

Aboriginal Students with Disabilities:
Otitis Media and Conductive Hearing Loss

VOLUME 3



Government
of South Australia

This report is available on the Ministerial Advisory Committee:
Students with Disabilities' website at <www.macswd.sa.gov.au>.

Please note:

The term "parents" denotes all caregivers of children.

The term "Aboriginal" denotes all Indigenous people in South Australia.

In this study the specific term "conductive hearing loss" refers to the fluctuating hearing loss associated with otitis media, and the general term "hearing loss" refers to any hearing loss, which can be conductive or sensorineural.

On July 1, 2006, the Women's and Children's Hospital and Child and Youth Health were brought together to form the Children, Youth and Women's Health Service.

Produced by the Ministerial Advisory Committee:
Students with Disabilities
Adelaide SA 5000
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Foreword

The Ministerial Advisory Committee: Students with Disabilities reported on the education of Aboriginal children and students with disabilities in 2003. This report was widely distributed and was the impetus for two subsequent projects in 2005 and 2006, focusing on Aboriginal children and students with otitis media and conductive hearing loss.

Project groups were formed to oversee the two projects; participants included representatives of government and non-government education sectors and organisations, Aboriginal health representatives, university personnel, as well as members with knowledge of hearing impairment and Aboriginal education. We would like to express our thanks to all members for their participation. The diverse experience and expertise was important in developing the aims of the project and in guiding and finalising the report.

We would also like to thank all the case study participants and others working in the fields of health, education and disability who volunteered their time to participate in interviews. Case study participants discussed programs dedicated to improving ear and hearing health of Aboriginal children in South Australia, community models for service delivery and collaborative practice.

Participants also raised issues of concern and ways of raising awareness about otitis media and conductive hearing loss affecting Aboriginal children. They provided invaluable information and insight into the needs of Aboriginal children with otitis media and conductive hearing loss and the people who support their health, education and wellbeing.

Findings of the projects are presented in three volumes. Volume 1 includes the executive summary, recommendations, case study summaries and discussion. Volume 2 features the detailed case studies, and Volume 3 contains the information strategies. Each volume caters for a different audience: Volume 1 provides an overview of issues and accompanying analysis for anyone with an interest in the topic, Volume 2 contains detailed information for the communities that were studied, and Volume 3 offers educative strategies for families and health and education practitioners.

Finally, we acknowledge the Secretariat staff for their effort and commitment. In particular, we would like to thank Fiona Snodgrass, principal Project Officer, and Christel Butcher, Executive Officer, who managed to distil all the relevant information given to this study by many committed people working in the field of Aboriginal health and education into this final report.

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Ministerial Advisory Committee: Students with Disabilities Otitis Media and Conductive Hearing Loss Information Strategy

Strategy A: Information strategy to support Aboriginal children at risk of conductive hearing loss

This information strategy evolved from the recommendations contained in Volume 1 of *Aboriginal students with disabilities: Otitis media and conductive hearing loss* report produced by the Ministerial Advisory Committee: Students with Disabilities (2007).

Strategic direction

Target population: Aboriginal children¹ birth to five.

This information strategy promotes the improvement of Aboriginal children's hearing health in South Australia by targeting the **prevention** of conductive hearing loss through:

- raising awareness and understanding of Aboriginal children and middle ear infection (otitis media)
- raising awareness and understanding of the risk to Aboriginal children of conductive hearing loss as a result of recurrent middle ear infection (chronic otitis media)
- promoting information provision and education on the prevention of conductive hearing loss
- promoting the collaboration of health, childcare, all education sectors and the Aboriginal community in health promotion
- An integrated Early Childhood Intervention across all collaborating partners.

Strategic objective

To improve the understanding of Aboriginal families, early childhood carers and educators on how Aboriginal children are affected by middle ear infection and subsequent conductive hearing loss and the impacts of ear disease and hearing loss.

