs to be evaluated.

A 2016 Australian Medical Association submission into a Commonwealth inquiry into the hearing health and wellbeing of Australia notes that contact with the criminal justice system provides a valuable opportunity to detect and address health conditions experienced by detainees/prisoners.<sup>33</sup> Providing a general health assessment upon admission and access to treatment would also generate a much better picture of ear disease and its burden on individuals and society. Such services could be extended to young first offenders in the community. Children who regularly miss school should also have their hearing and language skills assessed, and be provided with appropriate services (speech therapy, communication strategies).

Noting the AMA's 2008 recommendation that Australian governments set and achieve a target of 90 per cent of Indigenous children having a hearing assessment prior to entering school within 10 years, the evidence indicates regular ear assessments and medical intervention in the <3 age group is the most critical.<sup>34</sup>

Much of the data required are already captured in the approaches to monitoring ear health listed above; however it needs to be standardised, population-based, synthesised and reported more regularly and comprehensively, particularly to policy makers and people and organisations involved in the delivery of ear health services. It is also important to provide localised data, so that geographical areas of need can be identified. A similar model has been applied successfully to eye health.

Skills in diagnosis and management of ear disease must be integrated into everyday local service delivery if quality, meaningful data are to be available. Parents, carers, teachers and children will also benefit from a better understanding of ear and hearing problems, and about when and how to seek help.

A national approach to monitoring ear health depends on the commitment of governments across Australia, the health workforce and families, and interoperability solutions for information systems.

## REFERENCES

- 1 Australian Hearing Aboriginal & Torres Strait Islander Services. Draft Aboriginal and Torres Strait Islander Ear Health and Hearing Road Map.
- 2 Australian Indigenous HealthInfoNet. Review of ear health and hearing among Indigenous Australians [Internet]. Australian Indigenous HealthInfoNet; 2013. Available from: <http://www.healthinonet.ecu.edu.au/other-health-conditions/ear/reviews/our-review>
- 3 Housing for Health – the guide [Internet]. Available from: <http://www.housingforhealth.com/>.
- 4 Sibthorpe Beverly, Agostino Jason, Coates Harvey, Weeks Sharon, Lehmann Deborah, Wood Marianne, Lannigan Francis, McAullay Daniel. Indicators for continuous quality improvement for otitis media in primary health care for Aboriginal and Torres Strait Islander children. *Australian Journal of Primary Health*. 2017; 23, 1-9.
- 5 Gruen R, Elliott J, Nolan M, Lawton P, Parkhill A, McLaren C et al. Sustainability science: an integrated approach for health-programme planning. *The Lancet*. 2008;372(9649):1579-1589.
- 6 Morris PS, Leach AJ, Silberberg P, Mellon G, Wilson C, Hamilton E, Beissbarth J. Otitis media in young Aboriginal children from remote communities in Northern and Central Australia: a cross-sectional survey. *BMC Pediatr*. 2005 Jul 20;5:27.
- 7 Leach AJ, Wigger C, Beissbarth J, Woltring D, Andrews R, Chatfield MD, Smith-Vaughan H, Morris PS. General health, otitis media, nasopharyngeal carriage and middle ear microbiology in Northern Territory Aboriginal children vaccinated during consecutive periods of 10-valent or 13-valent pneumococcal conjugate vaccines. *Int J Pediatr Otorhinolaryngol*. 2016 Jul;86:224-32.
- 8 Kong K, Coates H. Natural history, definitions, risk factors and burden of otitis media. *MJA*. 2009;191(9):S39-S43.
- 9 World Health Organization. Prevention of hearing impairment from chronic otitis media [Internet]. London: World Health Organization; 1998 p. p2, p8. Available from: [http://www.who.int/Commonwealth of Australia Senate Community Affairs Committee. Hear Us: Inquiry into Hearing Health in Australia. Canberra; 2010. Available from: \[http://www.aph.gov.au/senate\\\_ca\]\(http://www.aph.gov.au/senate\_ca\)](http://www.who.int/Commonwealth of Australia Senate Community Affairs Committee. Hear Us: Inquiry into Hearing Health in Australia. Canberra; 2010. Available from: http://www.aph.gov.au/senate_ca)
- 10 Indigenous health check (MBS 715) data tool (AIHW) [Internet]. [aihw.gov.au](http://www.aihw.gov.au). 2017 [cited 22 May 2017]. Available from: <http://www.aihw.gov.au/indigenous-australians/indigenous-health-check-data-tool/>
- 11 Department of Prime Minister and Cabinet. Aboriginal and Torres Strait Islander Health Performance Framework 2017 Report. Canberra: Australian Health Ministers' Advisory Council; 2017.
- 12 Aboriginal and Torres Strait Islander Health Performance Framework 2017 Online data tables. Australian Institute of Health and Welfare, June 2015. [Internet]. [aihw.gov.au](http://www.aihw.gov.au). 2017 [cited 21 June 2017]. Available from: <http://www.aihw.gov.au/indigenous-data/health-performance-framework/>
- 13 Item 715 | Medicare Benefits Schedule [Internet]. [www9.health.gov.au](http://www9.health.gov.au). 2017 [cited 22 May 2017]. Available from: <http://www9.health.gov.au/mbs/fullDisplay.cfm?type=item&qt=ItemID&q=715>
- 14 Indigenous health check (MBS 715) data tool (AIHW) [Internet]. [aihw.gov.au](http://www.aihw.gov.au). 2017 [cited 22 May 2017]. Available from: <http://www.aihw.gov.au/indigenous-australians/indigenous-health-check-data-tool/>
- 15 Medicare Australia - Statistics - Item Reports [Internet]. [medicarestatistics.humanservices.gov.au](http://medicarestatistics.humanservices.gov.au). 2017 [cited 22 May 2017]. Available from: [http://medicarestatistics.humanservices.gov.au/statistics/mbs\\_item.jsp](http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp)
- 16 Department of Health | Primary Health Care [Internet]. [Health.gov.au](http://www.health.gov.au). 2017 [cited 22 May 2017]. Available from: <http://www.health.gov.au/internet/main/publishing.nsf/Content/indigenous-primary-health-care-lp>
- 17 Australian Institute of Health and Welfare. Northern Territory Remote Aboriginal Investment: Ear and Hearing Health Program - July 2012 to June 2016. Canberra: AIHW; 2017. p35.
- 18 Ibid, pvii.
- 19 Australian Commission on Safety and Quality in Health Care. Australian Atlas of Healthcare Variation. Sydney: ACSQHC; 2015. p44-45.
- 20 Ibid, p152-153.
- 21 Australian Institute of Health and Welfare. National Key Performance Indicators for Aboriginal and Torres Strait Islander primary health care: First national results June 2012 to June 2013. Canberra: AIHW; 2014. p68-70.
- 22 Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander health organisations: Online Services Report - key results 2015-16. Canberra: AIHW; 2017. pvi.
- 23 Ibid, p74.
- 24 Australian Government Department of Education and Training. AEDC Data Guidelines 2017. Canberra: DET; 2016.
- 25 Australian Government Department of Education. Australian Early Development Census: Early Development Instrument and response criteria. Canberra: DET; 2015.
- 26 Australian Government Department of Education and Training. Australian Early Development Census National Report 2015: A Snapshot of Early Childhood Development in Australia. Canberra: DET; 2016.
- 27 The AEDI and Indigenous children [Internet]. [aedc.gov.au](http://www.aedc.gov.au). 2017 [cited 26 June 2017]. Available from: <https://www.aedc.gov.au/about-the-aedc/history/validation-and-trial-of-the-aedi/the-aedi-and-indigenous-children>
- 28 Bell MF, Bayliss DM, R Glauert R, Harrison A, Ohan JL. Chronic Illness and Developmental Vulnerability at School Entry. *Pediatrics*. 2016 May;137(5). Pii: e20152475.
- 29 Australian Indigenous HealthInfoNet. Review of ear health and hearing among Indigenous Australians [Internet]. Australian Indigenous HealthInfoNet; 2013. Available from: <http://www.healthinonet.ecu.edu.au/other-health-conditions/ear/reviews/our-review>
- 30 State of Queensland. Deadly Ears, Deadly Futures: Queensland's Aboriginal and Torres Strait Islander Child Ear and Hearing Health Framework 2016-2026. Brisbane: Queensland Government; 2015.
- 31 Hearing Ear Health and Language Services (HEALS): An innovative project providing ENT and speech therapy for Aboriginal Children. *J Paediatr Child Health*. 2015; 51: 5-6. doi:10.1111/jpc.12913\_16
- 32 Australian Medical Association. AMA submission to the Standing Committee on Health, Aged Care and Sport inquiry into and report on the Hearing Health and Wellbeing of Australia [Internet]. Canberra: AMA; 2016. Available from: <http://www.ama.com.au>
- 33 Australian Government Department of Health, Menzies School of Health Research. Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations. Canberra: Australian Government; April 2010. p35.

FOR MORE INFORMATION PLEASE CONTACT

[indigenoushealth@surgeons.org](mailto:indigenoushealth@surgeons.org)