

Deadly Kids | Deadly Futures

2022-23 Action Plan: Summary Report

Delivery Overview

The 2022-23 Deadly Kids: Deadly Futures (DKDF) work program comprised 10 projects involving 14 government and non-government agencies, sometimes working on their own but commonly working in collaboration with one another. Some of these projects continued work which started in previous years – in some cases before the COVID-19 pandemic – or which were planned and funded while the pandemic was limiting service implementation.

During 2022, health services and education agencies were able to recommence outreach services and/or community visits. This re-engagement was sometimes relatively complex, involving as it did both the services themselves and Indigenous communities which had often been significantly impacted by pandemic constraints. In some cases (such as the Deadly Ears Program) it also involved building on innovations such as telehealth which had been developed or used more frequently when travel was not possible.

This Summary Report describes some of key projects delivered under the 2022-23 Action Plan.

DKDF Projects

Implementing the Listen to Learn Program in Queensland

Hearing Australia's Listen to Learn (L2L) program is funded by the Commonwealth Department of Health and aims to empower parents, educators and carers of Aboriginal and Torres Strait Islander children aged 3 to 8 years of age to recognise hearing problems and take appropriate action. The objective is to ensure children are supported to communicate, listen, learn, and thrive at school. This will help them achieve educational and developmental milestones and will also improve their language skills and their connection to culture through yarning and storytelling.

Listen to Learn aims to build and strengthen partnerships between the health and education sectors and forge new ways of working at state and local levels. The program began in 2022 with an extensive process of stakeholder co-design, which resulted in the following range of services being agreed for Queensland:

- Providing education and awareness of otitis media (OM) and hearing loss and the impacts on children's learning for:
 - ECEC educators and primary school teachers, and
 - parents, carers and families.
- Providing screening and surveillance services (using tools such as the Parent-Led Listening and Understanding Measure, the Hearing and Talking Scale, and Sound Scouts) in ECEC and Schools and supporting on-location testing (otoscopy, tympanometry and audiometry) within ECEC and schools to help with early identification and support.
- Identifying and communicating to educators and teachers:
 - clear, local, culturally appropriate referral pathways for children needing support services
 - resources available for educators, teachers and parents/families (including identifying any gaps which L2L could fill).

Nationally, during FY2022/23 the program screened the hearing of 1163 (329 of whom were First Nations children) with 116 (40 First Nation) receiving diagnostic audiology. The program also delivered ear and hearing health training packages in six ECEC centres, five state primary schools, one Catholic and one independent primary school. Four of the state schools in which training was delivered were in Townsville, where L2L worked in partnership with the regional QED office.

The training packages comprised two modules; Module 1 covered Cultural Determinants and Awareness of Ear Disease and Module 2 covered Prevention and Classroom/Service Modifications. Each module included both face-to-face training and a self-paced e-learning component.

After completing this training:

- two thirds of Module 1 participants reported an increase in confidence in recognising the cultural determinants of health as well as the signs and symptoms of middle ear disease, and
- 97% of participants in Module 2 reported that they felt confident they could make modifications to learning environments to help children with hearing loss listen, hear and communicate more effectively.

Listen to Learn is currently funded until the end of 2023, and during the second half of the year Hearing Australia plans to extend its service delivery to an additional six Queensland schools.

Healthy Housing

The Healthy Housing Pilot Program is a joint initiative between Queensland Health (QH) and the Department of Housing to support living practices that help improve the health of First Nations peoples in social housing. Nine healthy living practices are set out in the National Indigenous Housing Guide (see Text Box 1) and have formed the basis for successful healthy housing programs led by NSW Health and Healthabitat. These practices rely on homes having reliable and effective 'health hardware' (eg taps; drain; laundry fittings) and other infrastructure that reduces risks to health (eg insect screens; functional electrical outlets and food preparation areas).

To ensure that homes provide these supports for health, the Qld Healthy Housing Program has been designed to provide three complementary types of service to participating householders:

1. A rapid-response housing maintenance service to ensure that homes are safe and that health hardware is working properly.
2. A coordinated package of environmental health services to reduce environmental health risks in and around the home.
3. Provision of advice/education and consumables, tailored to the needs of tenants, which support healthy living environments and practices.

The delivery process is illustrated in Figure 1 (overleaf).

The two pilot locations are Yarrabah and on Badu Island in the Torres Strait, and in both places implementation is being co-designed with a Community Advisory Group representing the Council, the health service, the school and other stakeholders chosen by the communities. Program design discussions in Yarrabah began in August 2022 and on Badu in December 2022.

Text Box 1: The Nine Healthy Living Practices

1. Washing People
2. Washing clothes and bedding
3. Removing wastewater safely
4. Improving nutrition, the ability to store prepare and cook food
5. Reducing the negative impacts of over-crowding
6. Reducing the negative effects of animals, insects and vermin
7. Reducing the health impacts of dust
8. Controlling the temperature of the living environment
9. Reducing hazards that cause trauma

(Ref: National Indigenous Housing Guide, 2021)

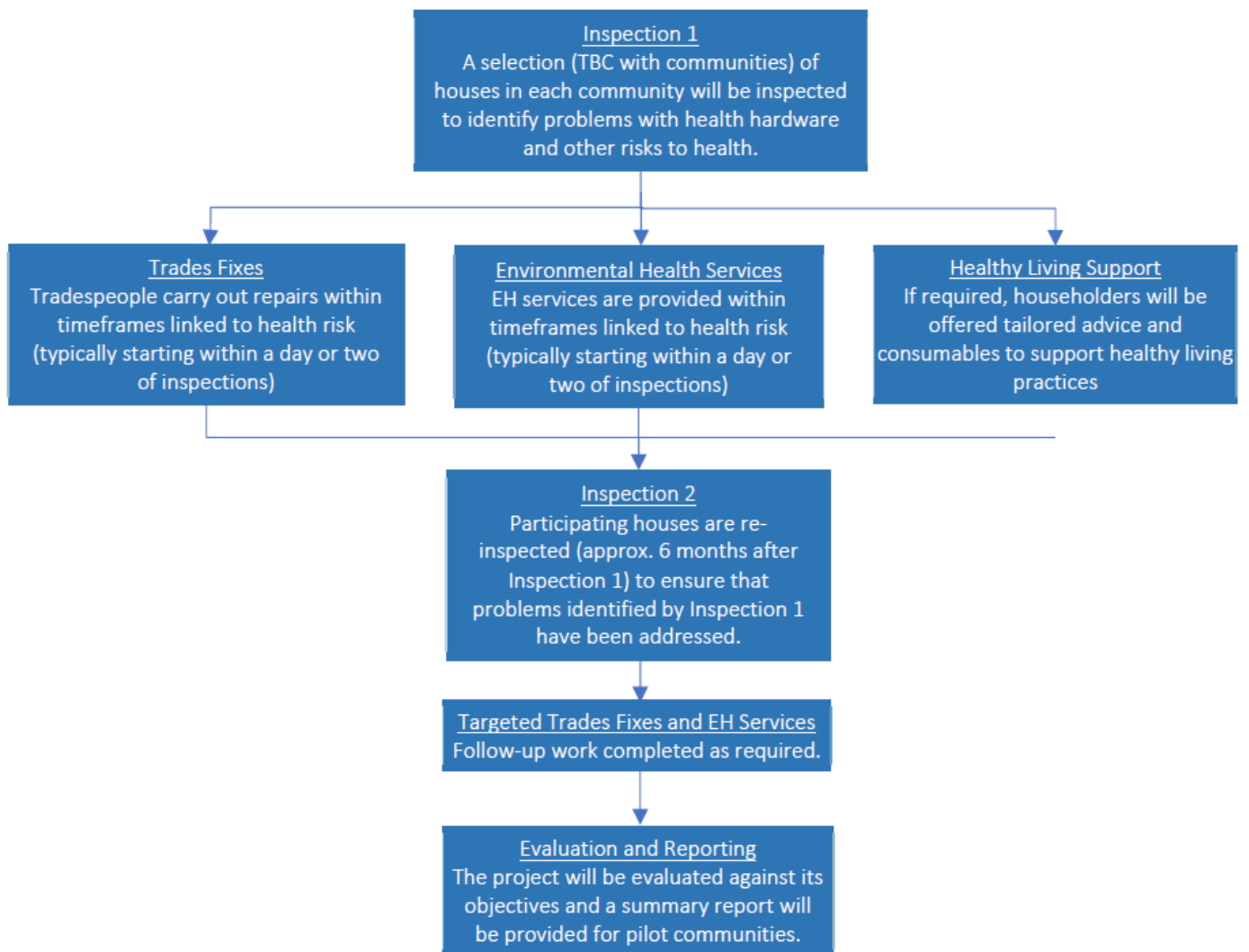


Figure 1: Healthy Housing Service Delivery Model

The selection of houses for participation in the Program was made through a community nomination process. The Program was initially funded to include a total of 120 houses but community interest was so strong that the scope was extended to 150 houses. The teams inspecting the houses include an environmental health worker, a health worker from the local health service, and a housing officer, and the program emphasises training and capacity-building for all participants – including householders themselves.

Problems identified during the inspections are logged using a tablet-based tool that has been developed specifically for the program. Together with its support systems, it allows inspection data to be collated quickly and easily and referrals to be generated for program services such as building trades work, pest control and animal management. Data are also presented in a dashboard format so that the project team can monitor and report on progress.

The Healthy Housing Pilot Program has identified health-related risks in a high proportion of houses inspected. It has also highlighted a range of system-level issues which contribute to the risk of unhealthy homes, and which represent opportunities for improvement for Councils and the Dept of Housing.

The Program anticipates completing the planned pilot work in the second half of 2023, with an evaluation report planned for the end of the year.

Drumbeat.ai

The DrumBeat.ai project is developing an artificial intelligence (AI) algorithm to help clinicians triage children with ear disease using video otoscopy. The project is a partnership between universities, technology companies, government agencies and Aboriginal and Torres Strait Islander people.

CHQ began collaborating with the team in FY2020/21, initially providing access to over 6,000 images from the Deadly Ears Program's QChild database. Together with images collected from the Northern Territory Hearing Health program, this created the largest database of Indigenous Australian otoscopic images collated to date. The additional CHQ images significantly enhanced the team's capacity to train the AI and improve its differential diagnostic precision and recall.

As described in the DKDF Summary Report for FY2021/22, the diagnostic performance of the Drumbeat AI algorithm compares well to that of specialist ear, nose and throat (ENT) doctors. Early analysis showed that:

- the algorithm performed better than ENT raters in identifying Acute OM and (by a smaller margin) normal ears.
- the algorithm and ENT raters performed similarly in identifying Chronic OM
- the algorithm performed worse than the ENT raters in identifying OM with effusion.

The AI diagnoses were based on assessment of otoscopic images alone, although during its training it had been provided with images plus the associated tympanometry and audiometry results and the clinical diagnoses. The ENT diagnoses in the test were based on otoscopic images plus tympanometry, audiometry and nurse findings.

Similar findings have been reported in other studies, according to a meta-analysis conducted by the Drumbeat.ai research team and reported on their website ([DrumBeat.ai](#)). However, additional analysis (also on [DrumBeat.ai](#)) suggests that AI algorithms trained and proven using one cohort dataset perform less well when presented with images from a different cohort dataset. This underlines the importance of using images from Indigenous Australian children when developing a diagnostic tool for use with that cohort. The Drumbeat.AI algorithm has been trained using the largest database of Indigenous Australian otoscopic images collated to date.

During FY2022/23 the researchers continued refining the AI algorithm and the machine learning which underpinned it. In collaboration with Deadly Ears, they also initiated discussions about clinical trials with the Queensland Department of Health and potential trials sites. Work to develop clinical trials will continue in 2023/24.

The goal is to realise the vision of the Drumbeat.ai lead researcher Prof Narinder Singh: "Eventually, we'll create a smartphone app so the untrained health worker out in the community can put an otoscope into the child's ear and get an instant and accurate diagnosis."¹

Expanding ENT Outreach Services in Far North Queensland

Over the past year the Torres and Cape HHS (TCHHS) has expanded its Integrated ENT Outreach (IENTO) service across Cape York, the Northern Peninsula Area and the Torres Strait.

The IENTO clinical team comprises allied health, nursing staff and a GP with specialist ENT training (GP-ENT) who visit primary health care clinics across the region to support general practitioners in diagnosing and managing ENT conditions. The team is supported by specialist otolaryngologists (ENT surgeons) from Logan Hospital who carry out relatively simple surgical procedures (such as adenoidectomies, myringoplasties and myringotomies) in Weipa, Cooktown and on Thursday Island. This means that more patients can receive ENT treatment and management closer to home and can

¹ Snowden, A (2020) Artificial intelligence technology set to reduce indigenous ear disease. The Australian, July 12. Retrieved September 2021 from [Close the gap: Artificial intelligence to improve ear disease \(theaustralian.com.au\)](#).

avoid the need to travel long distances to tertiary referral hospitals. It also allows those tertiary centres to focus on the higher-need and more complex cases which make the best use of their facilities and expertise.

Over 2022/23 the service has expanded and during the 2023 calendar plans to provide around 25 outreach visits to 12 communities across the region, including six surgical trips to Weipa, Cooktown and Thursday Island.

The IENTO service complements Deadly Ears' ear health services for First Nations children, providing a service that covers most ENT conditions and patients of all ages. However, the two services have been working increasingly closely together, with IENTO accepting referrals from Deadly Ears for children that fall outside Deadly Ears clinical scope. IENTO also has a relationship with the ENT department at Cairns Hospital, allowing 'fast-track' referrals for high priority patients who fall outside its own scope.

Over 2023/24 Deadly Ears and the IENTO will be collaborating to ensure that First Nations children across Northern Queensland continue to have access to high quality ENT and allied health services without having to travel to major centres.

Mapping Statewide Service Need.

The Deadly Ears Program has a long history of delivering services to a First Nations communities across Queensland. It has well-established relationships with families, health services and education providers in those locations, and the range of communities it visits has remained largely unchanged for the past decade. The exceptions to this were:

- Eidsvold, where a proactive partnership of families and service providers worked successfully over several years to reduce the rate of ear disease in local children to the point that Deadly Ears' services were no longer needed.
- Hopevale and Wujal Wujal, where the development and expansion of the local community-controlled service plus expansion of the ENT service in Cairns meant that Deadly Ears was able to reduce and eventually withdraw its services.

These changes were responses to the local health landscape of service need and supply, which remains highly dynamic throughout the state.

Starting in late 2022 Deadly Ears began a service planning project to determine whether and where there may be additional need for outreach services to meet the hearing health needs of First Nations children in regional, rural and remote Queensland. This included identifying and mapping the following:

- The demographics of Indigenous children
- The range of available medical and allied health services relevant to hearing health
- Facilities from which Deadly Ears could potentially provide surgical services
- ENT wait times for outpatient and surgical services in the main hospitals
- Referral patterns – including the ratio of referrals per head of population

The Mapping project found that outpatient wait times for ENT services have increased in recent years and that the increase accelerated during the COVID-19 pandemic. ENT is not the only specialty experiencing this and Queensland is not the only jurisdiction that affected. In 2022 the Queensland Audit Office published a report which stated that "in 2021-22, the total number of long waits for specialist outpatient services increased by 80% to around 104,000 patients."² In January 2023 the Australian Medical Association forecast that by June of this year Australia would have an estimated backlog of over 500,000 elective surgery cases.³

² Source: [Health 2022 | Queensland Audit Office \(qao.qld.gov.au\)](https://www.qao.qld.gov.au), page 1

³ Source: [Addressing the elective surgery backlog | Australian Medical Association \(ama.com.au\)](https://www.ama.com.au)

Deadly Ears' Mapping project estimates that over 20,000 First Nations children aged 0-14years live within the HHS catchments particularly impacted by the increased ENT outpatient wait times. In response, Deadly Ears has begun discussions with health providers in the region to explore the potential for improving access to hearing health services. Those discussions will continue over 2023/24 (see the 2023/24 DKDF Action Plan).

Finalisation of the National Key Performance Indicator (nKPI) for Indigenous Health

The development of the nKPI has been a complex process involving clinicians and officials from across Australia and approvals required at federal level. The process began in 2017 with Queensland and the Deadly Ears program playing a significant role in its initiation, and since then it has featured on several annual DKDF Action Plans.

The nKPI that was shown in the DKDF Summary Report for 2021/22 was revised in the latter stages of the approvals process. The final measure which (agreed by the Health Service Health Action Group in June 2023) is as follows:

- 1. Count of Indigenous regular clients aged 0–14 who had a completed check of the appearance of both ear canals and eardrums recorded in the previous 12 months.*
- 2. Count of Indigenous regular clients aged 0–14 who had a completed check of the movement of both eardrums (tympanic membrane) recorded in the previous 12 months.*
- 3. Count of Indigenous regular clients aged 0–14 who had a completed check of the appearance of both ear canals and eardrums recorded in the previous 12 months AND a completed check of the movement of both eardrums recorded in the previous 12 months.*

Over 2023/24 the Commonwealth Department of Health will be working with the four main providers of clinical information systems to ensure that they will include the fields necessary to capture the above data. They will also be providing clear information to reporting health services as well as training where required. Reporting on the nKPI is planned to begin in FY 2024/25.

Further Information

For further information on any of the projects in the 2020-21 DKDF Action Plan, please contact:

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