Evaluation of implementation of best practice models of care based on the updated Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations.

Final Report

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Abbreviations

AHW	Aboriginal Health Workers
AML Alliance	Australian Medicare Local Alliance
AMS	Aboriginal Medical Service
BHS	Boab Health Service
CSOM	chronic suppurative otitis media
ENT	Ears, Nose and Throat
FHN	Focus Health Network
ISML	Illawarra Shoalhaven Medicare Local
GMML	Goldfields Midwest Medicare Local
GPds	GP down south
GP	general practitioner
LMML	Lower Murray Medicare Local
MCH	Maternal and child health
MML	Murrumbidgee Medicare Local
NAIDOC	National Aboriginal and Islander Day Observance Committee
NCML	North Coast NSW Medicare Local
OM	otitis media
PO	project officer
PMP	Private Medical Practice

Contents

Executive Summary

The Australian Medicare Local Alliance (AML Alliance) was funded to enhance the capacity of General Practitioners (GPs) and other primary health care providers to provide high quality treatment through best practice models of care for otitis media (OM) in Aboriginal and Torres Strait Islander children. The key strategy to achieve this was the dissemination and implementation of the *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations 2010,* (the *Guidelines*) by Project Officers (POs) to clinicians and other health and allied health workers. The primary aims were to increase awareness of the *Guidelines*, improve service delivery for the prevention, early detection and management of OM and increase diagnosis and appropriate referral of children with OM aged 0-4 years.

The project was implemented from June 2012, for 12 months. Through an expression of interest process, eight eligible agencies were identified as suitable program sites and these comprised 31 individual services, including Aboriginal Medical Services (AMSs) and Private Medical Practices (PMPs). The agencies chosen were located in Western Australia, Victoria, New South Wales and Queensland and varied greatly in geographical layout as well as population characteristics and density, thus limiting the ability to draw direct comparisons between the locations. However, some important observations could be made within each pilot area.

Given the short time involved, the *Guideline* dissemination as well as education and health promotion activities carried out were effective. Primary screening of children 0-4years and older children across the sites was not consistent and accurate coverage and detection rates remain unknown. The uptake of the *Guidelines* by individual medical practitioners working from private practices was overall positive leading to some important changes in information systems that enhanced clinical care and management of OM. Such effective systems have implications for use by other services. The project did not result in any sustainable increases in access to Ear Nose and Throat medical specialist care or secondary audiology services, and such access remains to range from satisfactory to very poor across the sites. It was not possible to measure if there was increased effectiveness in management of OM referral pathways as a result of the dissemination of the *Guidelines* but it was apparent that where available, care-coordination roles improved referral and follow-up processes.

POs employed for this project were faced with many challenges. Twelve months proved to be a relatively short period of time for one part-time person, within each agency area, to recruit health services to participate, facilitate and promote education and training workshops, monitoring (if possible) of best practice initiatives and participate in community-based health promotion awareness raising and education activities. However, the work done by the POs plays a major role in informing more specific ways in which the detection and management of OM in very young Aboriginal and Torres Strait Islander children can improve. The ongoing dissemination of the *Guidelines* is important. There is also a need for regional coordination roles for effective implementation of primary screening of OM to promote more effective follow-up systems so children who fail primary screening receive a medical review and the care their condition requires. Increased access to hands on clinical training in the detection of OM is

important. Care management roles, at the service level, are likely to enhance effective ongoing clinical management of OM in children. Greater participation by maternal and child health service providers is needed to address screening for OM in the very young age group. Such participation will increase the likelihood that best practice models of care, as suggested in the *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations 2010,* are implemented.

In assessing the approaches, strategies and activities taken by agencies, none could be described as delivering a model of care according to accepted definitions. Some POs did strive to promote client-centred care but they were not in a position to impose this approach on health services participating in this pilot project. Many of the successful approaches and activities implemented by POs were tailored for local contexts and would sit comfortably within a collaborative model of care. The collaborative care model is sufficiently flexible to take account of local needs and contexts and includes that a client-centred approach to delivering care be adopted. Because of these factors this model is recommended as best able to meet the needs of disadvantaged Aboriginal and Torres Strait Islander children with OM.

Ten key points identified:

Key Point 1: The needs identified by services to integrate Guideline use into their practices varied and it was important that services had the opportunity to identify their own specific needs.

Key Point 2: It was clear to the evaluator that flexibility in planning the implementation of programs at the local level was essential and that no one plan would be suitable for all.

Key Point 3: To achieve greater impact and have a sustained effect, education, training and awareness raising activities will need to be ongoing to take account of staff turnover, also to maintain good levels of awareness and knowledge among existing staff.

Key Point 4: Ongoing practical training in clinical detection and management of OM is needed across the Agencies in order to meet the necessary demand and staff turnover issues.

Key Point 5: The success in embedding the recommendations of the Guidelines into practice in many services was often the result of leadership from practice management and the motivation, initiative and energy and other personal qualities of the practice nurses (or equivalent) employed by each of the services.

Key Point 6: Some carers of children with OM require empathetic support (including assistance to make appointments, reminders, travel assistance to attend appointments) to successfully navigate the OM referral pathway. Care co-ordination is available to children and adults with recognised chronic diseases such as diabetes. It would be appropriate that families who have children with other chronic health care needs, including OM, be eligible for this service.

Key Point 7: In the presence of perceived carer apathy in meeting a child's OM care needs, it is appropriate that others are aware of this and are in a position to advocate for the child's greater wellbeing.

Key Point 8: It appears that a non-service provider and independent driving force (such as provided by the Medicare Local POs) is necessary to facilitate and coordinate local education, promotion and awareness raising of OM.

Key Point 9: The collaborative care model is seen as flexible and best able to meet the needs of disadvantaged Aboriginal and Torres Strait Islander children with OM. This model promotes that health service providers from different professions and agencies provide comprehensive services by working with people, their families, care providers, and communities to deliver the highest quality of care.

Key Point 10: The National Advisory Council on Mental Health's report on Models of collaborative care for children and youth (0-25 Years) outlines a plan that could be adapted to develop a collaborative model of care for children with OM.

Two recommendations made:

Recommendation 1: For future training needs, if feasible, it is recommended that a locally based audiologist or other specialist in the field be contracted to provide training (as opposed to a visiting provider).

Recommendation 2: In the future, consideration should be given to having two levels of training. i.e. one for those who diagnose and medically manage children with OM and another less complex for those who do opportunistic screening. The objective of the latter training is that the health professional identify if an ear appears healthy or not (pass/fail). Children who fail are then referred for medical review. This takes any pressure off the health professional to correctly diagnose the condition of the ear.

1 Project Background

AML Alliance was funded to enhance the capacity of GPs and other primary health care providers to provide high quality treatment for OM in Aboriginal and Torres Strait Islander children. A specific strategy to achieve this aim was promoting that GPs and others involved in providing health care to Aboriginal and Torres Strait Islander children adopt the evidence-based best practice set out in the *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations 2010*.

The *Guidelines* [1] updated and replaced those published in 2001. The target populations for these recommendations are Aboriginal and Torres Strait Islander Australians. The intended users of the updated *Guidelines* are health care professionals who work with Aboriginal and Torres Strait Islander populations. This includes Aboriginal Health Workers (AHWs), Aboriginal ear health workers, primary care and specialist physicians, nurses, remote area nurses and nurse practitioners, audiologists, nurse-audiometrists, speech therapists, and child development specialists (including Advisory Visiting Teachers and Teachers of the Deaf).

Best practice models as set out in the *Guidelines* fall under four headings:

i) the prevention of otitis media and hearing loss;
ii) the diagnosis of otitis media;
iii) the prognosis (improving family education to avoid adverse effects); and
iv) the medical management of OM.

The *Guidelines* serve two purposes:

i) to provide information so health care professionals can provide evidence-based education and advice to children's caregivers and families; and
ii) to serve as a decision support tool for health care professionals to promote using evidence-based practice when managing the care of Aboriginal and Torres Strait Islander children with OM.

The *Guidelines* are comprehensive in providing an evidence-based decision-support tool to inform treatment and a range of activities linking health care professionals working at the primary, secondary and tertiary levels of the health care system.

1.1 Program Objectives

The objectives of the implementation of the updated National OM *Guidelines* program were to:

- increase awareness across the primary health care setting of the *Guidelines* in relation to OM;

[1] Office for Aboriginal and Torres Strait Islander Health. *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations: updated 2010*, Department of Health and Ageing, Australian Government. 2010.

- improve the uptake of best practice service delivery for the prevention, early detection and management of OM in Aboriginal and Torres Strait Islander children; and
- increase diagnosis and appropriate referral of OM in Aboriginal and Torres Strait Islander children aged 0-4 years.

1.2 Program Evaluation Focus

The focus of the program evaluation is the reporting of:

1) outcomes surrounding the dissemination of the *Guidelines*; and
2) outcomes surrounding the implementation of models of care based on the updated *Guidelines*.

It does not encompass an evaluation of broader project implementation activities though sometimes it is difficult to separate one from the other.

More specifically the evaluation aimed to:

- initially discuss planned activities at each program pilot site that would target improvements in prevention, diagnosis or management of OM;
- identify any new service model proposed;
- identify any pre-existing model that has been modified;
- identify the integration of nominated general practices into the proposal;
- ensure the engagement of key local stakeholders in the planning and/or implementation of the proposal;
- identify the usage of the *Guidelines* are implemented in the proposed model;
- identify key factors leading to replication of successful implementation in other locations; and
- make recommendations for future project design.

1.3 Evaluation Design and Methods

A program logic model and framework informed the design and methods used in evaluating the program. Such a model allows for both formative and summative evaluation to take place. The logic model allowed for the program logic and corresponding evaluation stages of a program to be clearly identified and illustrated.

1.4 Planned Evaluation Activities

The evaluation design led to the need to collect information about implementation processes and issues arising for each program pilot site over the 12 month program implementation timeframe. To meet this requirement the evaluator planned a number of activities, including:

i) meeting the program POs in person at a forum organised by AML Alliance prior to implementation commencing;
ii) visiting POs on-site soon after commencement of the project to map their planned activities using the program logic framework;
iii) extending an open invitation to POs to contact the evaluator for any assistance as they wished;

iv) holding teleconferences with each of the POs mid-way through the implementation timeframe to review progress in meeting program outcomes;
v) participating in monthly PO tele-conferences conducted by AML Alliance; and
vi) re-visiting each PO towards the end of the project to identify program outcomes.

Formative evaluation data collection methods included:

i) the evaluator developing program logic plans for each site,
ii) measuring and recording progress in implementing planned activities and participation levels, and
iii) maintaining notes of contact with POs and the issues discussed.

Summative evaluation data collection methods were tailored to each program pilot site and included:

i) interviews with POs and their managers,
ii) interviews with staff from participating services and community members;
iii) a review of PO reports and other documentation; and
iv) a review of feedback reports generated by participating health services.

The evaluator visited each of the program pilot sites soon after the project commenced. Over the 12 month timeframe several POs telephoned the evaluator to discuss challenges they had encountered in implementing their program. Six months into the project the evaluator discussed with each PO by telephone their progress in implementing plans. In addition, the evaluator met with POs at a face-to-face forum conducted by AML Alliance midway through the project. The evaluator also participated in several AML Alliance scheduled PO teleconferences to provide information and listen to PO updates. In May-June 2013 the evaluator revisited seven program pilot sites and teleconferenced with the PO at one site to assess if planned outcomes were met and identify what factors led to good outcomes or challenged achieving outcomes.

1.5 Limitations of the Design and Evaluation

Any pilot project is faced with limitations, especially when a design and evaluation model covers pilot sites that vary greatly in geography, population number, staffing and expertise. Therefore at the outset of this project it was anticipated that the findings would vary across the Agency sites and it would not be appropriate to make direct comparisons. It was also decided that there would not be a strong emphasis on the collection of quantitative data. This was because such an undertaking would be very much limited by one or more of the following factors:

- staffing variations within each health service;
- the qualification, skills and experience level of the PO;
- the limited PO hours to cover such a project scope often across large geographical distances;
- the project's short timeframe; and
- the everyday challenges associated with POs engaging successfully with PMPs and AMSs.

Due to these factors it was decided that expectations of what was achievable regarding short and medium term outcomes (see later) across the sites must vary, although the objectives remained the same in principle.

2 Project Initiation

2.1 Participating Agencies (pilot sites)

The project was implemented from June 2012 to June 2013. AML Alliance identified, through an expression of interest process, eight eligible Otitis Media Agencies to be program pilot sites. Eight Agencies were enrolled and were either:

a) newly established regional Medicare Local services with relatively high proportions of Aboriginal and Torres Strait Islanders persons living in their service delivery areas (n=5); or

b) an existing regional Division of General Practice provider with relatively high proportions of Aboriginal and Torres Strait Islander persons living in their service delivery areas (n=3).

Participating Agencies were located in four States (3 Western Australia, 1 Victoria, 3 New South Wales, 1 Queensland) and are shown in **Table 1**.

Table 1: Agency and Description

	Agency	Abrev'n	Description
1	*Boab Health Services,* Broome, Western Australia	BHS	Boab Health Services provides Allied Health, Mental Health, a Closing the Gap team and a range of health promotion programs to remote communities across the Kimberley region.
2	*Focus Health Network,* Cotton Tree, Queensland.	FHN	FHN provides a range of services and support to general practice and primary health care services on Queensland's Sunshine and Cooloola Coasts, including the regional centres of Maroochydore and Gympie.
3	*GP down south*, Busselton, Western Australia.	GPds	The GPds is located in the south coast region of Western Australia. GPds provides services from Mandurah to Manjimup, including surrounding rural centres such as Collie and Harvey.
4	*Goldfields Midwest Medicare Local*, Geraldton, Western Australia.	GMML	The GMML service region includes the Gascoyne, Midwest and Goldfields Esperance regions of WA, an area in total of 1,375,192 square kilometres. Within GMML boundaries are regional centres such as Kalgoorlie and Carnarvon as well as many other rural and remote towns and smaller communities
5	*Illawarra Shoalhaven Medicare Local*, Wollongong, New South Wales.	ISML	The ISML service region extends from Helensburgh to Batemans Bay on the New South Wales south coast and includes the city of Wollongong, Nowra and many other smaller centres.
6	*Lower Murray Medicare Local*, Mildura, Victoria.	LMML	The LMML is located in north-west Victoria and south-west New South Wales. LMML regional boundaries include Mildura, Wentworth, Dareton, Balranald, Robinvale, Sea Lake and Ouyen.
7	*Murrumbidgee Medicare Local*, Wagga Wagga, New South Wales.	MML	MML is located in south-west NSW. The MML service region includes Cootamundra, Griffith, Gundagai, Hay, Junee, Leeton, Narrandera, Wagga Wagga and Young and many other small rural towns and communities.
8	*North Coast NSW Medicare Local,* Lismore, New South Wales.	NCML	NCML regional boundaries extend from south of Wauchope and Port Macquarie to Tweed Heads and the Queensland border. A large number of small rural and larger town centres are located within the NCML service boundaries, including Port Macquarie, Coffs Harbour, Byron Bay, Lismore, Grafton, and Tweed Heads.

Thirty-one services (n=31) from the eight (above) Agency sites were recruited to participate in the project and included:

- Aboriginal Medical Services (n=9)
- Private medical practices (n=22)

Participating service characteristics ranged from a large AMS that offered a broad range of primary health care services to a PMP with a single General Practitioner. The AMSs generally employed a range of disciplines including doctors, registered nurses, AHWs, and Aboriginal community liaison officers. Most PMPs employed one or more practice nurses. The participating services all had their own service delivery and management structures with only a few common features.

2.2 Program Logic Planning with Project Officers

In the early stage of the project, the evaluator met with each PO on site to explain the theory underlying program logic and assist them to map their existing plans using the program logic framework (**Appendix 1**). This ensured that POs continued to keep in mind the need to meet the stated objectives of the program and to identify what measurable short and medium term outcomes they might expect to see as a result of these activities. This process alerted POs early in the project of the need to identify what information they would need to collect to be able to measure their anticipated outcomes.

The number of participating services supported by any one Agency PO ranged from one to six. Seven POs were required to drive from between one and four hours to provide support to participating health services. In the case of *Goldfields Midwest Medicare Local* (GMML) in Western Australia, budgetary and time constraints meant they could only travel by air from Geraldton to visit Kalgoorlie (via Perth) to visit two participating services on one occasion in the 12 month period; all other contact was made by telecommunications.

POs came from a range of backgrounds, including nursing, allied health, community development, health promotion and general administration.

Three POs resigned and were replaced during the year and new appointees contacted the evaluator on commencing in their roles. The evaluator informed the new POs about the objectives of the evaluation and they were provided with information about program logic theory and background information and some explanation about their own local program logic plan.

3 Program Implementation and Outcomes

3.1 Project Officer Activities

3.1.1 Engagement of Service Providers

The POs sought to engage with service providers in their region in a number of ways, including:

i) The sending of letters to all PMPs within a regional service area seeking an expression of interest to participate;

ii) Approaching directly and inviting the participation of PMPs known to have a good proportion of Aboriginal and Torres Strait Islander persons among their clientele; and

iii) Approaching directly and inviting AMSs to participate. PMP eligibility to participate included that the practice have a proportion (approximately 5-10%) of Aboriginal and Torres Strait Islander persons among their clientele and the service offered a Medicare bulk-billing payment option to this client group.

A consultative and needs based approach informed the way POs engaged with participating PMPs and AMSs. POs offered to support services and assist them to change or enhance their existing systems and work practices to facilitate practitioners integrating the *Guideline's* recommendations into their practice.

3.1.2 Needs Assessments

The POs completed informal "needs assessments" with staff from each of the participating services to ascertain what was required for them to be able to integrate using the *Guidelines* in their existing models of service delivery. This process allowed for each service to identify their broad requirements, for example;

- the purchase of diagnostic equipment;
- the training of staff in the correct use of the equipment;
- the need to make waiting areas culturally safe for Aboriginal clientele; and
- the need to increase the competency and confidence of a range of staff so they felt comfortable to opportunistically assess children's ear health and hearing.

Key Point 1: The needs identified by services to integrate Guideline use into their practices varied and it was important that services had the opportunity to identify their own specific needs.

3.1.3 Implementation planning

The implementation plans for the program pilot sites consisted of many common approaches and activities. POs discussed with the evaluator their planned activities and how these would contribute to meeting program objectives. Program logic frameworks to promote POs activities remained focussed on achieving program objectives were developed (Appendix 1). Support was provided to POs regarding the:

- Facilitation of workshops to introduce the *Guidelines* to all health professionals in their service delivery area;

- Development of service level agreements (SLAs) with the PMPs and AMSs who were to receive practice incentive funding;
- Distribution of copies of the *Guidelines* and health promotional material; and
- Raising of OM awareness via health promotion activities involving health professionals, families and the community.

Key Point 2: It was clear to the evaluator that flexibility in planning the implementation of programs at the local level was essential and that no one plan would be suitable for all.

3.1.4 Establishment of Otitis Media Program Reference Group

To establish program reference groups, POs either drew on a key stakeholder group already established by their respective Agency (consisting of service providers and Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander community members) or worked to establish a reference group that concerned only the OM program.

Reference groups were successfully established at five program pilot sites but at three sites, despite POs best attempts, establishing program reference groups was not achieved in the timeframe of the project. The membership of newly formed groups generally consisted of GPs in private practice known to have a strong interest in Aboriginal child health, representatives from Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander key child health service providers, and representatives from the local Aboriginal and Torres Strait Islander community.

Sustaining group member attendance over the 12 month period proved to be very challenging for POs. The reasons for this included: Aboriginal members of the community being over committed in representing their community, attending numerous meetings, or relocation of staff; the high workload of persons employed by PMPs and AMSs; staff turnover; and a shift in priority interests.

3.1.5 Broader Community Engagement and Program Participation Planning

All POs aimed to participate in community activities to promote program objectives, for example, having promotional stands at National Aboriginal and Islander Day Observance Committee (NAIDOC), attending Closing the Gap community events and carrying out visits to play groups, day care centres, pre-schools, and ante-natal groups. (see Appendix 1, Program Logic Plans).

3.1.6 Development of Program Outcome Indicators

Expected outcomes were similar across the eight program pilot program sites. However, different geographical and other contextual factors meant that the characteristics of indicators and how information would be collected to measure indicators varied significantly from site to site (see also the previous point 1.5 Limitations of the Design and Evaluation). Short and medium term outcomes identified by POs included:

Short Term Outcome Indicators

- *Raised awareness* of the problem of OM among Aboriginal and Torres Strait Island children.
- *Increased knowledge* of content of revised *Guidelines.*
- *Increased motivation* to adopt revised *Guidelines* into practice.
- *Increased level of competency* among health professionals in examining children's ears and diagnosing OM.

Medium Term Outcome Indicators (and – example indicators)

- Clinical practice reflects revised OM *Guidelines*
  - Doctors diagnose and treat children with OM in line with *Guideline* recommendations
  - OM patients recalled for review according to recommended timelines
- OM screening embedded in general practice activities
  - Aboriginal and Torres Strait Islander children's ears are examined opportunistically at every presentation to a PMP or AMS
- Systems are in place to support clinical practice that reflects revised *Guidelines*
  - Paper-based or computer-based OM patient recall system in place.
- Primary screening of children 0-4 years increased
  - A before and after comparison of the number of children screened
  - Increased screening at child-care centres, pre-schools and other similar organisations
- During consultations OM education is routinely provided to families
  - Culturally appropriate health education material is available in patient waiting rooms
- Aboriginal and Torres Strait Islander community members have a greater awareness of OM
  - More parents present children for assessment or treatment early
  - Parents initiate that their child has an ear examination and hearing assessment.

3.2 Short Term Outcomes

3.2.1 Raising awareness

The expected short term outcomes for all Agencies concerned raising awareness about the *Guidelines* via wide distribution, increasing health and allied health professionals knowledge of the content of the *Guidelines* through education and training as well as provision of equipment, and increasing the clinical competency of practitioners so that they might confidently implement the recommendations contained in the *Guidelines*. **These outcomes were achieved for all Agencies** (**Tables 2 and 3**).

Table 2: Common key components of model of care[1] across pilot sites

Key components of Model	BHS	FHN	GPds	GMML	ISML	LMML	MML	NCML
Wide dissemination of G/Lines	√	√	√	√	√	√	√	√
Awareness raising and community education	√	√	√	√	√	√	√	√
Distribute health promotion material widely	√	√	√	√	√	√	√	√
Participate in community health promotion activities	√	√	√	√	√	√	√	√

[1] The term "model of care" is applied in this case to encompass the approach taken, planned strategies and activities completed by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

Raising levels of awareness about the issue of OM and Aboriginal and Torres Strait Islander children was achieved to a satisfactory level across all of the program pilot sites and at all levels (family, community, service provider). Awareness raising activities included

- media releases;
- distribution of promotional material; and
- promotional activities at community health related and other community social events.

3.2.2 Challenges for raising community awareness

Several POs and service providers voiced the concern that they did not think the raised level of awareness about OM would be sustained once the program ceased, with there apparently being no-one else available other than the PO to drive awareness raising activities. One service provider believed that OM would soon be pushed aside by the next emerging priority issue / program funded by Government. One GP commented that doctors need constant reminding about OM and the *Guidelines* or they would forget to opportunistically exam the ears of young Aboriginal children presenting with other health problems. The same GP commented that for the PO in that region to have her message heard and acted upon, she needed to emulate the approach taken by drug company representatives in doing business, that is, frequently visit PMPs and speak with staff and leave promotional material.

Key Point 3: To achieve greater impact and have a sustained effect, education, training and awareness raising activities will need to be ongoing to take account of staff turnover, also to maintain good levels of awareness and knowledge among existing staff.

3.2.3 Increased knowledge of the content of the Guidelines

The POs conducted formal evaluation assessments after each education and training session by asking participants to complete a questionnaire. All of the training sessions offered were well attended (**Table 3**) and the feedback provided by participants across all the sites was positive.

Table 3: Common key components of model of care[1] across pilot sites

Key components of Model	BHS	FHN	GPds	GMML	ISML	LMML	MML	NCML
Facilitate professional education and training	√	√	√	√	√	√	√	√
Facilitate purchase of aural examination equipment	√	√	√	√	√	√	√	√

[1] The term "model of care" is applied in this case to encompass the approach taken, planned strategies and activities completed by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

Qualitative feedback

The first education and training workshops were held at each program pilot site soon after the commencement of the project. The content of workshops focussed on providing education to all health professionals working in PMPs and AMSs about OM and the best practice recommendations in the *Guidelines*.

Many workshop participants reported that they had low levels of confidence and competency in examining children's ears and in performing primary hearing screening (audiometry) for children. They reported little or no skills in using the equipment recommended to screen for OM, that is otoscope / video-otoscope, tympanometer, audiometer. For several Agencies it was necessary to facilitate the purchasing of the equipment as recommended to use in the *Guidelines*.

3.2.4 Challenges for increasing knowledge of content of Guidelines

POs attempted to facilitate further training to increase knowledge, but they experienced some challenges in trying to source clinical skills training. Subsequently POs and practitioners raised a number of issues with regard to training, including:

- many participants (doctors and nurses) reported not receiving sufficient (or any) practical experience in examining children's ears as part of their initial training;
- there was a high demand across the professions for further training in the practical / clinical aspects of implementing the *Guidelines*;
- some PMPs and AMSs already had, on hand, some of the necessary equipment but this was not in use owing to no current members of staff knowing how to use it;
- many participating PMPs and some AMSs did not have the recommended equipment and planned to use practice incentive funding to purchase this equipment;
- more practice nurses than doctors were willing and available to complete training;
- some PMPs and AMSs had a high staff turnover, and throughout the 12 month project there was a need to repeat education sessions on implementing the *Guidelines*. Some PMPs and AMSs employed doctors newly arrived from overseas on short term contracts.

These doctors had little opportunity to gain knowledge about Aboriginal health issues in general, but specifically had little or no knowledge about the *Guidelines*;

- despite POs trying to schedule training sessions to suit all practitioners needs, this was never achieved. There is a need to offer training at alternative times to capture all practitioners;
- the need to travel up to two to three hours deterred some doctors from attending training. One program pilot site offered financial compensation for doctors who needed to travel one to two hours to attend training but this offer was not taken-up;
- in two program pilot sites locally based audiologists (in private practice) were contracted to provide on-site ear health / OM training to PMPs and AMS staff. This model of training proved to be very positively received because it focused on the local context and local issues. During these training sessions information was provided on the appropriate referral pathway for children with OM specific to the area; and
- in the three Western Australian program pilot sites, unbeknown to POs, alternative / additional ear health training was offered to AMS staff. It is believed that this training was provided by the Western Australian State Aboriginal Community Controlled Health Organisation.

Key Point 4: Ongoing practical training in clinical detection and management of OM is needed across the Agencies in order to meet the necessary demand and staff turnover issues.

Recommendation 1: For future training needs, if feasible, it is recommended that a locally based audiologist or other specialist in the field be contracted to provide training (as opposed to a visiting provider).

Recommendation 2: In the future, consideration should be given to having two levels of training. i.e. one for those who diagnose and medically manage children with OM and another less complex for those who do opportunistic screening. The objective of the latter training is that the health professional identify if an ear appears healthy or not (pass/fail). Children who fail are then referred for medical review. This takes any pressure off the health professional to correctly diagnose the condition of the ear.

3.2.5 Increase in clinical competency

Most participants that attended education and training sessions reported in evaluation questionnaires that they felt more confident about conducting OM assessments. One PO asked those who attended training to repeat completing this questionnaire six months later. The response rate was poor, but the two practice nurses who responded still rated their level of competency as low. This is possibly because they were not working in roles that allow them to practise and gain confidence in undertaking their newly acquired skills.

3.2.6 Challenges to increasing clinical competency

Maintenance of skills has been highlighted above as a key issue in the regular overall adoption of the *Guidelines* in practice. It was highlighted throughout the project that providing ongoing professional support to services was difficult (**Table 4**). It was only the POs who had a good level of clinical competency themselves who were able to provide ongoing professional support to services.

Table 4: Common key components of model of care[1] across pilot sites

Key components of Model	BHS	FHN	GPds	GMML	ISML	LMML	MML	NCML
Provide ongoing professional support to services	√				√			

[1] The term "model of care" is applied in this case to encompass the approach taken, planned strategies and activities completed by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

3.3 Medium Term Outcomes

3.3.1 Clinical practice reflects revised OM Guidelines

Across the eight Agency / pilot sites it can be confidently said that that clinical practice in most PMPs and AMSs has changed to reflect the recommendations contained in the *Guidelines* (**Table 5**). In the Primary Health Care/Aboriginal Health Services, five of the Agencies could demonstrate that the uptake of the *Guidelines* was "good", namely that staff attended education and training sessions, health promotion resources for OM were being utilised and distributed, and there was evidence of system change (such as patient recall systems being instigated) to ensure that practice is in line with the *Guidelines*,.

Evidence to support this consists of doctors and practice nurses reporting verbally or in writing that the recommendations in *Guidelines* are/are not being followed. Other information available to demonstrate whether clinical practice reflects the revised *Guidelines* includes:

- reports by practice nurses and GPs that a copy of the OM management algorithms are kept close at hand on consulting desks and these are used regularly;
- in two program pilot sites participating PMPs made available case studies demonstrating application of the *Guidelines*; and
- the evaluator interviewed some doctors, practice nurses and audiologists across several program pilot sites who reported they were applying the recommendations in the *Guidelines*.

Table 5: Breakdown of level of uptake according to service delivery model.

Service model type	Good[1]	Satisfactory[2]	Limited[3]	Unable to assess[4]	No uptake[5]	Total nos[6]
Primary Health Care/Aboriginal Health Service	5	1	1	4		11
Primary Care/Private Practice	5	1	5	7	1	20
	10	2	5	11	1	31

[1]**Good** – Staff attended education and training offered. Obvious signs that otitis media health promotion resources are being utilised and distributed. Evidence of system change to promote staff practice is in line with *Guidelines*, e.g. visual prompts, reminder system, review or recall system, referral pathway identified. Service report most staff implement Guideline recommendations.
[2]**Satisfactory** - Staff attended education and training offered. Otitis media health promotion resources are being utilised and distributed. Service personnel report most staff use *Guidelines*.
[3]**Limited** - Staff attended education and training offered. Otitis media health promotion resources distributed is being utilised. Unclear if any staff has adopted Guideline recommendations into practice.
[4]**Unable to assess –** Service provider did not supply any or sufficient information to be able to assess uptake.
[5]**No uptake –** Service staff report unaware of *Guidelines* although some contact with Agency staff, copies of *Guidelines* provided but misplaced, and some staff participated in education and training activities.

A more detailed Table is provided entitled, *Summary Level of Uptake of Otitis Media Revised Guidelines according to "Model of Care" implemented by Medicare Local and Division Agencies* in **Appendix 2**. In this Table, there is a brief description of key factors that helped encourage, or prevent the uptake of the *Guidelines* for each of the Agencies. Again, it must be noted that the purpose here was not to compare services, but to highlight the enablers and barriers within individual Agency area types.

There were signs that changes had been made in a number of PMPs and AMSs to support clinical practice that reflects the updated OM *Guidelines. S*uch changes include:

- more PMPs and AMSs in the program pilot sites now have video-otoscopes and tympanometers available;
- some PMPs and AMSs have developed paper based systems to track children referred for primary or diagnostic hearing testing and ENT referral;
- nurses in two services (one PMP and one AMS) have developed an "OM at-risk register" for their service. These registers consist of children's information being entered into Excel spread sheets to track children who required review, who were referred for hearing testing and / or ENT specialist review, and to track children who required review following ear surgery. The registers were established because of the high number of children noted to become lost to follow-up. For example, if a child misses an ENT or audiology appointment this can mean the child drops out of the system. This is unless someone monitors the situation, follows up the family and rectifies matters by making a new appointment;
- a copy of ENT appointment and hearing testing results in one AMS are now sent not only to the ordering doctor but a copy is also sent to practice nurses. The high turnover of

doctors in some PMPs and AMSs has led to some OM patients' results becoming lost in the system or being treated as having low priority by clerical staff;
- the placement of Guideline treatment algorithms on desks and walls in clear sight of the consulting doctor;
- flip charts were developed out of the OM diagnostic photos. These are placed within easy reach on the desks in consulting rooms; and
- one ENT specialist now provides an outreach service (with bulk-billing for payment) to one Aboriginal community situated close to a large regional centre.

New initiatives that failed to have good effect include:

- one PMP blocked out two hours of appointment time to review children who failed primary ear screening. Most carers failed to present children for appointments despite them being reminded of the appointment the day before it was scheduled and transport at no cost was provided; and
- one PMP planned a child health day whereby a practice nurse was allocated to complete Healthy Kid Checks and also to screen children's ears. Over 100 invitations were sent to families with the offer of a $10 Toy World voucher for each child who attended. Of the 100 families invited, only nine families attended with their children.

3.3.2 Changes in clinical practice reflecting OM Guidelines

Assessing whether the medical practice of individual doctors was in line with OM *Guidelines* was not always possible due to the lack of information available. In two program pilot sites the information available suggested that doctors working for PMPs and an AMS in these sites had not changed their practice or systems in order to adopt the use of the *Guidelines*. There are a number of reasons that help explain why this was the case, including:

- in the case of the AMS medical staff turnover was constant;
- PO activities focused on primary screening activities and other community health promotion activities which left little or no time to support primary care staff to adopt the *Guidelines*;
- some participating PMPs treated few children, most patients being elderly or adults with chronic diseases;
- some participating doctors / PMPs did not engage well with the program, including some very busy small PMPs (e.g. a single general practitioner practice); and
- the number of children presenting with OM was low at some PMPs (one or two children a month) leading practitioners to have no sense of priority to address the problem.

Key Point 5: The success in embedding the recommendations of the *Guidelines* into practice in many services was often the result of leadership from practice management and the motivation, initiative and energy and other personal qualities of the practice nurses (or equivalent) employed by each of the services.

3.3.3 OM screening embedded in health service practice

Two AMSs and two PMPs from across the eight program pilot sites were able to demonstrate OM screening was embedded in their services (**Table 6**).

The two AMSs provided primary OM screening to children of all ages as part of their overall primary health care approach. These services employed Ear Program registered nurses who worked in partnership with AHWs to lead ear health activities. The role of these nurses included undertaking and /or oversighting primary screening of 0-4 year old children and the on-going management of children with OM. The prevalence of OM among children was reportedly high (estimated at 15-20%) where these services were located. Children with CSOM frequently presented to the services. Whilst the OM screening was embedded, there were still challenges in delivering the program. This included:

i) the high turnover of AHWs;
ii) the high turnover of doctors and the need to continually educate new doctors employed on short term contracts concerning OM and the use of the *Guidelines*;
iii) the amount of time taken up by children presenting with acute and chronic OM; and
iv) the time taken to care for children with co-morbidities. As a consequence, they had little time left to undertake prevention and primary screening activities or to follow-up children who had undergone ear surgery.

The sustainability of the OM program is not assured in these services because of the heavy reliance on the individual practice nurses to drive implementation of the OM program.

The two PMPs where an OM screening program was embedded had high numbers of Aboriginal children as clients. Both PMPs were committed to completing Healthy Kid Checks (MBS Item 715) and integrated ear screening into this activity. These PMPs looked to make their practice premises culturally safe for Aboriginal persons by providing welcoming waiting room environments. Both PMPs employed a part-time practice nurse to coordinate the completion of Healthy Kid Checks and manage review and follow-up of children noted to have problems following primary screening. The characteristics of the nurses were such that they were motivated, well informed, and had a high level of interest in Aboriginal child health. The children presenting at these PMPs required less intensive management than in some other regions, for example, the practice nurses both reported that they saw no children with Chronic Supparative Otitis Media (CSOM) among their patients. In one PMP the practice nurses conducted primary audiology screening for children but in the other PMP children were referred to a nearby AMS for hearing testing. The practice nurses provided some ongoing OM training and education to their peers and were perceived by their peers to be an expert resource on the content of the *Guidelines* and in conducting ear examinations. However, the nurses reported that some staff (especially fellow nurses) were reluctant to examine children's ears themselves and instead were dependent on their expertise.

The service delivery model employed by each of the PMPs was different. One PMP completed Healthy Kid Checks and did primary screening for OM using a nurse-led clinic model that was held one to two days each week. Children were recruited to have a Healthy Kid Check by referral from the doctor or maternal and child health nurse, by written invitation, and by

advertising the availability of Checks at venues where families congregated. Staff of this PMP reported that their response rate was generally good. The other PMP made changes to their electronic patient record management system so the records of all Aboriginal children were flagged to remind the consulting doctor to examine / screen the ears of Aboriginal children. A similar automated system was implemented to alert the PMPs front desk staff of the need to make a review appointment if a child was treated for OM or was due a Healthy Kid Check. Until implementing this flagging system, this PMP was not recording the Aboriginal status of patients (several other PMPs commenced recording Aboriginal status as a result of OM program activities).

Table 6: Common key components of model of care[1] across pilot sites

Key components of Model	BHS	FHN	GPds	GMML	ISML	LMML	MML	NCML
Provide/coordinate primary aural ear health screening			√		√	√		
Lead community Health Promotion activities			√			√		

[1] The term "model of care" is applied in this case to encompass the approach taken, planned strategies and activities completed by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

Poor Coordination of Screening Services

Uncertainty about who was responsible for delivering primary ear health screening services (possibly local government, State health or education agencies or AMS) made it difficult for some POs to promote better coordination or try and meet gaps in providing primary screening services. For some sites the availability of primary screening services was intermittent or unreliable, referral pathways were uncertain, and access to secondary / diagnostic audiology services was non-existent or poor.

One PO identified that primary screening programs for Aboriginal children aged 0-4 years had not been offered for 12 months or more. The PO at this site, with the support of the Agency's OM reference group, contracted with a private audiologist to conduct primary screening for children aged 0-4 years attending play groups, pre-schools and kindergartens in the area. In addition, this audiologist developed an audiology referral pathway specific to the local context and was contracted to provide ear health assessment training for PMP and AMS staff in the local area.

One Agency directly employed experienced Aboriginal Ear Health Workers to undertake primary screening of children of all ages and established a referral pathway with local PMPs. This model proved unsustainable due to the turnover of Ear Health Workers and lack of buy-in by PMPs.

Maternal Child Health Services

The idea that the younger aged children could be screened for OM when attending Maternal and Child Health (MCH) services was sound, but POs met several barriers when trying to implement this idea with State and Local Government run services. Many individual MCH nurses were very motivated and participated in the training offered. However, in their day-to-day work some

reported that they did not have access to the necessary equipment to complete ear or hearing examinations of children at high risk for OM. Some reported to POs they were not prepared to examine children's ears as they considered they would be working outside of their area of expertise and there might be legal ramifications. Some MCH staff working for AMSs conduct ear screening during scheduled consultations but this was not routine practice because screening children for OM was not included in the MCH programs that guided their practice. Some MCH nurses working for AMSs also felt they lacked competency in this area and others considered that ear program staff were responsible for all ear screening activity. To try and address the problem and screen for OM among younger children, two POs in partnership with AMS staff, organised pampering days for the mothers of young children. This approach was considered successful but led to screening only a small number of children.

Teachers and Childcare Workers

Teachers and childcare workers working with 3-4 year old children were very supportive of the OM program and enthusiastic in their participation. These workers invited POs to present information on OM to staff and parents. They complained that in the past their concerns were overlooked and children's ear health not assessed. The teachers and child care workers had many concerns about the hearing of Aboriginal children in their care. They were motivated to obtain signed consent forms from parents so children could be screened, and they also assisted in facilitating some review activities. One program pilot site facilitated the screening of 317 3-4 year old children (140 Aboriginal and 177 non-Aboriginal children) attending kindergarten. Program funding was used to support an audiologist in private practice (who also provides public services at the local hospital) to do the screening. Thirty-nine of the 140 Aboriginal children (27.9%) required referrals to their GPs because of Type B tympanogram or for hearing tests at >25dBHL at any frequency. Other reasons for referral were infection other than OM or occluding wax. Thirty-five of 177 (19.8%) non-Aboriginal children also required referrals.

Screening Among children Aged 0-4 years

Across program pilot sites primary screening of children aged 0-4 years increased as a result of the pilot program. Those children screened were mostly aged 3-4 years and attended play groups, pre-school or kindergarten. Very few children aged 0-3 years were known to be screened. Some POs worked very hard to motivate MCH staff working for different health service and immunisation providers to screen children in this younger age range when they attended for a scheduled service but with little success.

3.3.4 Creating Service directories

POs from two Agencies initiated the development of ear health service directories that listed contact numbers and provided an overview of the services provided by audiology, ENT, community health and other pertinent agencies in the region. It is not clear what this activity contributed to the success of Agencies program outcomes. However, POs establishing aural health service provider networks were successful in the cross fertilisation of ideas between services, breaking down barriers that existed between services and improving communication between services and across levels of services (**Table 7**).

Table 7: Common key components of model of care[1] across pilot sites

Key components of Model	BHS	FHN	GPds	GMML	ISML	LMML	MML	NCML
Develop directory of regional aural health services		√						√
Establish aural health service provider network						√	√	

[1] The term "model of care" is applied in this case to encompass the approach taken, planned strategies and activities completed by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

3.3.5 Specialist access

The majority of program pilot sites did not have easy access to ENT Specialist or diagnostic audiology services so as to be able to implement the *Guideline's* recommendations in full. Easy access was defined as the waiting time being not longer than eight weeks and no-cost to the carer for services. The waiting time for an ENT appointment was estimated to be six months for one program pilot site. For some sites the waiting time for a Specialist out-patient appointment was not long but the waiting time for the prescribed surgery was lengthy. The staff of one AMS reported the waiting time for surgery was 12 months or more. Over half the sites currently rely on visiting ENT services and experience extended gaps in service delivery when visiting Specialists take leave or positions are vacant. One small community health service relied on the services provided by a small group of philanthropic ENT Specialists. The voluntary nature of this arrangement meant services could not be planned but were based on times that best suited the Specialists. At one program pilot site, children and their families needed to make a 6-7 hour return journey to attend ENT Specialist out-patient appointments. In two cases, the sole ENT Specialist who resided in each community was about to retire and it was not clear if or when their services would be replaced.

Six POs actively worked to source additional services where access was poor in their region (**Table 8**). Some services identified their own solutions for their clients poor access to specialist services, for example:

- The manager of one AMS identified that there were too many children from their service on the ENT Specialist waiting list and / or the waiting time for services was too long. She organised additional ENT Specialist clinics by either purchasing one-off additional services or through the help of volunteer ENT Specialists.

Unfortunately, this option provides only a temporary solution to an ongoing problem.

Table 8: Common key components of model of care[1] across pilot sites

Key components of Model	BHS	FHN	GPds	GMML	ISML	LMML	MML	NCML
Describe local referral pathway		√				√		
Facilitate meeting gaps in services	√	√	√	√	√	√		
Undertake co-ordination of care			√			√		

[1] The term "model of care" is applied in this case to encompass the approach taken, planned strategies and activities completed by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

3.3.6 Coordination of Care

The coordination of care for children with OM is a problem. Two POs attempted to meet the need for coordinating the care for some vulnerable children and their families. The issue arose across pilot sites of who was responsible to co-ordinate the care of primary school aged children who failed primary screening. Currently, parents or guardians are notified in writing or by word of mouth that their children require medical review as a result of primary screening. However, those responsible for the care of these children often need motivating and some support and assistance for this to occur. In some instances, POs felt responsible and made appointments and arranged free transport services for carers. However, still some carers did not keep appointments. When this occurs, if not monitored and followed-up, the children become lost in the system.

For carers of children with OM, navigating the *Guideline's* referral pathway presents a number of challenges. This is especially when:

i) there are long waiting times to access ENT Specialist and diagnostic audiology services;
ii) conditions such as CSOM and hearing loss are normalised;
iii) frequent medical review is required even when children appear well;
iv) learning difficulties at school are not unexpected;
v) there a need to travel long distances for appointments; and
vi) carers feel services are not culturally safe or become frustrated having to spend lengthy amounts of time in waiting rooms.

In the absence of apparent carer concern and them lobbying for their children to have better access to services, service providers can become desensitised and complacent in not following-up closely that secondary and tertiary appointments are made and kept, also that ENT Specialist or audiology management plans are implemented.

Three services across all eight pilot sites reported having a system to follow-up on children when parents fail to present to them for medical or audiology appointments. Two committed nurses developed rudimentary systems to track children and their appointments. They used Excel spread sheets and recorded if children attended appointments or not. If children were found not to have attended an appointment they contacted carers with new appointment times.

These rudimentary systems are not likely to be sustainable with any change over of staff. The children that miss out on medical reviews are often those that belong to families that are experiencing significant disadvantage and social / family dysfunction. An example was provided of two sisters who were both single mothers, with each having two young children with signs of OM and some impaired hearing. All four children were referred for medical review after primary screening. The sisters accepted assistance to have appointments made and transport arranged but refused to attend on the day. It is unclear who has responsibility to follow-up and ensure that these children receive the care they need.

Key Point 6: Some carers of children with OM require empathetic support (including assistance to make appointments, reminders, travel assistance to attend appointments) to successfully navigate the OM referral pathway. Care co-ordination is available to children and adults with recognised chronic diseases such as diabetes. It would be appropriate that families who have children with other chronic health care needs, including OM, be eligible for this service.

Key Point 7: In the presence of perceived carer apathy in meeting a child's OM care needs, it is appropriate that others are aware of this and are in a position to advocate for the child's greater wellbeing.

3.3.7 During consultations OM education is routinely provided to families

Staff of PMPs and AMSs who engaged well in program activities reported that OM education was routinely provided to families during consultations in their work place. Several practice nurses interviewed mentioned that they had prepared and distributed OM educational packages to families. The POs delivered promotional and educational material to all participating PMPs and AMSs. Many of the services displayed this material in waiting rooms in public view but it was observed that some did not although the material had been supplied.

3.3.8 Aboriginal and Torres Strait Islander community members have a greater awareness of OM

General indications are that POs were successful across all eight pilot sites in raising the level of awareness among Aboriginal and Torres Strait Island community members about OM and how OM can impact on their children's health and well-being. To create this awareness POs worked in partnership with Aboriginal staff employed by their own agency and also with Aboriginal and non-Aboriginal staff employed by AMSs and Government service providers.

Promotional activities at which POs gave away *Care for Kids' Ears* health promotion resources took place at all community events that had an Aboriginal health and wellbeing focus. POs organised family events such as pampering days for mothers. Agencies prepared media reports that were published in local newspapers and community newsletters (see also *Appendix 2: Summary Tables Level of Uptake of Otitis Media Revised Guidelines according to "Model of Care" Implemented by Medicare Local and Division Agencies").*

Interviews about OM were delivered on local Aboriginal and non-Aboriginal radio stations. It was reported that a small number carers in three program pilot sites did present their children at PMPs requesting that their children's ears be examined and tested following awareness raising community events and media publicity.

3.3.9 Broader Community Engagement and Program Participation

All POs participated in community activities to promote program objectives, e.g. having promotional stands at National Aboriginal and Islander Day Observance Committee (NAIDOC) and Closing the Gap community events, visits to play groups, day care centres, pre-schools, and ante-natal groups. Copies of the *Guidelines* were distributed widely, for example, to all PMPs, AMSs, hospital emergency departments, school nurses and maternal and child health nurses, audiology practices. Health promotion materials were supplied to mothers groups, play groups, kindergartens and pre-schools, directly to children during screening activities and at community events.

The POs were very active in driving and facilitating education, promotion and awareness raising activities in the community and for PMPs and AMSs. However, PMPs and some AMSs remain focused on delivering medical services and it is unlikely that an existing service will coordinate delivery of OM health promotion activities on the completion of this project.

Key Point 8: It appears that a non-service provider and independent driving force (such as provided by the Medicare Local POs) is necessary to facilitate and coordinate local education, promotion and awareness raising of OM.

4 To examine the elements of the models of care and their effectiveness and appropriateness

In the previous section elements of each Agency's model of care as defined for the purposes of this evaluation were identified and discussed. The term model of care here is used broadly to describe a multifaceted concept and broadly defines the way health services are delivered.[2] The broad objective of having specific models of care is to ensure people get the right care, at the right time, by the right team and in the right place.[3] While some POs and services strived to establish client-centred care, such a specific model of care to inform service delivery to Aboriginal children with OM was missing in this work.

Current funding models for health services promote the delivery of services in silos and foster ownership and boundary setting in approaches to service delivery. This makes it challenging to achieve good continuity of care and for services to take a client-centred approach to deliver

[2] Queensland Health. *Changing Models of Care Framework*. Brisbane: Queensland Government; 2000.
[3] Department of Health. *Model of Care: Overview and Guidelines* WA Health Networks. Department of Health, Western Australian Government. 2013.

services. Across the program pilot sites all the POs were successful to some extent in engaging with the range of service providers that have a role in implementing elements of the *Guidelines*, although engagement proved difficult to sustain over the 12 months of the project. Some services initially resisted participating in the project but came to realise it was advantageous to their services (and also to their clients) to have an independent, non-service provider representative to facilitate bridging gaps and improve poor (sometimes a breakdown in) communication between services.

A key factor in deciding on what might be a suitable model of care is the large variability in the characteristics of the services that participated in this pilot project and the contexts in which they operate. As mentioned previously, flexibility in planning the implementation of programs at the local level is essential – no one plan was suitable for all. A further factor is the need for a client-centred approach to be able to successfully engage with vulnerable families to ensure children with OM receive the care they need. With these factors in mind, the most suitable model of care that could be identified that would accommodate the more successful approaches and strategies taken by Agencies and services participating in this pilot program is the collaborative care model.

Key Point 9: The collaborative care model is seen as flexible and best able to meet the needs of disadvantaged Aboriginal and Torres Strait Islander children with OM. This model promotes that health service providers from different professions and agencies provide comprehensive services by working with people, their families, care providers, and communities to deliver the highest quality of care.

4.1 Introducing a collaborative model of care

The National Advisory Council on Mental Health's report on *Models of collaborative care for children and youth (0-25 Years)*[4] outlines a plan that could be adapted to develop a collaborative model of care for children with OM. Key features and enablers in developing such a collaborative model of care include:

Improving access to services

- Maternal and Child Health service providers, primary ear health screening service providers, primary care and specialist medical practitioners and audiologists (secondary screening and amplification specialists) should collaborate to develop local care pathways that promote access to services for children with OM by:
  - supporting the integrated delivery of services across primary and secondary care;
  - having clear and explicit criteria for entry to each service;
  - focusing on entry and not exclusion criteria;
  - having multiple means to access the service (including self-referral where appropriate);

[4] National Advisory Council on Mental Health. *Models of collaborative care for children and youth (0-25 Years) - Final Report*. Australian Government Department of Health and Ageing.

- providing multiple points of access that facilitate links with the wider healthcare system and community in which the service is located;
- monitor the availability of services to identify temporary or permanent gaps in services key to implementing the *Guidelines* in full and to advocate to fill any gaps, e.g. gaps in primary screening, ENT Specialist and secondary audiology services;
- care co-ordination to facilitate that those who require complex care have their needs met; and
- additional action so the most disadvantaged groups in communities utilise services available[5,6,7] .

Identification (primary screening and early intervention)

- Through improved co-ordination and monitoring promote good coverage rates for primary screening for OM and hearing loss.
- Be alert to possible OM among all Aboriginal and Torres Strait Islander children (particularly among children 0-4 years) children and promote opportunistic screening.

Developing local care pathways

- Maternal and Child Health service providers, primary ear health screening service providers, primary care and specialist medical practitioners and allied health professionals to work together to design local care pathways that promote matching the needs of families with the services available.

- Maternal and Child Health service providers, primary ear health screening service providers, primary care and specialist medical practitioners and allied health professionals to work together to design local care pathways that provide a co-ordinated programme of care across primary, secondary and tertiary care services. Pathways should:
  - minimise the need for transition between different services or providers;
  - allow services to be built around the pathway and not the pathway around the services;
  - establish clear links (including access and entry points) to other care pathways (including those to meet social welfare needs); and
  - have a care co-ordinator who is responsible for the coordination of a carer's engagement with the OM referral pathway.
- Maternal and Child Health service providers, primary ear screening service providers, primary care and specialist medical practitioners, and allied health professionals to work together to ensure effective communication about the functioning of the local care pathway. There should be protocols for:
  - sharing and communicating information with children's carers and their wider families;

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[5] Hart JT. The Inverse Care Law. *Lancet* 1971

[6] Commission on the Social Determinants of Health. Achieving health equity: from root causes to fair outcomes. WHO. 2007

[7] Strategic Review of Health Inequalities in England Commission. *Fair Society, Healthy Lives: The Marmot Review.* The Marmot Review. 2011.