Aboriginal families

To increase awareness and understanding amongst Aboriginal families:

- a) that the term otitis media means middle ear infection and that recurring infection can lead to conductive hearing loss
- b) to enable them to recognise middle ear infection and seek immediate medical treatment for this significant health issue
- c) to work towards a change in the belief that for Aboriginal children *recurring* middle ear infection is a normal childhood illness
- d) on the impact of conductive hearing loss on Aboriginal children's social and emotional wellbeing, language acquisition, schooling outcomes and future health and education opportunities

by supporting information provision that incorporates cultural forms of communication and learning relevant to all Aboriginal groups in South Australia to improve access to information.

Early childhood carers and educators

To increase awareness and understanding amongst carers and educators:

- a) that the term otitis media means middle ear infection and that recurring infection can lead to conductive hearing loss, reducing the capacity of children to hear and learn at home and in early childhood environments
- b) to recognise how Aboriginal children are affected by middle ear infection and to understand that Aboriginal children are often affected differently from non-Aboriginal children
- c) that middle ear infection and conductive hearing loss are major barriers to Aboriginal children's short- and long-term health and education
- d) that ear and hearing health information can be provided in a care or educational context

by improved access to relevant information.

¹ In this strategy, the term children includes children and students.

(continued)

Potential solutions

Information delivery should be flexible, to meet the needs and expectations of all the cultural groups that comprise the Aboriginal community in South Australia, and pay due consideration to possible communication obstacles such as:

- English as a second language
- parents with hearing impairment
- cross-cultural information issues.

Aboriginal families

Interviews with Aboriginal families raised the following ideas on the provision of information:

- simple-to-read brochures, featuring people well known to communities
- workshops, using health and education workers known to communities
- provision of practical support and information to access services
- development of resources on otitis media and conductive hearing loss relevant to Aboriginal people
- television campaigns
- brochure style information (simple messages with visual prompts) provided and discussed at regular health check sessions
- establishment of links with community groups to distribute relevant information (eg a women's group)
- one-on-one presentation of information
- information delivery that incorporates Indigenous meeting protocols and information exchange.

Whole-of-government

- A state-based institutional framework based on cooperative arrangements (particularly between education and health sectors) and supported by policy concerning the health, education and social and emotional wellbeing of Aboriginal children in South Australia, particularly targeting middle ear infection and conductive hearing loss in this population. South Australia's updated Strategic Plan provides the framework for policy development regarding the prevalence and effects of middle ear infection and conductive hearing loss on Aboriginal children in South Australia.

Education

- Improving preschool and school based education (Collins 1999) of health issues such as ear and hearing health, including embedding ear and hearing health within programs such as nutrition, particularly in those sites that have Aboriginal enrolments.
- Information sessions for families conducted by Aboriginal and mainstream health and education workers at early childhood sites.
- Inclusion of ear and hearing health information relevant to Aboriginal children in early learning, preschool and school home visiting programs for Aboriginal families.
- Teacher education to enable teachers to recognise and manage hearing health (as it affects learning) and other health issues at preschools and schools with Aboriginal enrolments (Collins 1999).
- Access to information kits concerning Aboriginal children and their ear and hearing health. Such kits are readily available through DECS Special Education Resource Centre (SERU) for preschools and schools in the state sector. Some SERU resources are available to special education advisers in other education sectors.

Health

- Further training and support for Aboriginal health workers on community education, including the impact of poor ear and hearing health on child development.
- Inclusion of ear and hearing health information relevant to Aboriginal children in ante-natal, maternal and infant programs, particularly home visiting programs.
- Access to relevant information kits tailored to the needs of Aboriginal children, including ear and hearing health information.
- Development of service agreements between health services, including Aboriginal health teams and community groups, and education sectors to provide information to families prior to enrolment to assist with the early intervention needs of Aboriginal children with conductive hearing loss.
- Recognition by specific and universal health programs that work with Aboriginal infants and children and their families needs to recognise that otitis media and conductive hearing loss affects a high proportion of Aboriginal children, which should inform program delivery.

Communities

- Engagement of Aboriginal health services and education teams with Aboriginal community groups within communities to support information development and service delivery.
- Support for collaboration between Aboriginal services, mainstream services and the community about current best practice information, including clinical pathways.

Media

- Use of printed media and television for information giving.

Other

Provision of evidence-based information, which explains that ear and hearing health is affected by environmental conditions and poor living standards. Changes in these areas would improve Aboriginal children's health, including ear and hearing health and eye health.

Specific actions and resources

Whole-of-government

- Promote the issue of Aboriginal children with middle ear infection and conductive hearing loss and its subsequent impact on child development across policy domains.
- Promote subsequent policy to achieve goals contained in South Australia's updated Strategic Plan, which gives an increased prominence to Aboriginal people.

Aboriginal families

- Assess validity and creation of a young children's book on hearing loss and learning to add to series of booklets designed for young Aboriginal children by Children's Services, which would be utilised in Early Years literacy programs and playgroups.
- Support the cooperative design of a storytelling book about Aboriginal children's experience of middle ear infection and hearing loss that could be used by health and education agencies. A similar initiative was implemented by the NSW Department of Education and Training to assist Aboriginal families with information on their child starting school. The booklet was entitled *I'm starting school: How to help your child make a good start at school*.

Ante-natal and infant health workers, early childhood carers and educators

- Promote the Indigenous ear health and hearing online resource at <www.healthinonet.ecu.edu.au/ears> as a 'one-stop info-shop' on the internet. The resource is suitable for people such as teachers, health workers, nurses and doctors, working with and interested in middle ear disease in Indigenous Australians.
- Establish resource list relevant for ante-natal and infant programs, care personnel and early childhood workers on health and education information relevant to Aboriginal children's experience of middle ear infection and hearing loss, including a service directory that would support workers to provide information to families

Health and education agencies

- Promote the cooperative development of resources by health and education agencies on middle ear infection and conductive hearing loss that are relevant to Aboriginal families and that can be provided to families who attend clinics, including outreach clinics, general practitioners, playgroups and education programs.
- Ensure that the 'one-stop-shop' model offered by DECS Children's Centres (for early childhood development and parenting) recognises and caters for the needs of Aboriginal families and offers services in a culturally appropriate environment. Middle ear infection and conductive hearing loss are major health and education issues for Aboriginal children.
- Promote one-on-one presentations to families, using resources that are relevant to Aboriginal families with children with conductive hearing loss as a result of middle ear infection.
- Implement and promote services such as screening days in forums acceptable and accessible to Aboriginal families. Service delivery to be complemented by appropriate information provision; for example, the Commonwealth² Hearing Health Program implemented by Aboriginal health organisations.

² Commonwealth refers to the Australian Government

Potential collaborative partners

Education

Association of Independent Schools of South Australia
Catholic Education SA
Department of Education and Children's Services

Health

Aboriginal Health Organisations
Aboriginal health teams
Australian Hearing
Children, Youth and Women's Health Service
Community Health organisations
Department of Health
Divisions of General Practice
Medical specialists (Ear, Nose and Throat, Paediatricians)

Non-government organisations

CanDo4Kids (Townsend House)
Cora Barclay
DeafSA
Inclusive Directions
Royal Institute for Deaf and Blind (rural and remote services)

Information for families, early childhood carers and educators

The following facts are important to families, early childhood carers and educators:

Middle ear infection

- Otitis media is middle ear infection.
- Otitis media is not just *runny* ears.
- Middle ear infection can begin in infancy and be an ongoing condition for Aboriginal children.
- Risk factors impact on Aboriginal children's ear and hearing health.
- Early detection is important so that pain and long-term/permanent damage to ears can be minimised.
- Seeking immediate medical treatment for children with middle ear infection is important.
- Regular administration of medication is important.
- The location of local ear and hearing health screening programs should be known and support needs to be provided to families to regularly access those local programs.
- The health process includes detection, medical management, audiological management, speech and language assessment and specialist services (eg ear, nose and throat).

Conductive hearing loss

- The impact of untreated recurring middle ear infections often results in conductive hearing loss.
- Conductive hearing loss can become persistent and require surgical intervention.
- Hearing loss has an impact on child development including language acquisition, educational outcomes and social and emotional wellbeing.
- Hearing loss as a result of middle ear infection has been a significant issue for Aboriginal families through the generations.
- *Recurring* middle ear infection and hearing loss should not be accepted as normal for Aboriginal children.
- A history of hearing loss may account for listening, attending, learning and behaviour problems among children and students in care, preschool and school.
- Conductive hearing loss as a result of middle ear infection can be masked by children who can develop sophisticated masking strategies and this often hinders recognition of this disability.

Current information provision to Aboriginal families, early childhood carers and educators

Information for Aboriginal families

Information on middle ear infection (otitis media) and conductive hearing loss for Aboriginal families is provided by:

Health organisations

Specific information

- Community education is provided by Aboriginal health service hearing health programs to mother and baby clinics and to children at preschool/schools in areas where Aboriginal hearing health programs operate. Australian Hearing information is used and focuses on risk factors for ear disease, and signs and symptoms of ear disease and hearing loss.
- Brochures and/or multimedia presentations on ear disease, hearing loss and impact of hearing loss are provided by child health teams and Aboriginal health workers in regional health organisations to families in areas with significant Aboriginal communities. Playgroup and childcare centres are the preferred setting.
- Australian Hearing's Specialist Programs for Indigenous Australians provides community education in collaboration with local communities as part of its outreach program in remote areas. Australian Hearing also has a series of Indigenous fact sheets on middle ear infection, conductive hearing loss, hearing aids and sound amplification systems.
- The Otitis Media Clinical Systems Support Project based at Port Augusta has a strong education component. A media strategy, including television promotion, was developed to empower families to recognise middle ear infection and seek immediate medical treatment.

- Visiting Children, Youth and Women's Health Service (CYWHS) nurses to Aboriginal organisations such as Kaurna Plains Early Childhood Centre and Muna Paiendi Young Mums group also provide information on middle ear infection and conductive hearing loss.

Generic information

- Children, Youth and Women's Health Service (CYWHS) provides printed and website health information. Website information is presented under four subgroups: Parenting and Child Health, Kids' Health, Teen Health and Young Adult Health. The Parenting and Child Health section has health information on ear infections, including a small amount of information dedicated to Aboriginal children's ear health. The Kids' Health section of the website has information on ear function, ear protection and hearing loss, specifically tailored to a young audience (Children, Youth and Women's Health Service 2006b; Children, Youth and Women's Health Service 2006a, 2006c).
- South Australia's CYWHS, in its community health services, provides the following programs that are concerned with hearing health: Newborn Hearing Screening Program, Universal Home Visiting Program, Health checks at clinics and the Hearing Assessment Centre. These programs, all of them offered from multiple sites across the state, provide either hearing screenings, discussion with parents of hearing concerns, hearing assessment and ear examination, information and referrals for further assessment or intervention, as appropriate, in relation to hearing or ear health. The hospital-based services of CYWHS (Women's and Children's Hospital) include specialist Ear Nose and Throat and audiological services at a tertiary level, both in inpatient and outpatient clinics.
- Australian Hearing's Specialist Programs for Indigenous Australians (AHSPiA) is a national outreach program developed for Aboriginal and Torres Strait Islander people with hearing problems. Local outreach programs are delivered in partnership with key community people in urban, rural and remote locations. The program recognises the prevalence of otitis media and conductive hearing loss among Aboriginal children. Australian Hearing has produced a series of information sheets on hearing loss for Indigenous Australians (go to <www.hearing.com.au/>).

Education sectors and sites

Interviews with care and education sites revealed the following information initiatives for families:

- Some childcare centres/preschools and schools with significant Aboriginal enrolment provide ear and hearing health information to children using ear health specific information kits. Information is often provided by local health organisations, the relevant education sector or sourced independently by the site.
- DECS hearing impairment coordinators and early intervention service provide advice and support to families of newly diagnosed children who are Deaf or hearing impaired. Most widely used resources include *Do you hear what I hear?* (WA Department of Education and Training 2002), *Education, hearing loss and Aboriginal students* (Department for Education and Children's Services 1995) and Australian Hearing's fact sheets for Indigenous Australians.
- In the Catholic Education SA (CESA) sector, monitoring of students' wellbeing and health occurs by school staff and, where applicable, by the Indigenous and Special Education consultants. Information is shared with families on available health services for students deemed at risk.
- In the Independent sector, monitoring of students' wellbeing and health occurs by school staff and, where applicable, by the Association of Independent Schools of South Australia (AISSA) Special Education Team.. Information is shared with families on available health services for students deemed at risk.

Information for early childhood carers and educators

Specific information on otitis media and conductive hearing loss for care personnel and educators is provided by:

- **Aboriginal and mainstream health organisations**
Aboriginal and mainstream health organisations provide information on middle ear infection and hearing loss to early childhood staff, predominantly in childcare centres, preschools and schools. This information is predominantly Australian Hearing fact sheets for Indigenous Australians.
- **Australian Hearing**
Australian Hearing provides information directly to any school (state, Catholic or Independent) with students who generate a referral.

▪ **Department of Education and Children’s Services (DECS)**

Training and development specific to otitis media and hearing loss is provided by district hearing impairment coordinators to staff in preschools and schools with significant Aboriginal enrolment or where Aboriginal children have been diagnosed with conductive hearing loss as a result of middle ear infection (otitis media).

▪ **Catholic Education SA (CESA) and the Association of Independent Schools of SA (AISSA)**

Cora Barclay Centre, a provider of hearing impairment services to Catholic Education SA (CESA) and the Association of Independent Schools of SA (AISSA), offers training and development on conductive hearing loss to teachers in both sectors to schools in the metropolitan area. Staff from country schools can attend this training and development, which supports schools with children diagnosed with hearing impairment.

Other information about hearing loss/otitis media is disseminated by the AISSA’s Special Education team through Key Teacher Professional Learning Days, Special Learning Needs Newsletters and through the AISSA Office Bulletins.

▪ **CanDo4Kids**

Townsend House will accept referrals for early intervention hearing impairment and provide funding and instalment of sound field amplification systems in classrooms where children have a hearing loss.

Gaps between requirements and provision

The gaps between current provisions and current needs are identified below.

- Aboriginal health organisations often have little time and limited resources to provide community education and this is frustrating to Aboriginal health workers (Department of Health and Aged Care 2002)
- Level of information provision and support by DECS hearing impairment coordinators and early intervention services to preschool and school personnel varies by district and is according to need. Information and practical support provided to families and preschool children also varies by district. The district’s interpretation of the coordinator role in regards to families impacts on the level of information provided.
- There is a perceived lack of referrals for Aboriginal children to early intervention programs.
- There is a perceived lack of relevant resources on ear and hearing health that target Aboriginal families.
- In rural and remote areas, isolation and distance to service centres affects access to services.
- Access to Aboriginal families with infants and young children under the age of three is often an issue for service providers.
- Care, early childhood and preschool personnel know of otitis media and hearing loss but there is usually little recognition of the problem affecting children at their sites.
- Many Aboriginal families do not have easy access to web-based information.
- Information provision and access to services should be complementary.
- Information provision usually has limited opportunity for interaction and sharing of knowledge with Aboriginal families.
- English is a second language for a percentage of Aboriginal families so information production and delivery needs to take into account the many language groups that comprise the Aboriginal population of South Australia.
- Staff turnover affects established relationships built up over time.

This information strategy framework was sourced from the University of Glamorgan UK (2002)

**Ministerial Advisory Committee: Students with Disabilities
Otitis Media and Conductive Hearing Loss Information Strategy**

Strategy B: Information strategy to support Aboriginal children with conductive hearing loss

This information strategy evolved from the recommendations contained in Volume 1 of *Aboriginal students with disabilities: Otitis media and conductive hearing loss* report produced by the Ministerial Advisory Committee: Students With Disabilities (2007).

Strategic direction

Target population: Aboriginal children¹ birth to eighteen.

This information strategy is concerned with **intervention** to improve learning opportunities, access to the curriculum, schooling outcomes and the social and emotional wellbeing of Aboriginal children with conductive hearing loss as a result of middle ear infection.

Strategic objective

To improve the understanding of Aboriginal families and early childhood carers and educators on the impact of conductive hearing loss on Aboriginal children and support the adoption of evidence-based strategies and initiatives to improve social and educational outcomes for this population.

Aboriginal families

To increase awareness and understanding amongst Aboriginal families:

- a) that conductive hearing loss results in listening problems
- b) of the impact of hearing loss, particularly conductive hearing loss, on Aboriginal children's development
- c) of the potential impact of hearing loss on the future health, education and employment of young Aboriginal people
- d) of the support or intervention services required by children who are hearing impaired

by supporting information provision that incorporates cultural forms of communication and learning relevant to all Aboriginal groups in South Australia, to improve access to information.

Early childhood carers and educators

To increase awareness and understanding amongst carers and educators:

- a) that conductive hearing loss results in listening problems
- b) of the impact of conductive hearing loss; that is, the effect of listening problems on Aboriginal children's development
- c) of educational resources that assist Aboriginal children with hearing loss as a result of middle ear infection
- d) of the implementation of programs or initiatives that address the short- and long-term impacts of hearing loss, such as delayed language acquisition, poor schooling outcomes and risk to the social and emotional wellbeing of Aboriginal children

by improved access to relevant information.

¹ In this strategy, the term children includes children and students.

(continued)

Potential solutions

Aboriginal families

Interviews with Aboriginal families and educators raised the following ideas on the provision of information:

- simple-to-read brochures, featuring people well known to communities
- workshops, using health and education workers known to communities
- provision of practical support and information to access services
- development of resources on otitis media and conductive hearing loss relevant to Aboriginal people
- television campaigns
- brochure style information (simple messages with visual prompts) provided and discussed at regular health check sessions
- establishment of links with community groups to distribute relevant information (eg a women's group)
- one-on-one presentation of information
- information delivery that incorporates Indigenous meeting protocols and information exchange
- awareness of cross-cultural issues in communication.

Whole-of-government

- A state-based institutional framework based on cooperative arrangements (particularly between education and health sectors) and supported by policy concerning the health, education and social and emotional wellbeing of Aboriginal children in South Australia, particularly targeting middle ear infection and conductive hearing loss in this population. South Australia's updated Strategic Plan provides the framework for policy development regarding the prevalence and effects of middle ear infection and conductive hearing loss on Aboriginal children in South Australia.

Education

- Amendment of the DECS Aboriginal Strategy 2005_2010 to include otitis media and hearing loss and its link to educational outcomes.
- Clarification by DECS districts regarding the role of hearing impairment coordinators and the early intervention service in information provision to all families, which is particularly important in country districts where coordinators work with children from birth.
- Teacher education to recognise and manage hearing health (as it affects learning) and other health issues in the classroom at preschools and schools with Aboriginal enrolments (Collins 1999).
- Raising of awareness and understanding at early childhood sites and kindergartens of the risk of conductive hearing loss for Aboriginal children, so that early intervention can be provided, problems can be addressed prior to school entry, and the effects of hearing loss managed or minimised.
- Highlighting of evidence "that chronic otitis media, conductive hearing loss and speech and language delay and/or impairment are factors that impact on absenteeism, school retention and children at risk of clinically significant emotional or behavioural difficulties" (Zubrick et al 2005).
- Promotion of evidence-based support for the use of sound amplification systems for Aboriginal children with hearing loss and other classroom strategies provided by special education teams in the education sectors.
- Consideration by schools with significant Aboriginal enrolments to a whole-school approach to teaching methods that takes into account fluctuating hearing loss among the student body at any given time, with the assistance of the education sectors' special education teams.
- Provision of information on available resources relevant to school levels to teaching staff of children and students with conductive hearing loss.
- Raising of awareness and supporting the inclusion of information regarding Aboriginal children with conductive hearing loss in the DECS Early Literacy program and the DECS Learning Together Program, as well as in similar programs that target literacy in the Catholic and Independent sector.
- Collaboration with allied health professionals, such as speech pathologists, to provide a holistic approach to intervention services for Aboriginal children with conductive hearing loss.

Health

- Development of service agreements between health services, including Aboriginal health teams and community groups, and education sectors to provide information to families prior to enrolment to assist with the early intervention needs of Aboriginal children with conductive hearing loss.
- Specific and universal health programs that work with Aboriginal infants and children and their families need to recognise that otitis media and conductive hearing loss affect a high proportion of Aboriginal children and this should inform program delivery.

Communities

- Circulation of information and encouragement of community discussion about hearing loss to bring about attitudinal change and promote the uptake of hearing rehabilitation.

Media

- Use of printed media and television for information giving.

Specific actions and resources

Aboriginal families

Information resonates for families when it highlights the social impacts of ear disease and hearing loss (Howard 2005). Information delivery should be flexible, to meet the needs and expectations of all the cultural groups that comprise the Aboriginal community in South Australia, and pay due consideration to possible communication obstacles such as:

- English as a second language
 - parents with hearing impairment
 - cross-cultural information issues.
- Assess validity and creation of a young children's book on hearing loss and learning to add to series of booklets designed for young Aboriginal children by Children's Services, which would be utilised in Early Years literacy programs and playgroups.
 - Support the cooperative design of a storytelling book about Aboriginal children's experience of middle ear infection and hearing loss that could be used by health and education agencies. A similar initiative was implemented by the NSW Department of Education and Training to assist Aboriginal families with information on their child starting school. The booklet was entitled *I'm starting school: How to help your child make a good start at school*.

Ante-natal and infant health workers, early childhood carers and educators

Information resonates for educators when it highlights the impact of ear disease and hearing loss on children's behaviour (Howard 2005). "Demands on teachers to manage disruptive behaviour and to provide one-to-one support for large numbers of children with conductive hearing loss impacts on the education of all children in the class" (Howard 2005 p 39).

- Promote the Indigenous ear health and hearing online resource at <www.healthinonet.ecu.edu.au/ears> as a 'one-stop info-shop' on the internet. This resource is for people, such as teachers, health workers, nurses and doctors, working with and interested in middle ear disease in Indigenous Australians.
- Support collaboration with *healthinonet* to include information and strategies on hearing loss and learning for Aboriginal children that emerged from the *Aboriginal students with disabilities: Otitis media and conductive hearing loss* report.
- Establish resource lists and information relevant to early care and childhood workers and educators concerning classroom accommodations, acoustics, communication and teaching strategies that will facilitate the learning of Aboriginal children with conductive hearing loss.
- Further support organisations/preschools/schools assisting Aboriginal children with additional needs (eg Inclusive Directions) to implement the information discussed above.
- Support the use of Individual Learning Plans for Aboriginal children with a history of otitis media and conductive hearing loss and related learning needs.
- