The Hearing EAr health and Language Services initiative (HEALS)

Young C, Gunasekera H, Kong K, Purcell A, Muthayya S, Vincent F, Wright D, Gordon R, Bell J, Gillor G, Booker J, Fernando P, Kalucy D, Sherriff S, Tong A, Parter C, Bailey S, Redman S, Banks E, Craig JC

ACKNOWLEDGEMENTS

CITATION

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Background

The gap between Aboriginal and non-Aboriginal Australian's health outcomes is well documented,[1-4] but there are relatively few examples of how service delivery can be enhanced, particularly in urban settings where most Aboriginal people live.[5] Aboriginal families experience greater barriers than other Australians when accessing health services for many reasons including: insufficient, often inconsistent funding for community health services; economic hardship; limited access to culturally appropriate health-care; discrimination; communication and language barriers; lack of transport; and other socio-economic barriers.[6-9]

Theoretically, Aboriginal families have equal access to publicly funded healthcare in Australia. However, these barriers they face [6-9] lead to under-utilisation of services despite greater need.[10, 11] Given the persistent disparities between Aboriginal and non-Aboriginal health outcomes, implementing programs that enable greater healthcare access is likely to be an effective strategy to help Close the Gap.[12] Aboriginal Community Controlled Health Services (ACCHS) address barriers to primary healthcare by providing culturally appropriate services that are trusted by Aboriginal communities.[13]

Middle ear disease or otitis media (OM) is a common childhood illness with 80% of children experiencing at least one episode of OM by the age of 3 years.[14] However in Aboriginal children OM occurs younger, more severely and for longer periods than non-Aboriginal children and, therefore, results in higher levels of hearing loss, speech and language impairment, and other complications such as chronic perforations and chronic suppurative otitis media.[15-17] Suffering from hearing loss and speech delay during the key early schooling years makes learning difficult and these children are unable to reach their full potential.

For both Aboriginal and non-Aboriginal people living in New South Wales (NSW), waiting times for Ear, Nose, and Throat (ENT) surgery and speech-language pathology services routinely exceed six months and frequently exceed one year.[18, 19] Barriers to accessing ENT surgery and speech pathology services are particularly concerning for Aboriginal children for whom ear disease and subsequent hearing loss is highly prevalent during developmentally crucial years.[15],[16] This, in turn, may exacerbate the risk of poorer developmental outcomes and the adverse downstream health consequences that ensue throughout the lifespan of Aboriginal people.[17, 20] To date, programs specifically designed to make specialist ENT services more accessible for Aboriginal people have largely targeted rural and remote communities[21-23], with few implemented in metropolitan locations where most Aboriginal people live.[24]

In March 2013, and then again in 2014, NSW Health provided funding to the Sydney Children's Hospitals Network (SCHN) for the Hearing, EAr health & Language Services initiative (HEALS) in response to findings on otitis media and speech and language impairment in a large cohort of urban Aboriginal children participating in the Study of Environment on Aboriginal Resilience and Child Health (SEARCH).[25] The HEALS program provided ENT and speech-language pathology services at no cost to Aboriginal children identified through SEARCH and by utilizing existing ACCHS wait-lists and existing partnerships with five ACCHS and one Aboriginal clinic in NSW.

HEALS is a collaboration among multiple healthcare agencies built on research partnerships founded through SEARCH that brings together Aboriginal communities, researchers and multiple health agencies.[25] Under the HEALS initiative, two projects were conducted. One detailed the structure and achievement of the HEALS' program and described how it was able to circumvent traditional barriers to health service delivery for Aboriginal children and their families in six NSW urban centres. A second project identified barriers to accessing specialist care amongst urban Aboriginal families. These two projects are reported separately in the following chapters.

Project A – A case study of enhanced clinical care enabled by Aboriginal health research: the Hearing, EAr health and Language Services (HEALS) project

METHODS

HEALS was implemented in conjunction with SEARCH, a community-initiated longitudinal cohort study investigating multiple health outcomes in urban Aboriginal children aged 0-17 years. SEARCH began collecting detailed audiology, ear-health, and speech and language data from Aboriginal children in collaboration with four ACCHS (Aboriginal Medical Service Western Sydney, Awabakal Newcastle Aboriginal Cooperative, Riverina Medical and Dental Aboriginal Corporation, and Tharawal Aboriginal Corporation) in 2009. Preliminary data provided evidence of a high burden of otitis media, hearing loss and speech and language impairment.[16] In March 2013, responding to these identified needs, NSW Health indicated that $950,000 funding was available for audiology, ENT, and speech-language pathology services. As the funding was for the financial year there was a 17-week timeframe in which to identify suitable children and deliver the healthcare services. In 2014, the approach from NSW Health was repeated, albeit later, leaving a 13-week timeframe, with $800,000 available.

This project firstly sought to detail the HEALS program outcomes through service delivery data. The second objective was to illustrate the necessary partnerships, institutions and staff that made the service delivery possible. Thirdly the project aimed to describe stakeholder perspectives on the structure and processes of the HEALS program that led to the improved access to specialist health services for Aboriginal families through qualitative evaluation. The results of this study can be used to inform healthcare delivery and develop strategies for reducing healthcare barriers for the Aboriginal community in other settings and with other conditions.

Service delivery data

Service delivery data (number of speech pathology sessions and ENT procedures) were based on weekly or fortnightly activity reports each ACCHS provided to the SCHN and the final report to NSW Health delivered in November 2013 and October 2014. We confirmed reports through communication with Project Officers based at each ACCHS, local service providers, the Sax Institute, and researchers and clinicians from the SCHN who oversaw the HEALS project. This activity was cross-checked with invoices received and with other sources of data such as the separate surgical list spreadsheets provided by the surgeons and public hospitals directly. Speech therapy intervention activities were also checked with speech pathologists directly when clarifications were needed.

Partnerships and Management

As a new and innovative way of working together, the multi-disciplinary group saw the importance of documenting the network and processes that allowed the rapid provision of ear health and speech services to Aboriginal children to occur. The network (based on the research program SEARCH), made up of researchers, primary care providers, specialists and the Aboriginal community has been diagrammatically illustrated and the management processes have been outlined (Figure 1).

Figure 1. The HEALS Network
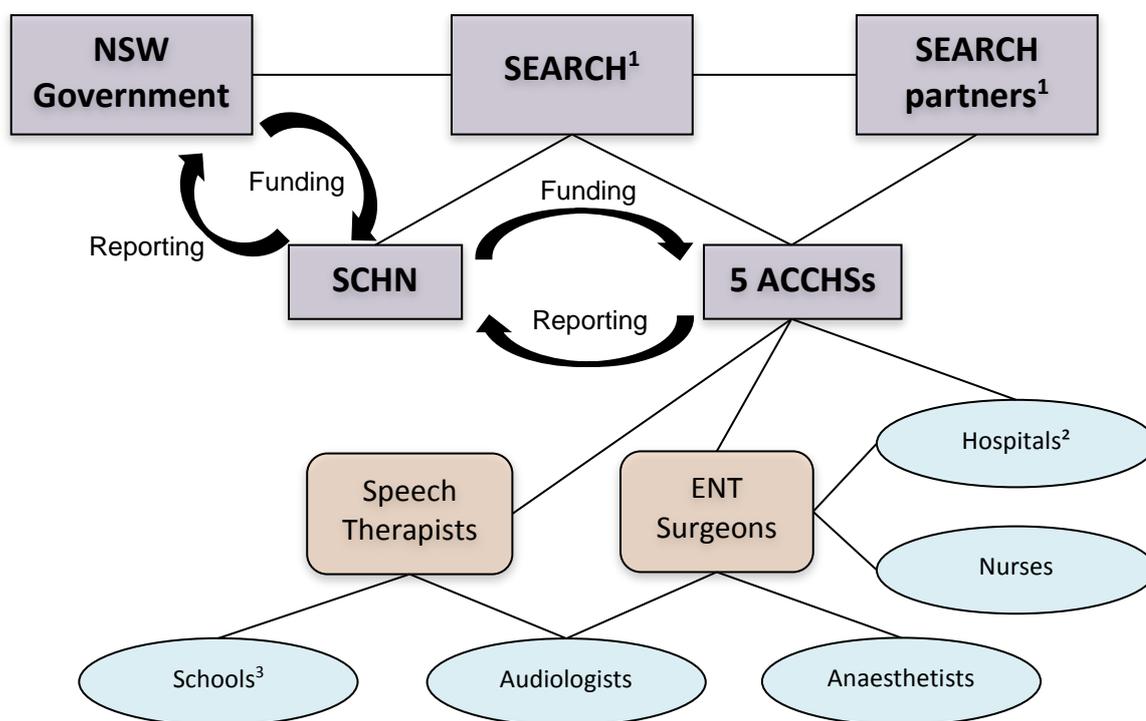
¹**SEARCH** *(Study of Environment on Aboriginal Resilience and Child Health) partners include: The Sax Institute, Aboriginal Health and Medical Research Council, University of Sydney, Australian National University, Beyondblue, Charles Darwin University, University of Wollongong, University of Western Australia, The University of Newcastle, SCHN Sydney Children's Hospitals Network, ACCHS (Aboriginal Community Controlled Health Services)*

²**Hospitals**: *Nepean Hospital, Calvary Hospital, Campbelltown Hospital, John Hunter Hospital.*

³**Schools**: *North St Mary's Public, Bidwill Primary, Tregear Public, Awabakal Preschool Glendale, Awabakal Childcare Centre Wickham, Awabakal Preschool Biraban. Ashmont Public, Tolland Public, Mt Austin Public, Bimbi Preschool, Kooringal Public, Ooranga Wandarrah Preschool, Rosemeadow Public, St John's Primary, Thomas Achres Public, Briar Road Public.*

Qualitative evaluation

Participants

Participants were recruited from four ACCHS: Awabakal Newcastle Aboriginal Cooperative, Riverina Medical and Dental Aboriginal Corporation, Tharawal Aboriginal Corporation, and Illawarra Aboriginal Medical Service. Eligible participants included caregivers of children who received HEALS services, health service professionals, and senior ACCHS administrators involved in the delivery of HEALS services. Purposive sampling was used to ensure a diverse cross-section of participants.

Data collection

Face-to-face semi-structured interviews were conducted between February and December 2014. Interviews were conducted at the ACCHS by members of the research team; an Aboriginal researcher was present for all interviews. All interviewers had received training in

conducting qualitative research by one of the research team members, a social scientist, and had previously conducted interviews at the participating ACCHS. Because of this relationship, some ACCHS staff members knew the researchers. Participation was voluntary and all participants provided informed consent before the interviews took place. Participant recruitment ceased when saturation was reached. Interviews were audio-recorded and transcribed.

Data analysis

The transcripts were entered in HyperRESEARCH (version 3.5.2; Research-ware Inc.), a software program used to manage qualitative data. Using thematic analysis, members of the research team independently coded the transcripts, inductively interpreted the data to identify emerging concepts and refined the themes relating to the outcomes of the HEALS intervention. The final version of the themes was agreed upon via discussion among the interviewers. A summary of the preliminary findings was provided to participants should they wish to offer feedback; however, no feedback was received.

RESULTS

HEALS program outcomes

In total, HEALS provided speech-language pathology services for 479 children and ENT surgeries for 191 children (17 children received both speech-language pathology services and ENT services). HEALS service outputs for 2013-14 are shown in Table 1. The number of services delivered varied by ACCHS due to the availability of local speech pathologists, and the catchment area of each ACCHS. Some services experienced delays due to difficulties enlisting the services of speech pathologists, however, the HEALS project team was able to find speech pathologists for those services that could not identify their own service providers. For ENT surgery, every ENT surgeon approached agreed to help. The ENT surgeons had their own lists scheduled for the rest of the year, however, as funding was available, they were willing to add additional lists, including on weekends, in order to meet the surgery targets. HEALS exceeded the targets set by NSW Health in both 2013 and 2014, despite a 16% decrease in funding in the second year.

Table 1. Overview of HEALS service delivery in 2013/14

Aboriginal Community Controlled Health Service (ACCHS)	Location	Speech-language pathology services [1]				ENT Surgery	
		2013		2014		2013	2014
		No. of children	No. of sessions	No. of children	No. of sessions	No. of children	
Aboriginal Medical Service Western Sydney (AMSWS)	Mt Druitt	61	960	23	298	19	8
Riverina Medical and Dental Aboriginal Corporation (Rivmed)	Wagga Wagga	56	332	52	529	12	7
Tharawal Aboriginal Corporation	Campbelltown	64	831	56	607	22	18
Awabakal Newcastle Aboriginal Co-Operative	Newcastle	45	610	47	600	41	56
Illawarra Aboriginal Medical Service (IAMS)	Wollongong	45	275	54	322	N/A [2]	11
La Perouse Aboriginal Health Centre [3]	La Perouse	N/A	N/A	37	458	N/A	N/A
Total [4]		271	3008	269	2814	94	100

[1]*One speech therapy session was defined as ≤ 40 minute period of assessment or therapy*

[2]*A late partnership with IAMS meant ENT services could not be offered at this ACCHS.*

[3]*La Perouse joined in 2014 for speech-language pathology services only*

[4]*61 children received speech-language pathology services in both 2013 and 2014, three children received ENT surgeries in both 2013 and 2014*

Speech-language pathology services

Children receiving speech-language pathology services ranged in age from 1 year 6 months to 15 years (median 5 years 2 months, interquartile range 4 years 1 month, 6 years 8 months). Speech-language pathologists provided assessment and intervention for children with communication difficulties caused by congenital or developmental problems, illness,

and emotional or physical trauma. These difficulties included unclear speech due to speech sound disorder, delayed expressive and/or receptive language such as vocabulary and sentence construction, reading, writing, voice problems and stuttering.

The intervention provided by the speech-language pathologists was designed to suit each individual child and varied depending upon the type of communication difficulty, age of the child and caregiver priorities. For example, for children with unclear speech due to a speech sound disorder, intervention was focused on listening to, identifying and producing correct speech sounds in words, sentences and finally conversation. For children with delayed expressive language and reading difficulties, intervention was provided that increased their phonological awareness and their comprehension, production and ability to read different types of words, and sentences. Stuttering intervention aimed to reduce the number of dysfluent episodes produced during intervention and at home.

The average number of speech-language pathology sessions per child was 11 (range 1 to 28). As therapy blocks could take many months and there was no prospect of completing therapy for all children in all services within the 2013-14 timeframes, the SCHN entered into an agreement with the ACCHS that enabled children who were likely to require further treatment to continue therapy beyond the end of financial year deadline. Speech-language pathology services were conducted at the ACCHS, in private consulting rooms, and at local primary and pre-schools, depending on the arrangements each ACCHS could put in place within the timeframe.

ENT Services

The SCHN and ACCHS jointly liaised with local audiologists, ENT surgeons, anaesthetists and hospitals to ensure appropriate pre-operative consultations, surgical procedures and post-operative assessments within the tight timeframes. Surgical dates were booked by the ACCHS at local public hospitals and one private hospital. Childrens' ages ranged from 1 year 1 month to 17 years 8 months (median 6 years 5 months, interquartile range 4 years 8 months, 9 years 9 months).

Table 2 shows the overall ENT surgical casemix for 2013/14. In 2013, HEALS eliminated the ENT surgical waiting list in every service other than 2 children whose operations were cancelled due to fasting non-adherence, and a few children from outlying centres affiliated with one of the ACCHS. Given this level of service delivery, the 2013 casemix provides a reasonable approximation of the ENT surgical need for Aboriginal children in NSW urban centres.

Table 2. Number and type of ENT surgical procedures in 2013/14

Procedure	2013 (n=94)		2014 (n=100)	
	No.	%	No.	%
Adenoid/tonsil removal				
Adenotonsillectomy	40	(33.6)	36	(36.0)
Adenoidectomy	13	(10.9)	3	(3.0)
Tonsillectomy	6	(5.0)	15	(15.0)
Middle ear				
Unilateral ventilation tube	4	(3.4)	8	(8.0)
Bilateral ventilation tubes	29	(24.4)	20	(20.0)
Myringoplasty	9	(7.6)	8	(8.0)
Other ENT surgery	18*	(15.1)	10**	(10.0)
Total Procedures	119	(100)	100	(100)

Note: some children received multiple procedures.

*Other ENT surgery in 2013 includes: nasendoscopy, turbinatecauterisation, ventilation removal, nasal stent removal, septum cauterisation, mastoidectomy and nasal mass bio

** Other ENT surgery in 2014 includes: implantation of cochlear prosthetic device, excision of thyroglossal cyst , excision of lesions of skin and other subcutaneous neck tissue, other excision of middle ear, microlaryngoscopy, ears cleaned under anaesthetic, reduction of inferior turbinates, cautery nasal septum, aural polpectomy, cautery and diathermy of septum/inferior turbinates.

Network establishment

HEALS was established and managed through the Sydney Children's Health Network (SCHN) at Westmead. The SCHN called on existing SEARCH relationships with 5 five ACCHS (the original SEARCH sites and a new relationship with the Illawarra Aboriginal Medical Service) who, in turn, successfully arranged partnerships with local health services and schools (Figure 1, above).

A Memorandum of Understanding (MoU) was signed with each ACCHS in 2013, and again in 2014, detailing the mutual goals and responsibilities of the SCHN and the ACCHS throughout the duration of the HEALS project. In 2014, HEALS was able to expand further to provide speech-language pathology services at La Perouse Health Service.

Management

To ensure HEALS did not overburden the ACCHS sector's existing staff, part of the funding was used to employ a dedicated Project Officer at each ACCHS, all but one of whom were Aboriginal. In 2013, Project Officers worked 0.6 FTE during the time HEALS was operational at each ACCHS; in 2014, Project Officers worked 0.4 FTE. The Project Officer managed the participant list, amalgamating data from the SEARCH study with the ACCHS's own waiting lists and added eligible children during the course of the project as new needs arose. Children did not need to have been enrolled in SEARCH to benefit from HEALS and the ACCHS made the final decision about which children to prioritise for services. The only restriction on eligibility to access HEALS services was that the child needed to be younger than 18 years as the project was managed through the Sydney Children's Hospitals

Network. The Project Officer also provided services that included: booking initial assessments; providing appointment reminders; following-up missed appointments; providing transportation for children and their families; data collection; and submitting weekly activity reports.

Children who could potentially benefit from HEALS underwent an initial pre-operative consultation or speech and language assessment if this had not already been done (e.g., children not enrolled in SEARCH) and then, if needed, they were scheduled for surgery or speech-language pathology services (or both). Audiology services were provided at the discretion of the service providers and were funded as part of the ENT pre-operative service funding, not as a separate arm of HEALS activity. Children identified as having chronic suppurative otitis media, mastoiditis, cholesteatoma, or bilateral hearing impairment greater than 30db were prioritised for ENT assessment. Children identified as having severe speech and language impairment through previous diagnostic assessment (e.g. as part of SEARCH enrolment or routine ACCHS care) were prioritised for speech-language pathology services. NSW Health negotiated with the HEALS study team and the Sydney Children's Hospital Network to determine the total number of ENT surgical procedures and speech-language pathology services that would be expected given the available funds. For 2013, NSW Health set targets for HEALS to provide speech-language pathology services for 218 children, and ENT surgeries for 92 children.

WHAT MADE THE HEALS PROGRAM SUCCESSFUL? A QUALITATIVE EXPLORATION OF WHY HEALS WORKED

Of the 45 people invited to participate in the qualitative evaluation, 38 (84.4%) agreed. Participants consisted of 16 parents/caregivers and 22 health professionals (Table 3). Overall, 30 of 38 were female; ages ranged from 21 to 69 years. We identified four themes that captured participants' perspectives of the outcomes of the HEALS program: valued clinical outcomes; raised awareness; developing relationships/networks; and augmented service delivery.

Valued clinical outcomes

HEALS alleviated health providers and caregivers' frustration caused by lengthy waiting times and allayed concerns surrounding the potential sequelae of prolonged speech-language impairment and ear disease. All participants believed that HEALS provided clinically beneficial services for children. Caregivers stated that HEALS effectively treated children's speech-language and ear disease problems, noting clearer and more confident speech, the absence of ear-disease symptoms, and other ancillary benefits (better sleep, quieter and improved behaviour, more reading, and increased social confidence/interaction) post-intervention.

Raising community awareness

Many participants felt that HEALS raised caregivers' awareness of: the symptoms of ear disease and speech and language problems, availability and access to specialist health services, and the efficacy and importance of treatment.

> I think now I'm aware of these things (ear disease symptoms), I can now go and ask. Before, I didn't know anything about it. I wouldn't have asked (Caregiver).

As a result, these participants believed HEALS empowered the community, increasing caregivers' capacity to effectively identify ear disease or speech issues, and to access specialist services.

Table 3. Participant characteristics (N=37)

Characteristic	n	%
Gender		
Male	8	21.6
Female	29	78.4
Aboriginal Status		
Aboriginal	27	73.0
Non-Aboriginal	10	27.0
Age (years)		
20-29	3	8.1
30-39	13	35.1
40-49	9	24.3
50-59	4	10.8
60-69	3	8.1
Withheld	5	13.5
Stakeholder group		
Parent/caregiver	16	43.2
ACCHS clinical staff	9	24.3
Senior ACCHS administrator	5	13.5
Speech therapist	5	13.5
ENT surgeon	2	5.4

ACCHS: Aboriginal Community Controlled Health Service
ENT: Ear Nose and Throat specialist

Developing relationships/networks

Partnerships, established and strengthened by HEALS, were valued for their potential to improve health service delivery through enhanced communication and collaboration.

> The partnership is so important. To have a partnership like that (HEALS) outdoes anything else" (Senior ACCHS administrator).

Many participants felt the cohesion between ACCHS, local health specialists, hospitals, schools and the broader community was a significant contribution to HEALS' success and were keen to be a part of similar programs. As a result of positive interactions with HEALS specialists, some caregivers felt they would be more comfortable seeking specialist treatment for their children. However, some health professionals noted that the short duration and stop-start nature of HEALS could damage community trust, limiting future involvement with similar health interventions.

Health professionals thought that HEALS stimulated discussion and collaboration that facilitated the implementation of new services. For example, Riverina Medical and Dental Corporation and Tharawal Aboriginal Corporation continued to fund speech-language pathology services post-intervention, as both ACCHS recognised the benefit for their local children

Project B – A Health professional and community perspectives on reducing barriers to accessing specialist health care in metropolitan Aboriginal communities: A semi-structured interview study

METHODS

Participants

Participants were recruited from four ACCHS involved with HEALS, from local health services and from the parents/caregivers of children who participated in HEALS. We used purposive sampling to ensure an approximately equal amount of healthcare professionals and parents were included in this study. Ethics approval for this study was provided by the Aboriginal Health and Medical Research Council (924/13).

Data collection

We developed an interview guide based on discussion with the research team and conducted semi-structured interviews between February and December, 2014, in person, at the ACCHS or by phone. Interview teams typically consisted of two researchers, at least one of whom was Aboriginal. Participation was voluntary and all participants provided written, informed consent before being interviewed. Participant recruitment ceased when theoretical saturation was reached. Interviews were audio-recorded and transcribed.

Data analysis

We used thematic analysis to analyse the data. Three researchers independently read the transcripts and coded the data to inductively identify emerging themes, and met regularly to discuss their coding choices to develop a preliminary coding structure. Transcripts were imported into HyperRESEARCH (version 3.5.2; Research-ware Inc.); a software program used to code the qualitative data. We sent a summary of the preliminary findings to the participating ACCHS to obtain feedback from participants; however, no further comments were received.

RESULTS

Of the 44 people invited to participate, 37 (84%) were interviewed. Non-participation was due to scheduling conflicts. Thirteen interviews were conducted by phone. Participant characteristics are provided in Table 1, above.

We identified five themes: leveraging partnerships; intrinsic and extrinsic motivation; removing common barriers; strategic service delivery; and service shortfall. Illustrative quotations are provided in Appendix A. The thematic schema shown in Figure 2 illustrates the conceptual structure of identified themes.

Figure 2. HEALS thematic Schema
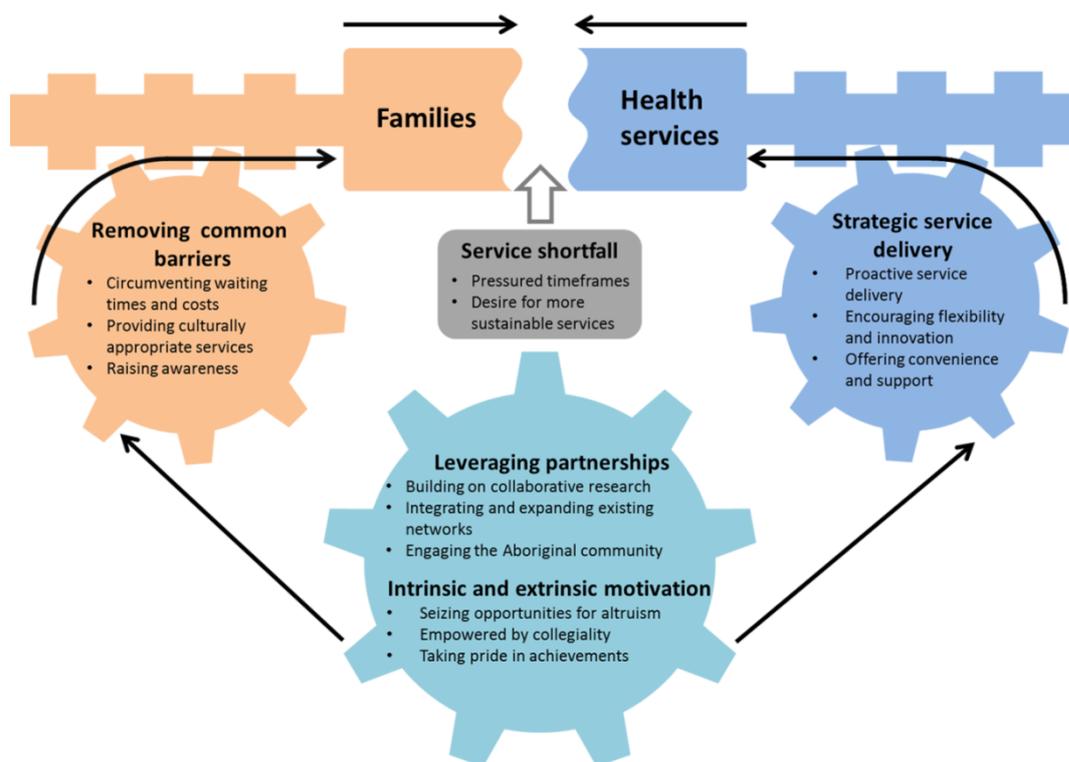
Building on effective pre-existing health/research networks, and strengthened by the commitment and motivation of healthcare practitioners, HEALS provided services that strategically targeted the needs of Aboriginal communities and removed common barriers to accessing healthcare. The rapid deployment of HEALS and non-recurrent funding were the only concerns raised by healthcare providers regarding the efficacy of HEALS services. Themes and subthemes are described below.

Leveraging partnerships

Building on collaborative research

Participants felt the partnerships initiated and maintained through the SEARCH research program helped establish HEALS quickly within the Aboriginal community. They noted the quick uptake of HEALS services was aided by having access to SEARCH data that had previously identified children who were likely to benefit from treatment. Health professionals felt that this allowed for rapid recruitment and deployment of services as HEALS became operational at each ACCHS.

Integrating and expanding existing networks

Participants believed that HEALS successfully capitalised on pre-established relationships between the ACCHS, local healthcare providers, schools and the Sydney Children's Hospitals Network. This allowed the efficient formation of a health delivery network, as much of the necessary infrastructure was already in place. "*I think it's good, working with [the ACCHS], using that structure that's already there*" (Speech pathologist). Many expressed confidence in the program because they felt the *"key people were on board"* (Speech pathologist).

Engaging the Aboriginal community

Participants believed the Aboriginal community's participation in HEALS was enhanced by having services co-ordinated through their local ACCHS. They felt the ACCHS' unique involvement and rapport with their local community inspired trust in HEALS from families that may otherwise have been wary of non-ACCHS services.

> If this money was given to the hospital and they just said, come here for your appointments, and they weren't supported, I don't think you would have even got half the people. (Senior ACCHS administrator)

Intrinsic and extrinsic motivation

Seizing opportunities for altruism

Health professionals expressed concerns regarding the Aboriginal health gap and saw HEALS as an opportunity to make a significant contribution to the health of Aboriginal children in their local community. Consequently, many chose to sacrifice their own time and/or clients to "go the extra mile" for HEALS participants.

Empowered by collegiality

Health professionals enjoyed being part of a multi-disciplinary team that they felt *"worked together to achieve the one goal"* (Senior ACCHS administrator). They believed that HEALS generated both excitement and camaraderie among healthcare workers and this helped maintain focus and commitment to the program.

> It gives me faith that I'm not head-butting myself against a brick wall alone. At least we're all lined up together and doing it together. I think it's quite empowering. (ENT surgeon)

Taking pride in achievements

The volume of services HEALS delivered within short timeframes was a source of pride for many participants. HEALS' ability to provide services to families that had difficulties accessing healthcare and/or had been wait-listed for extended periods was believed to motivate healthcare professionals to provide services to as many children as possible before funding ran out.

> We proved ourselves, didn't we? (Senior ACCHS administrator)

Removing common barriers

Circumventing waiting times and cost

Lengthy waiting times and expense were perceived as frequent barriers to accessing specialist services for Aboriginal families. Providing prompt, wholly-funded ENT and speech pathology services was seen as a crucial step in removing these barriers and promoting large-scale involvement with the HEALS program.

> Well, I know some of the kids who had their ENT stuff done; it's really fast tracked them. So that's an immediate impact. It cleared the waiting list. (Speech pathologist)

Providing culturally appropriate services

Parents described negative experiences when accessing specialist health services, including discrimination, and difficulty understanding health information that was not conveyed in an appropriate manner. In contrast, parents felt HEALS' clinicians communicated information about their child's diagnosis and treatment clearly, and felt they could rely on the Project Officer for support and clarification if needed.

Raising awareness

As more services were delivered within the Aboriginal community, participant believed HEALS increased knowledge of the symptoms of ear health and speech problems among families, and provided options for treatment. As a result, participants believed HEALS encouraged more families to identify issues with their child's ear health and speech and language development and, subsequently, seek HEALS services.

> If the parents have been to the doctor, they wouldn't say 'I think he's all right   with his speech but can you have a look?' That wouldn't have happened before[HEALS]. (Speech pathologist)

Strategic service delivery

Proactive service delivery

Participants believed that recruitment was helped by actively approaching and offering services to families with children that were likely to benefit from HEALS. They thought that children who were at risk of "slipping through the cracks" were more likely to receive services because of this approach.

> I would say its strengths are that you reach a lot of Aboriginal families that would normally not access this type of specific service. (Senior ACCHS administrator)

Encouraging flexibility and innovation

Health staff liked that the processes surrounding HEALS' recruitment and service delivery were adaptable and free from "policies and bureaucracies". This allowed individual strategies to be implemented quickly based on the knowledge and capabilities of each local HEALS network. For example, introducing speech pathology services into schools was seen as a successful service delivery strategy that came about through discussion among speech pathologists and researchers.

Offering convenience and support

Parents and health professionals attributed much of the success of HEALS to the assistance provided by the Project Officer; a health worker employed by HEALS to help families book and attend appointments, and to provide information specific to HEALS services. This level of personalised support was believed to be important for Aboriginal families who may be less familiar with, or wary of, specialist health services, or those families who were less likely to attend scheduled appointments due to greater socio-economic barriers.

> When we make a specialist appointment with the allied health professionals, nine times out of ten our people won't meet them unless they're supported through that process. (Senior ACCHS administrator)

Service shortfall

Pressured timeframes

Some participants felt that the short duration of funding meant the roll-out of HEALS services was unnecessarily rushed. They believed that this sometimes over-burdened health staff and reduced the efficiency of services.

Desire for more sustainable services

While health professionals were grateful for HEALS' provision of services, many urged for recurrent funding in order to provide services that could target clinical needs over the long-term. Some participants believed "stop-start" services may be negatively perceived as "short-sighted" and lacked the ability to build capacity and affect real changes in Aboriginal health.

> So that continuity is really important, particularly for these communities. It's like, "whoa, great, your serviced us for this amount of time but then it stopped" ". (Speech pathologist)

Discussion

PROGRAM IMPLEMENTATION

Ongoing disparities between Aboriginal and non-Aboriginal health outcomes demonstrate the need for policy that brings about tangible and sustained health benefits for the Aboriginal community. HEALS demonstrates that, with proper funding, efficient management, and a dedicated and collaborative team, health services needed to help Close the Gap can be made more accessible to Aboriginal families, and that such enhanced clinical care can be piggybacked onto an existing research collaboration. The rapid delivery of services (5822 speech pathology sessions and 194 ENT operations) for 653 Aboriginal children was achieved primarily due to existing partnerships with 5 ACCHS developed through the SEARCH research project. HEALS contributes a potential framework by which health interventions can be strategically targeted to community needs identified through research. The major threat to the success of the program is its sustainability, particularly due to lack of recurrent funding. Such a program could be rolled out to all ACCHS, and expanded to other chronic illnesses where there are blocks in routine service delivery.

In addition to receiving treatment, participants believed HEALS provided valued ancillary benefits with the potential to promote gains in Aboriginal healthcare access, and use. Health professionals noted that HEALS' success strengthened and augmented clinical networks, providing opportunities for new health services using partnerships established through the intervention. Participants believed the volume of HEALS services raised community awareness of ear and speech problems, as well as allowing a large number of Aboriginal families to access specialist treatment in a culturally appropriate and supportive environment. Consequently, HEALS was believed to encourage greater health service use, especially from Aboriginal families who were reluctant to attend non-ACCHS specialist services. HEALS also provided Aboriginal capacity building through the employment of an Aboriginal Project Officer at all but one ACCHS.

The strategic and efficient delivery of services was only possible through the willingness and capability of the participating ACCHS to manage local healthcare specialists, share culturally appropriate knowledge and provide personalized services facilitated by a dedicated Project Officer. HEALS showcases the ACCHS' abilities and supports previous literature highlighting the potential of these services as key players in the Close the Gap campaign.[13] The success of HEALS was also enhanced by the enthusiasm and goodwill of local ENT surgeons and speech pathologists who were cognisant of HEALS' goals and worked with the Project Officer to ensure children were accommodated swiftly.

Research among Aboriginal communities has not always been regarded favourably, often viewed as exploitative, culturally inappropriate, transient and predominantly led by non-Aboriginal people. More recently, within the research community there is recognition that the way in which Aboriginal and non-Aboriginal agencies collaborate is as important as the outcomes these partnerships are designed to produce.[26] HEALS was built on partnerships, founded by the SEARCH study that upholds the research guidelines advocated by the Aboriginal community, including the principles of close community consultation, capacity-building and the philosophy of "no research without service".[27, 28] [29] From research identifying Aboriginal children with otitis media, hearing loss and speech delay, the SEARCH network facilitated a rapid delivery of health services that became the HEALS program. HEALS provides an example of how strong relationships between researchers and the

Aboriginal community that are built on mutual respect, trust, and common goals can be leveraged to enable the strategic delivery of health services for Aboriginal people.

The success of this framework offers an incentive for policy makers to provide recurrent funding to facilitate longer term planning through secure employment of managers, speech-language pathologists and pre-planning ENT surgical lists with the required audiology preparatory assessments. The ACCHS are a fundamental part of this framework, with services in every Australian state and territory and all large urban centres. ACCHS used local service providers and local schools to enable HEALS to rapidly provide services to children in need. This model could be replicated to address multiple Aboriginal health concerns on a national scale. Given the volume of children HEALS treated and the willingness of service providers, HEALS was only restricted by time and budget. These constraints resulted in a brief window of service, after which the HEALS project officer's employment was suspended, and, in most cases, so were the relationships between the ACCHS and local service providers.

While short-term health interventions have the capacity to provide long-term benefits; interventions that are unsustained or delivered in a stop-start fashion also have the potential to be perceived negatively when funding abruptly runs out.[30] From the perspective of the Aboriginal community this is a regular occurrence and can lead to frustration, mistrust and a reluctance to be involved in future interventions. An alternative strategy is to implement healthcare programs that demonstrate long-term vision by providing services that have a stable presence in the Aboriginal community with recurrent funding.[31] While this approach requires more commitment from federal and state level policy makers, any serious strategy aimed at closing the gap should be mindful of the limited capacity short-term, small-scale health initiatives have in the face of such an important and challenging task, and how the perception of such initiatives may affect future involvement from the Aboriginal community.

The short lead-in time to completion time prevented the design and implementation of a clinical monitoring and evaluation plan in both 2013, and 2014. Hence, this evaluation is largely descriptive and a more detailed analysis of downstream outcomes for the children such as school attendance, school performance and developmental outcomes has not been possible. However, the importance of a quantitative evaluation should be stressed, and is planned for future iterations of HEALS. A further limitation is that we were not able to capture diagnostic level assessments of the speech sound and/or language delay the speech pathologists treated. Health professionals determined their management plan without interference from HEALS management, who focused on service delivery. This enhanced efficiency, but limited our ability to document detailed speech-language pathology reports.

Given the socioeconomic and health disadvantages that the Aboriginal community face, programs providing easier access to specialist healthcare services are likely to be part of effective and achievable strategies to Close the Gap. Such programs are likely to benefit from collaborative relationships between Aboriginal and non-Aboriginal agencies based on mutual respect and common goals. HEALS included such a strategy, providing a framework for the delivery of specialist health services to a population with the greatest need but barriers to access. While this is a common paradigm in the Aboriginal health sector, the success of the HEALS intervention demonstrates that it need not be an enduring one.

Barriers to specialist services

Access to health services, especially specialist services, remains a challenge within the Aboriginal community. We identified the features of HEALS that led to increased specialist healthcare access for Aboriginal families living in urban and regional NSW in order to inform health initiatives where specialist care is required. Participants believed HEALS increased access by providing prompt, culturally appropriate healthcare at no cost to families, raised community health awareness, and strategically tailored services that were flexible, convenient, and included proactive recruitment. They felt HEALS effectively used and expanded on pre-existing partnerships among the ACCHS, researchers, local health providers, and the wider community, resulting in a healthcare network capable of delivering a large volume of specialist services within short timeframes. The potential of this network was enhanced by the dedication of health professionals who were motivated by HEALS' capacity to address longstanding health concerns within their communities.

For many Aboriginal families, barriers to healthcare extend beyond the physical availability and affordability of health services and also include complex socio-economic, cultural and historical barriers.[32] These barriers aggregate in Aboriginal communities, resulting in healthcare access that is not relative to need.[33] The strength of the HEALS project lay in the ability to provide services that addressed a wide range of barriers that Aboriginal families are known to face. For some families this was achieved solely by eliminating cost and/or waiting times. For others, the high level of support HEALS was able to offer, in addition to the availability of culturally appropriate services and the involvement of the local ACCHS, was believed to make the crucial difference between children who would receive adequate health services, and those that were likely to go untreated.

Previous Aboriginal health interventions that combine close community engagement, culturally appropriate services, and proactive health service delivery have achieved positive outcomes in Aboriginal health. These outcomes include large increases in consultation numbers [34, 35] raised awareness of health symptoms and services[36], greater trust of primary healthcare providers[37], and substantial reduction in waiting times[22]. However, most specialist interventions target rural and remote Aboriginal communities, despite evidence that the bulk of the health gap is associated with urban Aboriginal people.[38] HEALS provides a framework for a health intervention set in metropolitan locations that uses the proximity of ACCHS to local services and schools to effectively and efficiently deliver health services to Aboriginal families.

Establishing mutually beneficial partnerships between researchers and the Aboriginal community can, and should, provide benefits for Aboriginal people[28]. However, rarely does Aboriginal research translate into the level of service that HEALS was able to provide. HEALS was able to achieve these results largely due to the establishment of the SEARCH research program within the ACCHS' communities. SEARCH identified health needs that attracted funding, while also providing the initial partnerships on which HEALS was built. HEALS exemplifies the value of initiating and sustaining such relationships between ACCHS and researchers.

The processes and outcomes of HEALS were largely evaluated favourably by participants, however, some voiced concerns regarding the rapid implementation of HEALS services due to tight funding deadlines. Some participants also expressed concerns regarding the intermittent nature of HEALS and thought this could reduce trust and involvement from the Aboriginal community in future iterations of the program. Having more time to organize

services, and relaxing deadlines through continuous funding was suggested as a solution to these problems.

Given the persistent health disparities between Aboriginal and non-Aboriginal people, implementing sustainable health service delivery models that enhance access to healthcare appear a promising strategy to improve Aboriginal health outcomes. Programs such as HEALS offer a potential framework to achieve this goal. While this strategy requires more commitment from policy makers, the financial cost of the health gap between Aboriginal and non-Aboriginal people provides an incentive to invest in progressive health initiatives in order to offset future health expenditure. HEALS also highlights the importance of ensuring mainstream healthcare practitioners are aware of the obstacles many Aboriginal families continue to face when accessing healthcare, and the importance of providing culturally competent services.

This study presents a qualitative evaluation of the HEALS project, hence the results are based on the perspectives of the parents and health providers who chose to take part in HEALS. This is a potential limitation of our study as it is unknown whether the attitudes of Aboriginal families/healthcare practitioners who did not participate in HEALS would differ from the results presented.

While it is important to focus on strategies that prevent negative health outcomes, ensuring Aboriginal families have unimpeded access to healthcare services should also be a priority for policy makers. HEALS demonstrates that through effective partnerships with the Aboriginal community, researchers and local service providers, a health delivery program tailored to the needs of Aboriginal families can reduce well known barriers to healthcare access and provide timely treatment. Programs such as HEALS offer a strategy for providing healthcare access that is truly equal for Aboriginal people living in urban/regional areas, thereby promoting health service delivery that is commensurate with need, and ultimately helping to Close the Gap.

Summary of Findings

> During 2013-14, the NSW Ministry of Health provided $1.7M to deliver specialist ear health and speech and language services to Aboriginal children, attending five Aboriginal Community Controlled Services linked to SEARCH, and one urban Aboriginal clinic in NSW.

> The Hearing Ear Health and Language Services initiative (HEALS), as it became known, successfully provided more than 5822 sessions of speech pathology and 194 ENT operations to Aboriginal children.

> HEALS demonstrated that, with proper funding, efficient management, and a dedicated and collaborative team, health services needed to help Close the Gap can be made more accessible to Aboriginal families, and that such enhanced clinical care can be piggybacked onto an existing research collaboration.

> HEALS provides an example of how strong relationships between researchers and the Aboriginal community that are built on mutual respect, trust, and common goals can be leveraged to enable the strategic delivery of health services for Aboriginal people.

> HEALS exceeded the targets set by NSW Health in both 2013 and 2014, despite a 16% decrease in funding in the second year. In 2013, HEALS eliminated the ENT surgical waiting list in every service.

> Health professionals noted that HEALS' success strengthened and augmented clinical networks, providing opportunities for new health services using partnerships established through the intervention.

> Participants believed HEALS increased access by providing prompt, culturally appropriate healthcare at no cost to families, raised community health awareness, and strategically tailored services that were flexible, convenient, and included proactive recruitment.

> HEALS also provided Aboriginal capacity building through the employment of Aboriginal Project Officers at all the ACCHS.

Note: This report is largely based on the published papers:

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Appendix A

ILLUSTRATIVE QUOTATIONS (BARRIERS TO ACCESSING SPECIALIST SERVICES)

Theme	Illustrative quotation
Leveraging partnerships	
Building on collaborative research	"I think the organisation was pretty good. The SEARCH list that I got was done properly. That was the best thing about it, it was very planned out". (Aboriginal health worker)
	"The strength is that it's very diverse group [HEALS] and it's across the state. And their strength is their documentation, the research basis". (ENT surgeon)
	"I had someone approach me. Go on the SEARCH program. They checked the ears and things like that and we found out that three of them had ear disease". (Parent/caregiver)
Integrating and expanding existing networks	"Lucky we had a good relationship with the hospital because it just fitted into place". (Senior ACCHS administrator)
	"Yes, but see because we had some things in place already and I knew many of the families, it worked. So, overlaying it on top of existing services". (Speech pathologist)
	"I mean the speech pathologists have come from Sydney and that's been wonderful, but that took a load of us trying to find someone in such a short period of time. So that was a big help to us as well, having that access to them". (Senior ACCHS administrator)
Engaging the Aboriginal community	"I think we deliver that more personalised service, that's that relationship with the community and the client that is the biggest draw card". (Senior ACCHS administrator)
	"Because I've worked on ENT for a long time, people know me and I have a rapport with the community where I can ring up and growl at them. I mean they know that that's it's really important and that they show up". (Aboriginal health worker)
	"I suppose because it's such a close-knit community that everyone feels comfortable to come to [the ACCHS] because we're all related, hey. So your cousin, your aunty and your uncle, your sisters, brothers and all that come". (Parent/caregiver)
Intrinsic and extrinsic motivation	
Seizing opportunities for altruism	"I always had to be mindful, I always had to be counting things, putting things in spread sheets and thinking, "where are we up to? Okay. Listen, we're falling short. Get some more people in."" (Speech pathologist)
	"Well, we're also very fortunate in the opportunity we've been given. So to be able to give back to the community, I think, is obligatory and certainly in my sense, but also very rewarding when there's so many kids that are being fixed and looked after from that perspective". (ENT surgeon)

	"He [the ENT specialist] came to the party very quickly, and accommodated our needs without looking at the cost factor. I think that's a great thing". (Senior ACCHS administrator)
Empowered by collegiality	"The strength is the team that's been put together. The strength is that it's very diverse group and it's across the state". (ENT surgeon)
	"I think working together as a team that's one, I think that's the best thing, it's the best outcome as a team, and when you do that you get things done much quicker and with a lot less headaches. So I think that's important". (Senior ACCHS administrator)
	"It really made people, I think - the different agencies worked together to achieve the one goal". (Health service manager)
Taking pride in achievements	"The best part was seeing the results, yep, umm, and the worst part? There wasn't really a worst part?" (Health service manager)
	"It is so rewarding when they come back like that and they're just smiling and laughing, and you laugh over those kind of stories. But the bigger impact you realise is they're actually going to be able to learn". (ENT surgeon)
	"The most exciting thing is when - because before HEALS came on the scene we had this whole list of kids that that needed surgery. To put them on a waiting list at Campbelltown or Liverpool meant waiting two years or more, even more. The great thing about the HEALS Program was it allowed us to have those kids operated on, which is wonderful". (Nursing staff member)
Removing common barriers	
Circumventing waiting times and costs	"With speech, it's up to the doctor to then refer to me. Whereas with HEALS, we were able to say, "Here we are. We're going to have a look at your children if you want them to."" (Speech pathologist)
	"I'm not even kidding you. 1400 days [waiting time]. And so, the HEALS, it was able to get rid of a lot of Aboriginal patients that were waiting". (ENT surgeon)
	"I think the strength of HEALS is to have the financial support from the state government". (Senior ACCHS administrator)
Providing culturally appropriate services	"Well, the majority, I'd say, of our community, uncomfortable, with accessing those places. So their behaviour can then be affected and aggressive, and people don't want to take it. People just don't want to be judged. So it's us being able to be a bit more understanding of that". (Health service manager)
	"It was close. It was - yes, it was convenient. Also you could go to [HEALS liaison officer] and have a chat about it. She would come and explain it to them, so it wasn't left up to us, because I was really a bit unsure of how it all worked. They could come and actually explain it". (Parent/caregiver)
	"I think that a lot of the specialists don't talk to us, they talk over us. They think that we're stupid, we don't know what we're talking about which is probably - we probably know a lot more about our child or our children". (Parent/caregiver)
Raising awareness	

"And there frankly, there was no insight into how the impact of ear disease" [within the community]. (ENT surgeon)

"And I think it [HEALS] reinvigorated and in a cheeky way it helped out which some of the programs that we're already running in that it pushed that awareness program, and certainly, we've been badgering on about it, but we hit a brick wall because we can't intervene". (ENT surgeon)

"And there were some families where I had two children there [for speech pathology]. And the little ones, you could just see were going to have the same issues. So talking to the mum about what I was doing, how I was doing it, and trying to empower her to have some awareness for the younger one as well". (Speech pathologist)

	Strategic service delivery
Proactive service delivery	[The strengths of the HEALS project was] "Promotion, community engagement where I went out to the parents, knocked on their door and said, look this is what we're offering". (HEALS liaison officer) "Yeah, identifying them. We've had a problem as well where we've had no ear health worker, so that slowed that process down where we'd pick these children up. But when the HEALS project came along I kept getting a lot of referrals through the doctors and the nurses, through the AMS to get these people". (HEALS liaison officer) "It's one of the biggest issues, I think that we have, especially in our community as well because a lot of our kids don't have the opportunity to be checked and to get put through to have the operations done and all that. So that's why this program was so good". (Parent/caregiver)
Encouraging flexibility and innovation	"We did have - we had really good success rates. So I think we ended up with an 87 per cent attendance rate, whereas previously we'd had a 50 per cent. So me being on site and being able to go to the schools, significantly increased attendance. In terms of response to goals, I think I had about 30 children out of the 50 complete their goals". (Speech pathologist) "Just the fact that and even throughout the thing, we could actually add kids in as we went. So we did that quite a bit if another kid, sort of, somebody said, "This one needs to be looked at. And can I bring them in?" That's fine". (Speech pathologist) "I liked the most that we got to get in and just get through these kids without the policies and bureaucracies. That was really nice". (Speech pathologist) "It [HEALS] was a lot more flexible. I could go to the schools. I could get the children where I needed to get them". (Speech pathologist)
Offering convenience and support	"I don't think there would be because it was - like I said - it was a pretty easy pain free quick task and there were no problems, there were no miscommunications. It was just straight out as it was and I don't think it can be made any easier or quicker or better". (Parent/caregiver) "And our last four or five clinics have been a hundred per cent attendance, which previous to me being in this role, we would have

50 per cent not show up. So it has been having one dedicated person and a great system and this model is actually been adapted by other AMSs". (Aboriginal health worker)

"Also last year there was one child was booked in for surgery and they didn't turn up. So were able to ring the family, chase them up; and the mum said we're at home, we're waiting for someone to pick us up, but transport hadn't been booked. We were able to send a car, pick up the child and drive them straight to the hospital for their surgery; so things like that - if they're on a public list - wouldn't have happened". (Nursing staff member)

Service shortfall	
Pressured timeframes	"Well, the thing I liked least, I suppose, that it was just all a big mad rush in the end and it was very hard to sort of calculate who we could see and for how many sessions when there was such limited time to do so. So that would be the least". (Speech pathologist) "Like I said, we only had very little time. I felt it was a bit unfair just throwing that on health services team manager". (Senior ACCHS administrator) "The timeline was pretty rushed. We at AMS [unclear] work under tight time frames - just things that maybe if there was some sort of a committee that would meet once a month and talk about any issues and sharing about experiences, and maybe if it's at CEO level, SEARCH officer just to talk about it". (Senior ACCHS administrator)
Desire for more sustainable services	"I would like to see well-funded, well thought out mapping of ear disease programs which instill all of the things that we've been talking about. I think the ad hoc dump money and run, dangerous outcome they're hard to follow. They're difficult to manage. They're pretty stressful for the whole health workforce who are involved with it and there's no there's no ability or capacity built into it". (ENT surgeon) "I think probably that continuity. So again, we've just started HEALS yesterday, and we're at a point of it could be four months, it could be five. In terms of as staff, that would improve staff satisfaction in what I can offer to a family and what I can talk to a family about, and be able to inform them of what's going to happen in the future". (Speech pathologist) "They're not at the coalface so we're the ones that have to tell them the sad and disappointing news and we're the ones that have to refuse and turn for that particular service, turn them away. We don't turn them away". (Senior ACCHS Administrator)