- sharing and communicating information about the care of children with other health professionals, and where appropriate educationalists;
- communicating information between the services provided within the pathway;
- communicating information to services outside the pathway;
- treatment and care should take into account the carer's needs and preferences; and
- carers of children with OM should have the opportunity to make informed decisions about their child's care and treatment, in partnership with their healthcare professionals.

The degree of care co-ordination required, and extent of the need for collaboration between practitioners or services, should be informed by carer characteristics and the context and is dependent on two factors: 1) the complexity of the OM management plan; and 2) the capacity and level of functioning of the primary carer and other family members to effectively meet a child's medical care needs. Some families whose child has only a basic medical need, e.g. to attend for a one-off audiology review, may need high levels of support due to social, economic or other problems impacting negatively on family functioning. Other families may require extensive assistance due to the need to co-ordinate and attend many appointments across multiple service providers.

Key Point 10: The National Advisory Council on Mental Health's report on *Models of collaborative care for children and youth (0-25 Years)*[8] outlines a plan that could be adapted to develop a collaborative model of care for children with OM.

[8] National Advisory Council on Mental Health. *Models of collaborative care for children and youth (0-25 Years) - Final Report*. Australian Government Department of Health and Ageing.

5 Summary

The implementation of best practice models of care based on the updated *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations 2010* program has achieved many small positive outcomes. These achievements are significant given the short timeframe over which the program was implemented and the limited resources available to those implementing the program. The POs from each program pilot site were confronted with many challenges in delivering the program. Their greatest challenge was achieving a level of engagement with busy medical practitioners to inform them about the *Guidelines*.

Program activities revealed a number of obstacles to children accessing services, some gaps in service delivery, and the important problem of leakage of disadvantaged Aboriginal children who required medical attention from all levels of the health system. The development of a collaborative model of care for children and the introduction of care-coordination for child with OM will contribute to addressing these issues.

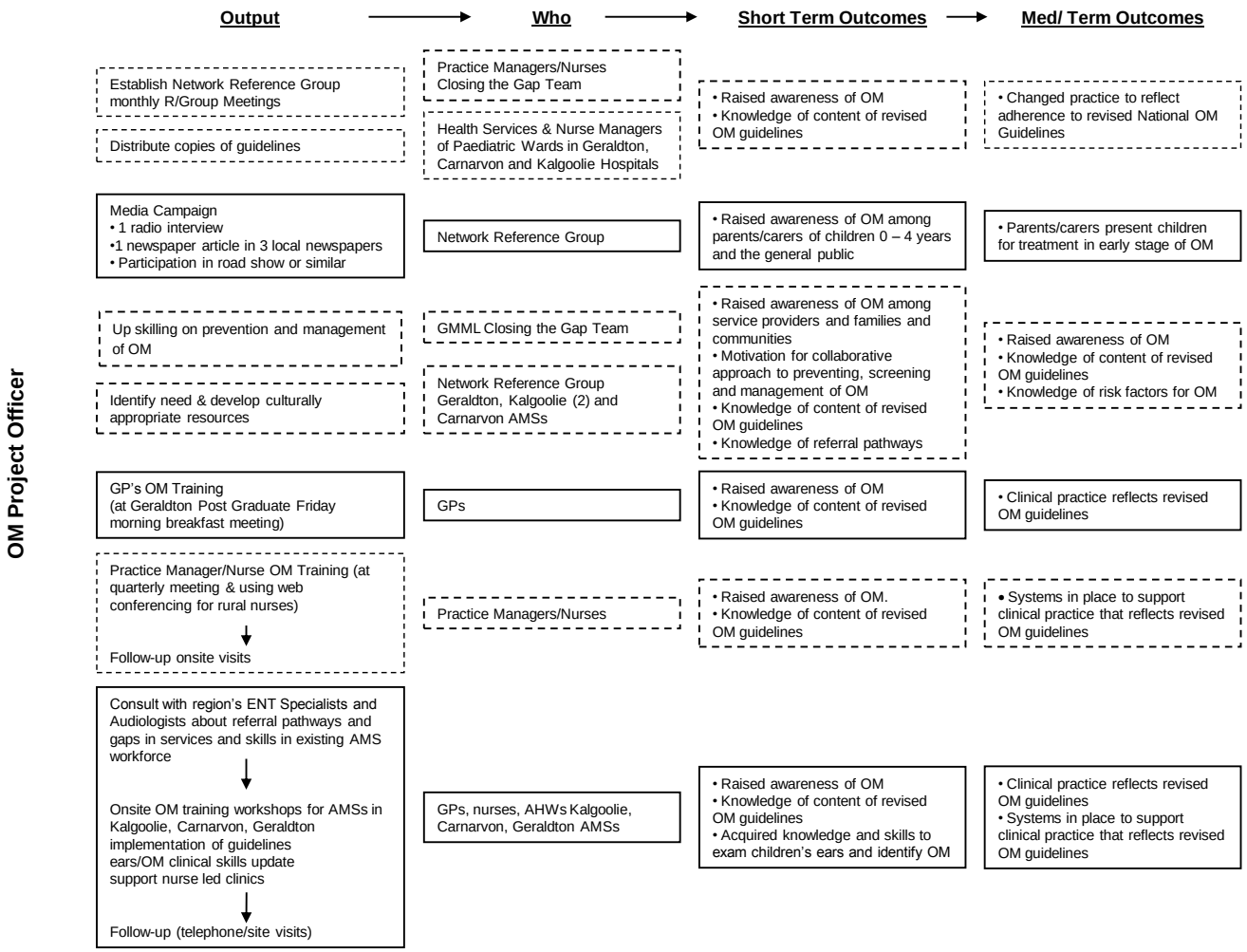
6 Appendices

6.1 Appendix 1: Program Logic Frameworks

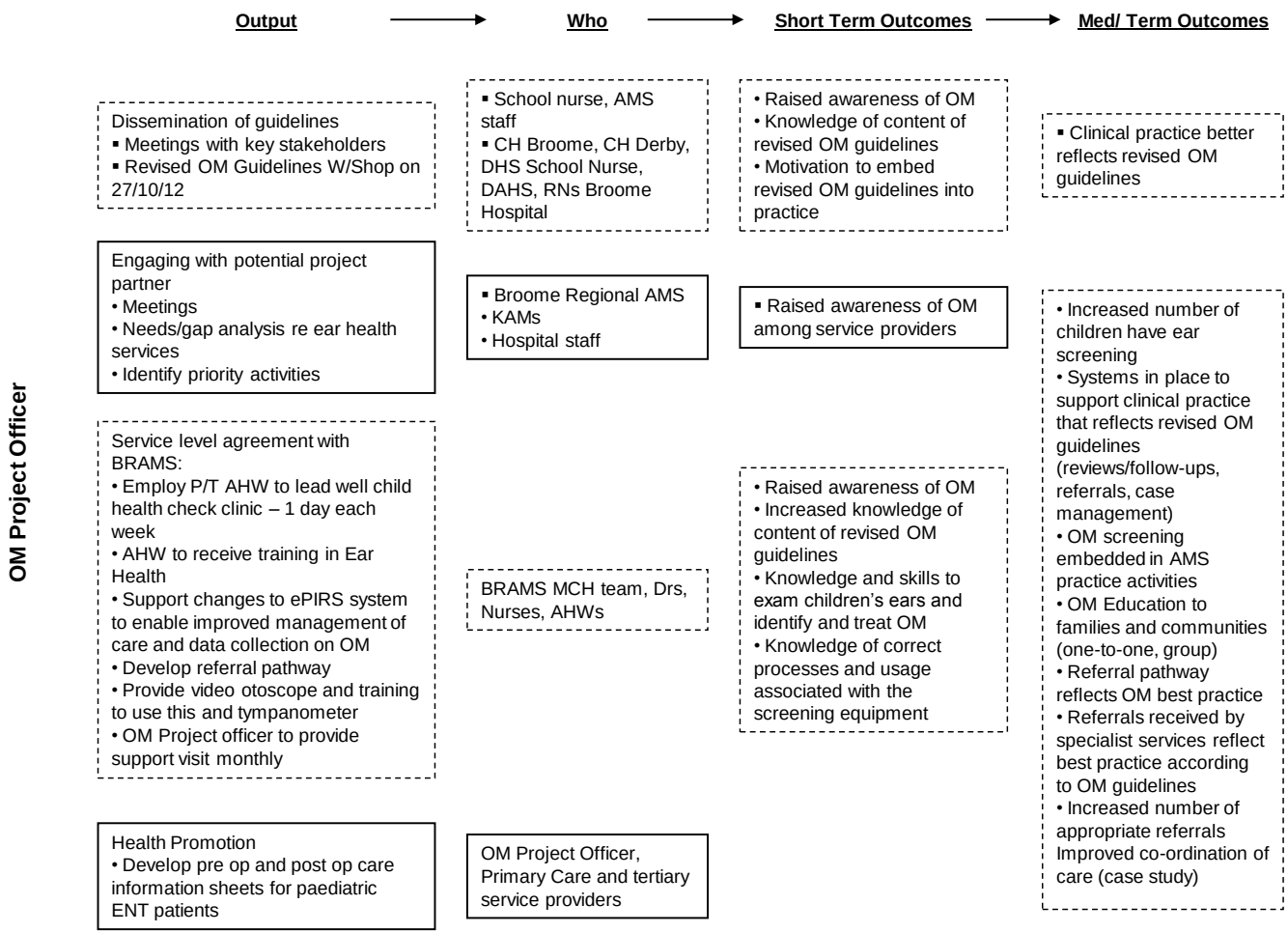
Program Logic Frameworks

- Goldfieds Midwest Medicare Local – Program Logic Plan
- Boab Health Services Program Logic Plan
- GPds – Program Logic Plan
- Illawarra-Shoalhaven Medicare Local – Program Logic Plan
- Lower Murray Medicare Local – Program Logic Plan
- Murrumbidgee Medicare Local – Program Logic Plan
- North Coast NSW Medicare Local – Program Logic Plan
- Focus Health Network – Program Logic Plan

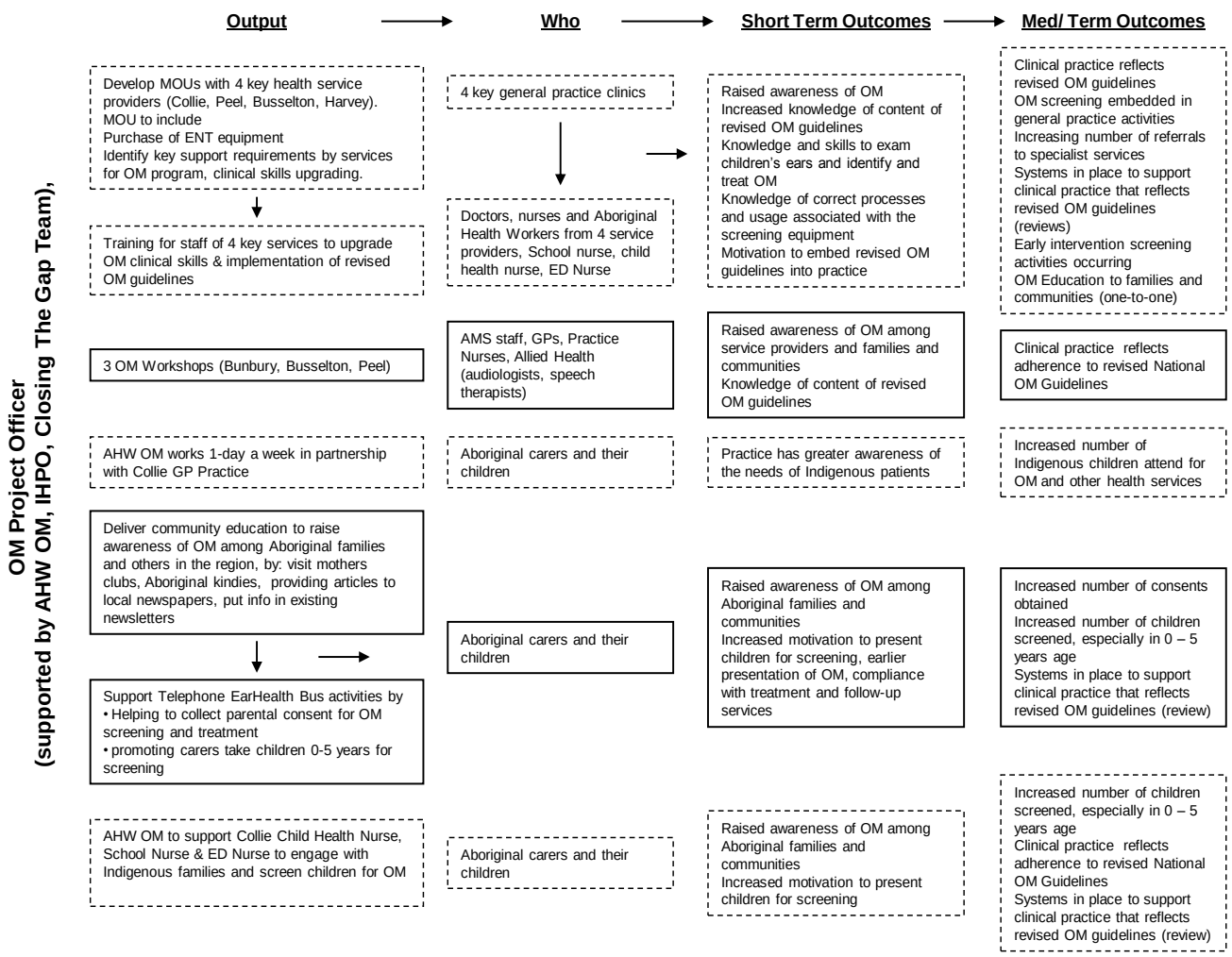
Goldfieds Midwest Medicare Local – Program Logic Plan

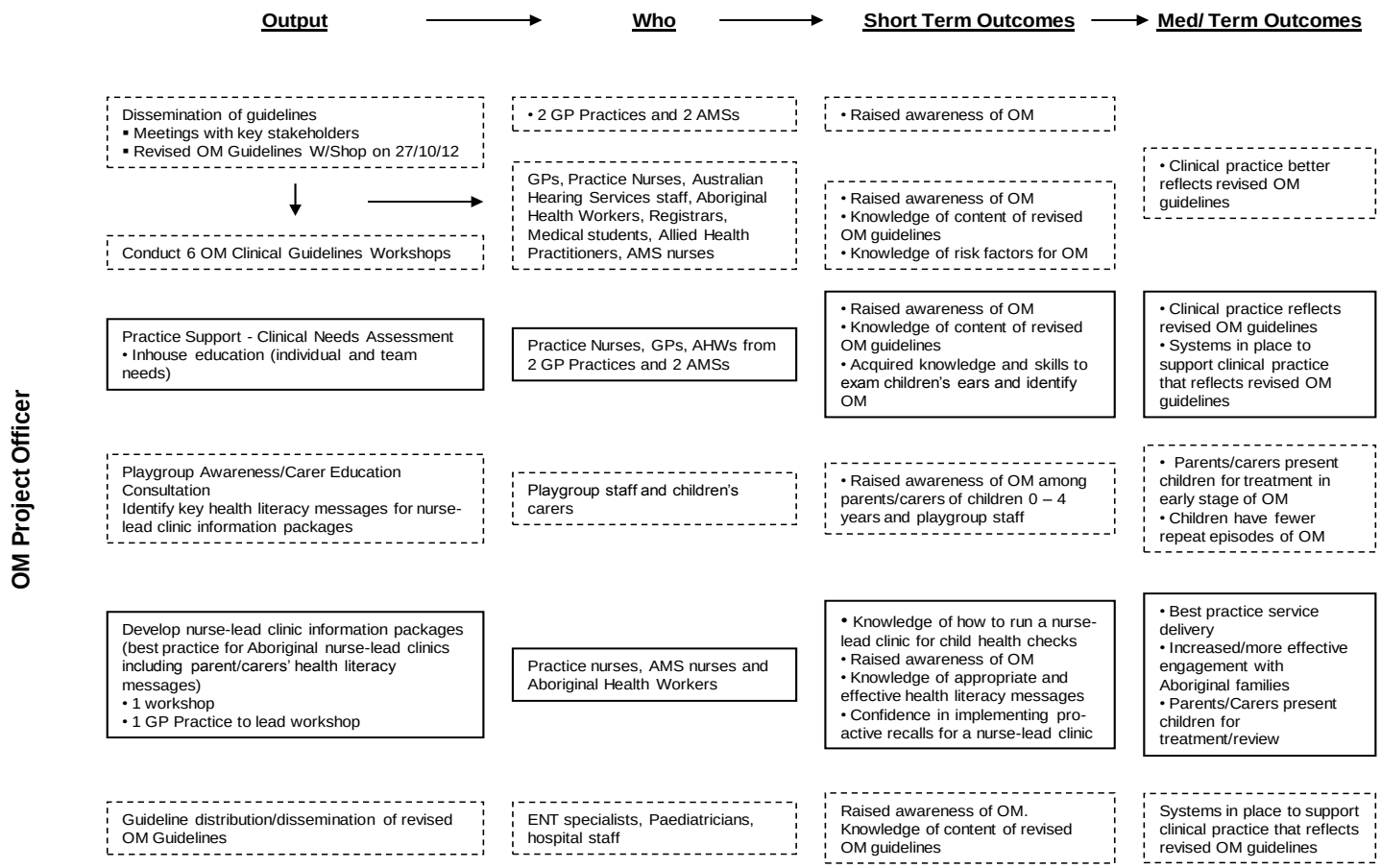


Boab Health Services Program Logic Plan

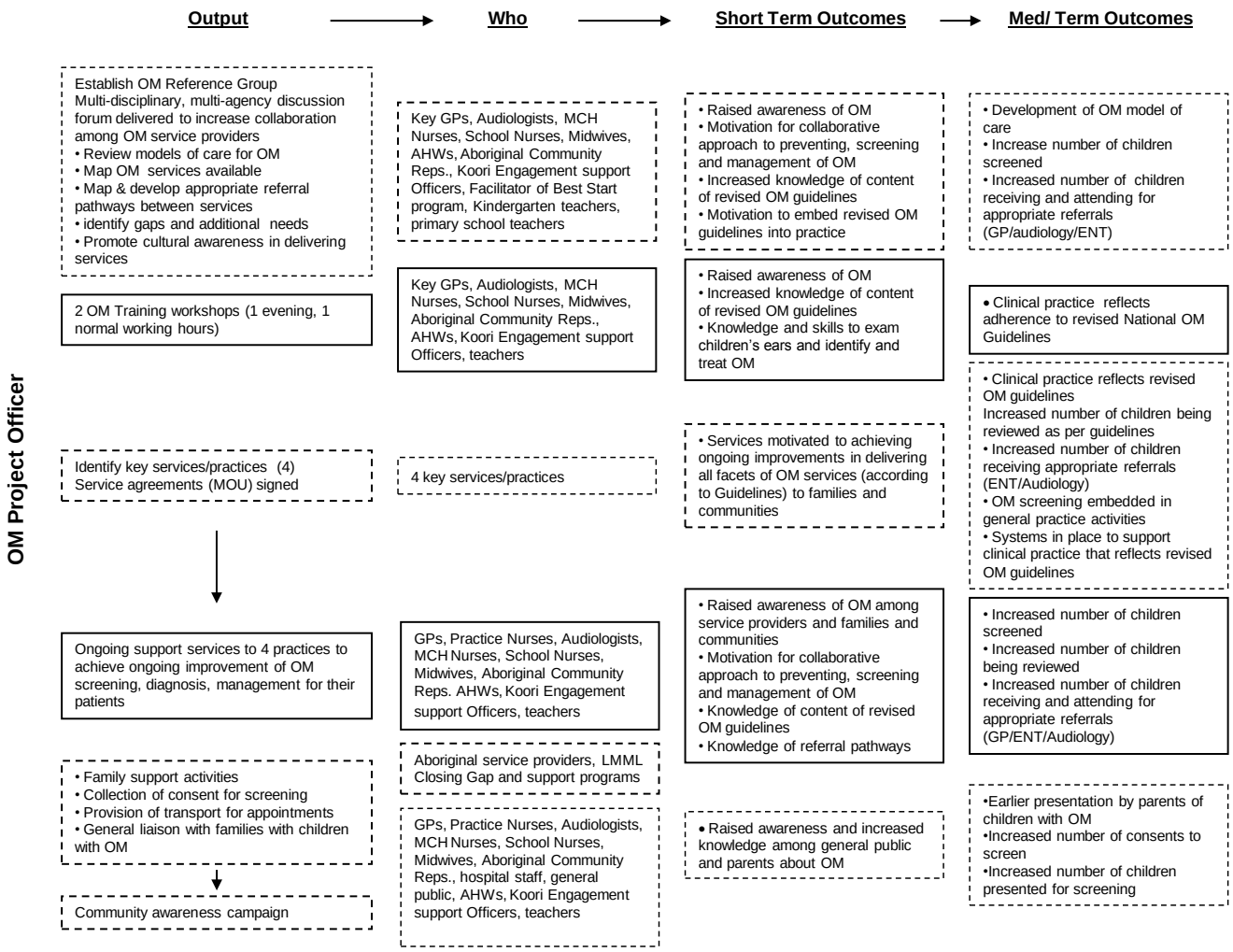


GPds – Program Logic Plan

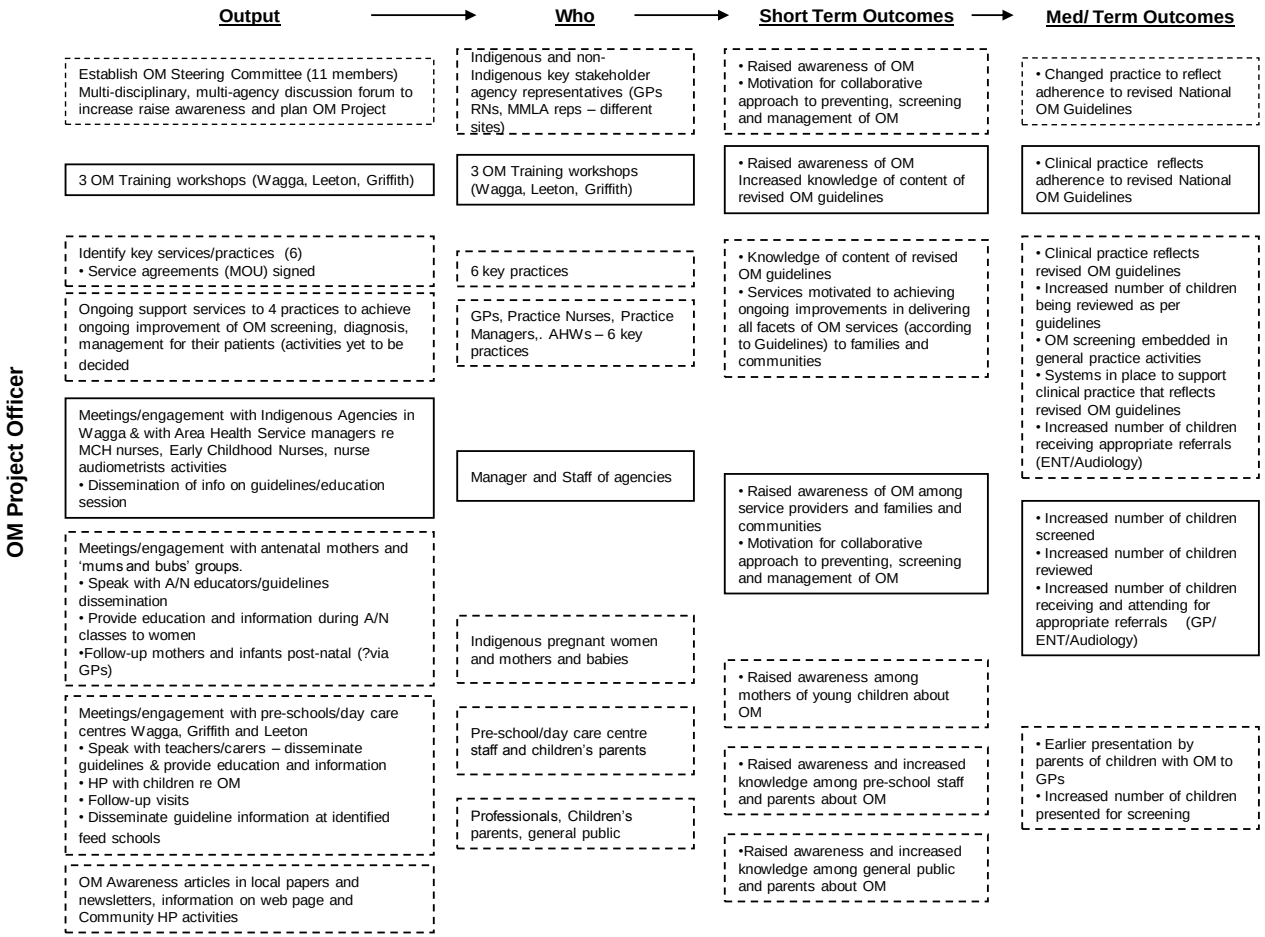


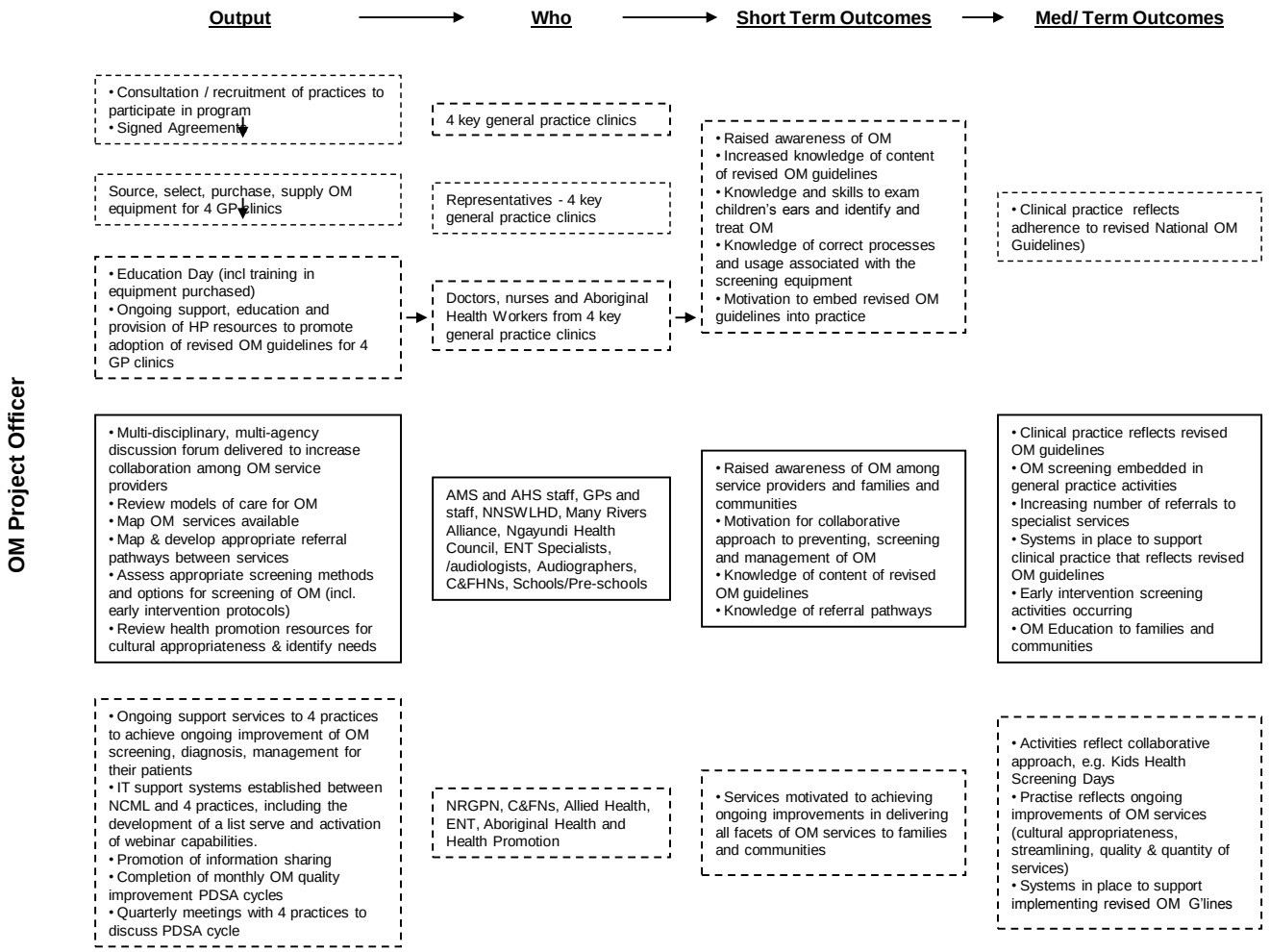

OM Project Officer
Output
Who
Short Term Outcomes
Med/ Term Outcomes
Dissemination of guidelines
▪ Meetings with key stakeholders
▪ Revised OM Guidelines W/Shop on 27/10/12
• 2 GP Practices and 2 AMSs
• Raised awareness of OM
Conduct 6 OM Clinical Guidelines Workshops
GPs, Practice Nurses, Australian Hearing Services staff, Aboriginal Health Workers, Registrars, Medical students, Allied Health Practitioners, AMS nurses
• Raised awareness of OM
• Knowledge of content of revised OM guidelines
• Knowledge of risk factors for OM
• Clinical practice better reflects revised OM guidelines
Practice Support - Clinical Needs Assessment
• Inhouse education (individual and team needs)
Practice Nurses, GPs, AHWs from 2 GP Practices and 2 AMSs
• Raised awareness of OM
• Knowledge of content of revised OM guidelines
• Acquired knowledge and skills to exam children's ears and identify OM
• Clinical practice reflects revised OM guidelines
• Systems in place to support clinical practice that reflects revised OM guidelines
Playgroup Awareness/Carer Education Consultation
Identify key health literacy messages for nurse-lead clinic information packages
Playgroup staff and children's carers
• Raised awareness of OM among parents/carers of children 0 – 4 years and playgroup staff
• Parents/carers present children for treatment in early stage of OM
• Children have fewer repeat episodes of OM
Develop nurse-lead clinic information packages (best practice for Aboriginal nurse-lead clinics including parent/carers' health literacy messages)
• 1 workshop
• 1 GP Practice to lead workshop
Practice nurses, AMS nurses and Aboriginal Health Workers
• Knowledge of how to run a nurse-lead clinic for child health checks
• Raised awareness of OM
• Knowledge of appropriate and effective health literacy messages
• Confidence in implementing pro-active recalls for a nurse-lead clinic
• Best practice service delivery
• Increased/more effective engagement with Aboriginal families
• Parents/Carers present children for treatment/review
Guideline distribution/dissemination of revised OM Guidelines
ENT specialists, Paediatricians, hospital staff
Raised awareness of OM.
Knowledge of content of revised OM guidelines
Systems in place to support clinical practice that reflects revised OM guidelines

Lower Murray Medicare Local – Program Logic Plan

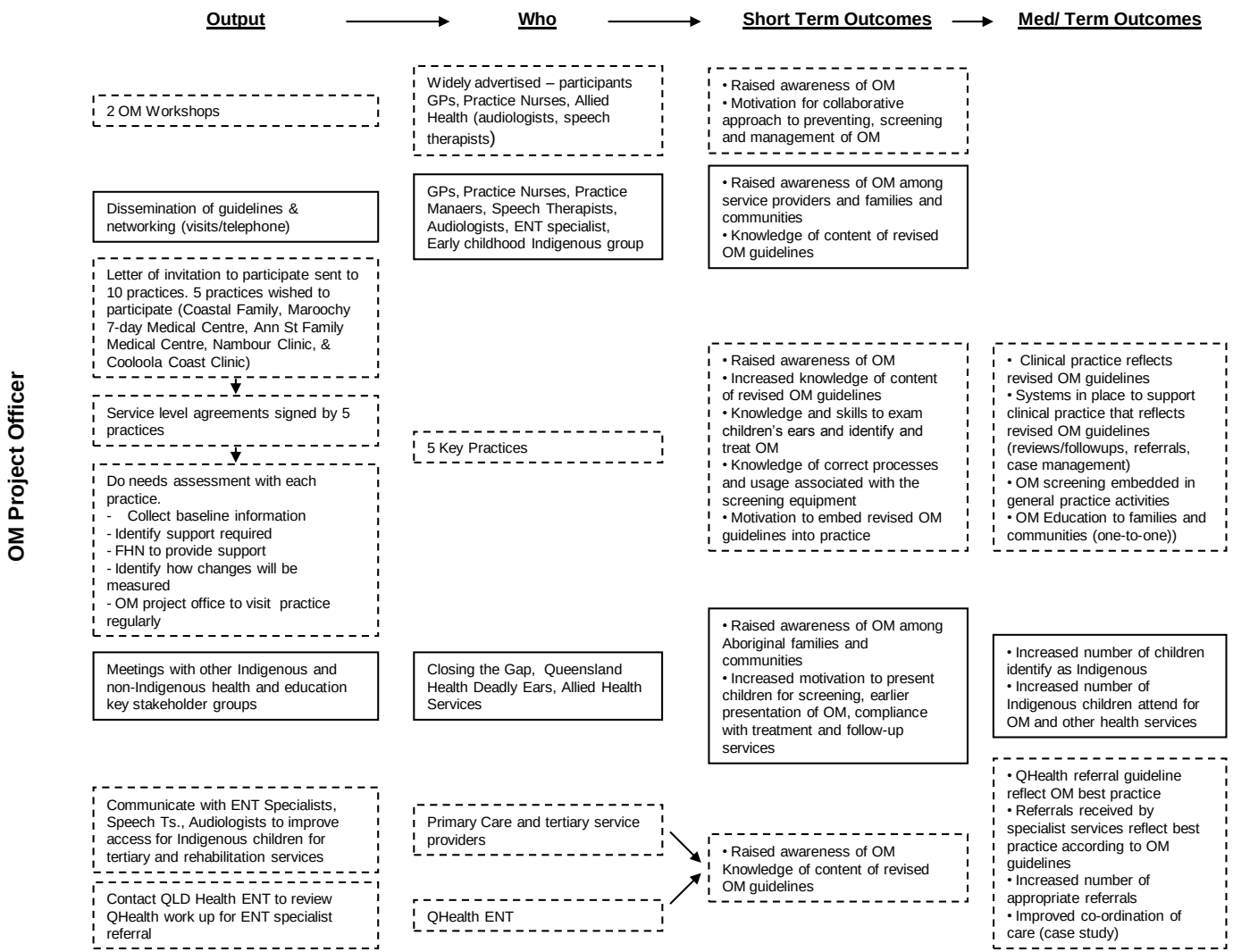


Murrumbidgee Medicare Local – Program Logic Plan




OM Project Officer
Output
Who
Short Term Outcomes
Med/ Term Outcomes
• Consultation / recruitment of practices to participate in program
• Signed Agreements
4 key general practice clinics
Source, select, purchase, supply OM equipment for 4 GP clinics
Representatives - 4 key general practice clinics
• Education Day (incl training in equipment purchased)
• Ongoing support, education and provision of HP resources to promote adoption of revised OM guidelines for 4 GP clinics
Doctors, nurses and Aboriginal Health Workers from 4 key general practice clinics
• Raised awareness of OM
• Increased knowledge of content of revised OM guidelines
• Knowledge and skills to exam children's ears and identify and treat OM
• Knowledge of correct processes and usage associated with the screening equipment
• Motivation to embed revised OM guidelines into practice
• Clinical practice reflects adherence to revised National OM Guidelines)
• Multi-disciplinary, multi-agency discussion forum delivered to increase collaboration among OM service providers
• Review models of care for OM
• Map OM services available
• Map & develop appropriate referral pathways between services
• Assess appropriate screening methods and options for screening of OM (incl. early intervention protocols)
• Review health promotion resources for cultural appropriateness & identify needs
AMS and AHS staff, GPs and staff, NNSWLHD, Many Rivers Alliance, Ngayundi Health Council, ENT Specialists, /audiologists, Audiographers, C&FHNs, Schools/Pre-schools
• Raised awareness of OM among service providers and families and communities
• Motivation for collaborative approach to preventing, screening and management of OM
• Knowledge of content of revised OM guidelines
• Knowledge of referral pathways
• Clinical practice reflects revised OM guidelines
• OM screening embedded in general practice activities
• Increasing number of referrals to specialist services
• Systems in place to support clinical practice that reflects revised OM guidelines
• Early intervention screening activities occurring
• OM Education to families and communities
• Ongoing support services to 4 practices to achieve ongoing improvement of OM screening, diagnosis, management for their patients
• IT support systems established between NCML and 4 practices, including the development of a list serve and activation of webinar capabilities.
• Promotion of information sharing
• Completion of monthly OM quality improvement PDSA cycles
• Quarterly meetings with 4 practices to discuss PDSA cycle
NRGPN, C&FNs, Allied Health, ENT, Aboriginal Health and Health Promotion
• Services motivated to achieving ongoing improvements in delivering all facets of OM services to families and communities
• Activities reflect collaborative approach, e.g. Kids Health Screening Days
• Practise reflects ongoing improvements of OM services (cultural appropriateness, streamlining, quality & quantity of services)
• Systems in place to support implementing revised OM G'lines

Focus Health Network – Program Logic Plan



6.2 Appendix 2: Summary –Tables Level of Uptake of Otitis Media Revised *Guidelines* according to "Model of Care" Implemented by Medicare Local and Division Agencies

Summary Tables Level of Uptake of Otitis Media Revised *Guidelines* according to "Model of Care" implemented by Medicare Local and Division Agencies

The term "model of care" is applied in this case to encompass the approach used, strategies and activities used by Medicare Local and Division agencies to promote adoption into practice the revised *Guidelines*.

The following definitions were used to estimate the level of uptake of the Guideline's recommendations:

Good – Staff attended education and training offered. Obvious signs that otitis media health promotion resources are being utilised and distributed. Evidence of system change to promote staff practice is in line with *Guidelines*, e.g. visual prompts, reminder system, review or recall system, referral pathway identified. Service report most staff implement Guideline recommendations.

Satisfactory - Staff attended education and training offered. Otitis media health promotion resources are being utilised and distributed. Service personnel report most staff use *Guidelines*.

Limited - Staff attended education and training offered. Otitis media health promotion resources distributed is being utilised. Unclear if any staff has adopted Guideline recommendations into practice.

Unable to Assess – Service provider did not supply any or sufficient information to be able to assess uptake.

Table 1. Boab Health Service				
Model of care: Establish collaborative approach. Facilitate health professional education and training, raise awareness and widely disseminate *Guidelines*, participate in community OM health promotion activities				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Level of Uptake***
Measure of uptake of guidelines under this model*: No uptake*				
1. Primary Health Care/ Aboriginal Medical Service	• Some 0-4 children primary screening activity • Treatment and referral • Coordination of care (primary, secondary and tertiary levels) • Health promotion	• Employment of ear / maternal and child health nurse.	• High workload • Limited resources • Children have high burden of illness – competing health needs • High number of locum doctors	Systems for tracking children with OM established. Child Ear Health Risk Review Register developed. Active follow-up and review occurring.
Measure of uptake of guidelines under this model*:* Good				

Table 2. Focus Health Network				
Model of care: Promote use of a collaborative approach. Facilitate health professional education and training, raise awareness and widely disseminate *Guidelines*, practice visits to provide ongoing support, identify services additional health promotion resource needs, participate in community OM health promotion activities, develop directory of ear services in the region.				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Level of Uptake***
1. Primary Care/Private GP practice	• Treatment and referral	• Practice management motivated to participate in program	• High staff turnover • Practice employs a high number of part-time General Practitioners and practice nurses • Few paediatric patients	• Service provider did not supply any or sufficient information to be able to assess uptake.
***Measure of uptake of guidelines under this model**:* Unable to assess				
2.Primary Care/Private GP Practice	• Treatment and referral • Completion of Child Health Checks	• Practice management motivated to participate in program • High interest in clinical up skilling to diagnose OM • Supplied with ear examination instruments	• Staff turnover • Practice employs a high number of part-time general practitioners and practice nurses	• Pilot ear clinic/recall day – not well attended. • Following referral recommendations in *Guidelines* • Improved co-ordination of care with ENT service
***Measure of uptake of guidelines under this model**:* Good				
3. Primary Care/Private GP Practice	• Treatment and referral • Completion of Child Health Checks	• Practice management motivated to participate in program • High interest in clinical up skilling to diagnose OM	• Access to secondary audiology and bulk billing services.	• Introduced use of tissue spears • Introduced recall system for at risk children with OM • Practice software now includes recording Indigenous status of patients • Identified and now utilising bulkbilling secondary audiology service and ENT. • Strategic use of health

				education resources to encourage re-attendance • Following referral recommendations in *Guidelines*
***Measure of uptake of guidelines under this model**:* Good				
4. Primary Care/Private GP Practice	• Primary screening and early intervention • Treatment and referral • Health promotion • Opportunistic screening • Completion of Child Health Checks • (provide contracted medical services to local AMS)	• GP champion for the OM program • High interest in clinical upskilling to diagnose OM • Crossover with working with AMS • Integrates OM primary screening with delivering Immunisation program	• Staff turnover	• Practice software now includes recording Indigenous status • Software flags Indigenous children for ear check at every visit • Disease register specifically for OM • Tympanometer used routinely • Following referral recommendations in *Guidelines*
***Measure of uptake of guidelines under this model**:* Good				
5. Primary Care/Private GP Practice	• Treatment and referral		• High staff turnover • Level of engagement with Medicare Local poor – unable to assess	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				

Table 3. GPds				
Model of Care: Primary Health Care/Collaborative Approach. Facilitate health professional education and training, raise awareness and widely disseminate *Guidelines*, assist services with purchase of equipment, provide primary screening and early intervention service, undertake health promotion activities, establish referral pathways / work collaboratively and in partnership with other service providers, undertake coordination of care, advocate for current gaps in services.				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Level of Uptake***
1. Primary Care/Private GP practice	• Treatment and referral	• Level of engagement with Medicare Local poor – unable to assess	• Difficulties in engaging with practices • Existing high work load of General Practitioners • Few paediatric patients	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				
2.Primary Care/Private GP Practice	• Treatment and referral	• GPds employ skilled Aboriginal Ear Health Worker who does primary screening and refers children for GP review	• Existing high work load of General Practitioner	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				
3. Primary Care/Private GP Practice	• Treatment and referral	• High level of interest to participate in education and clinical upskilling programs • GPDS employ skilled Aboriginal Ear Health Workers to undertake primary screening and promote early intervention	• Difficulties in engaging with practices • Existing high work load of General Practitioners	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				
4. Primary Care/Private GP Practice	• Treatment and referral	• High level of interest to participate in education and clinical upskilling programs	• Difficulties in engaging with practices • Existing high work load of General Practitioners	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				

Table 4. Goldfields Midwest Medicare Local				
Model of care: Health professional education and training, raise awareness and widely disseminate *Guidelines*, promote use of a collaborative approach, support health promotion activities, advocate for identified gaps in services				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Level of Uptake***
1. Primary Health Care/ Aboriginal Medical Service	• Primary screening of school aged children • Treatment and referral • Sponsor/purchase ENT services • Sponsor/purchase diagnostic audiology services • Child Health Check • Health Promotion	• Existing ear program in place • Experienced Aboriginal ear health workers do primary screening	• Limited resources • Staff workload • Staff turnover • High prevalence of CSOM • Lack of effective systems for screening children 0-4years	Manager reported staff aware and use *Guidelines*. Limited electronic recall system in place.
***Measure of uptake of guidelines under this model**:* Good				
2. Primary Health Care/ Aboriginal Medical Service	• Primary screening of primary school aged children • Treatment and referral • Sponsor/purchase ENT services • Sponsor/purchase diagnostic audiology services • Child Health Check • Health Promotion	• Existing ear program in place • Experienced Aboriginal ear health workers	• Limited resources • High workload • High use of locums to provide medical service • High prevalence of CSOM • Lack of effective systems for screening children 0-4years	Have ear clinics. Employ ear nurse. Data base established of children with OM and used for review and recall Ear Nurse reports constantly orientating locums and promoting use of *Guidelines*.
***Measure of uptake of guidelines under this model**:* Good				
3. Primary Health Care/ Aboriginal Medical Service	• Primary screening of primary school aged children and children 0-4 years • Treatment and referral • Child Health Checks • Health Promotion	• Experienced Aboriginal ear health workers • Operate community based program activities	• Limited access to diagnostic audiology and ENT services • High prevalence of CSOM	Aboriginal ear health workers visit parents and children in their homes to promote better treatment compliance and attendance for review. Do family centred ear health promotion.
***Measure of uptake of guidelines under this model**:* Good				
4. Primary Health Care/ Aboriginal Medical Service	• Primary screening of primary school aged children and children 0-4 years	• Level of engagement with Medicare Local poor – unable to assess	• Level of engagement with Medicare Local poor – unable to assess	Service provider did not supply any or sufficient information to be able to

	• Treatment and referral			assess uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				

Table 5. Illawarra Shoalhaven Medicare Local				
Model of care: Facilitate health professional education and training, raise awareness and disseminate *Guidelines*, assistance with purchase of equipment, needs assessment, health promotion activities, ongoing education and support for health professionals, facilitate access to ENT services				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Comments***
1. Primary Care/Private GP practice	• Completion of Child Health Checks • Treatment and referral	• Practice nurse and General Practitioner motivated to participate in program	• Existing high work load of General Practitioners • Crowded space in practice premises	GPs report they are following clinical management recommended in *Guidelines*
***Measure of uptake of guidelines under this model**:* Limited				
2.Primary Care/Private GP Practice	• Nurse led clinics • Completion of Child Health Checks • Treatment and referral • Review and follow-up • Some primary screening children of all ages • Provision of culturally appropriate consultation environment	• Practice management motivated to participate in program • Motivated and competent practice nurses	• Nil	Practice Nurse reported program well received by community members with high participation numbers. GPs following the guidelines.
***Measure of uptake of guidelines under this model**:* Good				
3. Primary Health Care/ Aboriginal Medical Service	• Screening and early intervention school aged children • Treatment and referral • Health promotion	• Level of engagement with MedicareLocal poor – unable to assess	• Level of engagement with MedicareLocal poor – unable to assess	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**: Unable to assess*				
4. Primary Health Care/ Aboriginal Medical Service	• Screening and early intervention school aged children • Treatment and referral • Health promotion	• Practice nurse initially involved very motivated	• High staff turnover	Service provider did not supply any or sufficient information to be able to assess uptake
***Measure of uptake of guidelines under this model**: Unable to assess*				

Table 6. Pilot Site Lower Murray Medicare Local				
Model of Care: Facilitate health professional education and training, raise awareness and disseminate *Guidelines*, promote use of a collaborative approach, lead health promotion activities, co-ordinate primary screening and early intervention activities				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Level of Uptake***
1. Primary Care/Private GP practice	• Treatment and referral	• General Practitioner motivated to participate in program	• Existing high work load of General Practitioners • Few paediatric patients	Verbal feedback from GP indicates good level of awareness and knowledge of the *Guidelines*
Measure of uptake of guidelines under this model*:* Limited				
2.Primary Care/Private GP Practice	• Treatment and referral	• General Practitioner motivated to participate in program	• Existing high work load of General Practitioners • Few paediatric patients	Verbal feedback from GP indicates good level of awareness and knowledge of the *Guidelines*
Measure of uptake of guidelines under this model*:* Limited				
3. Primary Care/Private GP Practice	• Treatment and referral (contracted to provide medical service to local AMS)	• Level of engagement with Medicare Local poor – unable to assess	• High number of locum general practitioners • Existing high work load of General Practitioners	GP interviewed unaware of *Guidelines* although disseminated and some staff attended education and training workshops. Health Promotion material provided for waiting area not on display.
Measure of uptake of guidelines under this model*: No uptake*				
4. Primary Health Care/ Aboriginal Medical Service	• Some early childhood primary screening activity • Treatment and referral • Health promotion	• Highly motivated maternal and child health nurse.	• High staff turnover • Low levels of competence/confidence among nurses and Aboriginal Health Workers to exam children's ears	Staff participated in primary screening and health promotion activities lead by LMML. Service undergoing review and restructure under new management.
Measure of uptake of guidelines under this model*: Limited*				

Table 7. Pilot Site Murrumbidgee Medicare Local				
Model of care: Facilitate health professional education and training, raise awareness and widely disseminate *Guidelines*, assistance to purchase equipment, practice visits to provide ongoing support, establishment of practice ear network, support practices health promotion resource needs.				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers to uptake***	***Key barriers to uptake***	***Key Outcomes***
1. Primary Care/Private GP practice	• Opportunistic screening • Completion of Child Health Checks • Treatment and referral	• One staff member appointed responsible to lead adoption of *Guidelines* in the practice • Electronic patient information system automatically prompts GPs to examine children's ears and need for recall for review. • One practice nurse trained to be expert and resource in screening and diagnosis.	• Low levels of competence/confidence among practice nurses to exam children's ears. • Primary hearing testing not offered by the service.	• System changes made include nominating one staff member as program leader and expert, Supporting electronic information system developed.
***Measure of uptake of guidelines under this model**:* Good				
2. Primary Health Care/ Aboriginal Medical Service	• Primary audiological screening and ear examination of school aged children • Completion of Child Health Checks • Treatment and referral • Health promotion	• Aboriginal Health Worker already competent in screening and identification of ear disease	• High reliance on employing locum doctors • Staff turnover • Lack of effective systems to allow for follow-up and review • Patients attend multiple health services	• Collaborative arrangement in place so clients under the care of private practices can attend AMS for primary audiological testing. • AHW reported most practitioners followed Guideline treatment recommendations
***Measure of uptake of guidelines under this model**:* Satisfactory				
3.Primary Care/Private GP Practice	• Treatment and referral	• Practice staff motivated to participate in program	• Few paediatric patients	• Limited opportunity to implement guidelines
***Measure of uptake of guidelines under this model**:* Limited				
4. Primary Care/Private GP Practice	• Treatment and referral	• Practice staff motivated to participate in program	• Few paediatric patients	• Limited opportunity to implement guidelines
***Measure of uptake of guidelines under this model**:* Limited				
5. Primary Health Care/ Aboriginal Medical Service	• Primary audiological screening and ear examination of school aged children • Completion of Child Health Checks	• Poor engagement with MML and unable to access	• Poor engagement with MML and unable to access	• Did not participate in the OM *Guidelines* Workshop • This service provided little feedback

	• Treatment and referral • Health promotion			information.
Measure of uptake of guidelines under this model: Unable to assess				
6. Primary Care/Private GP Practice	• Opportunistic screening and early intervention • Treatment and referral	• Good engagement with practice nurse	• High reliance on employing locum doctors	• No systems changes made within the practice.
Measure of uptake of guidelines under this model*:* Limited				

Table 8. North Cost Medicare Local				
Model of Care: Program established based on Australian Primary Care Collaborative (APCC) improvement methods. This included supporting each service with monthly OM program goal setting and implementing quality improvement plan-do-see-act cycles. Other approaches used included: plan to establish IT support systems between NCML and 4 services, facilitate facilitate health professional education and training, raise awareness and widely disseminate *Guidelines*, assist services with purchase of equipment, participate in health promotion activities, mapping of local services involved in aural health care.				
Existing Practice/AMS Service Delivery Model	***Key characteristics of model of care to implement guidelines***	***Key enablers***	***Key barriers***	***Level of Uptake***
1. Primary Care/Private GP practice	• Treatment and referral	• Practice nurse enthusiasm to participate	• Existing high work load of General Practitioners • High staff over • Connecting with staff who work various part-time hours	Feedback information not provided. Unable to assess level of uptake
***Measure of uptake of guidelines under this model**:* Unable to assess				
2. Primary Care/Private GP	• Treatment and referral	• Practice nurse enthusiasm to participate	• Limited time and resources. • High staff over • Connecting with staff who work various part-time hours • Poor access to diagnostic audiology services	Practice nurse reported staff following *Guidelines* and increased awareness. Staff reported to now routinely checking the ears of Indigenous children who present with fever.
***Measure of uptake of guidelines under this model**:* Satisfactory				
3. Primary Health Care/ Aboriginal Medical Service	• Screening and early intervention of school aged children • Opportunistic screening of children 0-4 years • Treatment and referral • Completion of child health checks • Health promotion • Some care co-ordination	• GP champion of program • Some ear program activity already in place • Activities associated with prevention, management of OM given some priority by service. • Staff motivated to increase ear examination and OM diagnosis skills.	• No clear referral pathway across primary, secondary and tertiary levels	Service has 3 monthly ear days that include recalling and reviewing children known to have OM. Systems in place to flag at risk children and for their recall and review.
***Measure of uptake of guidelines under this model**:* Good				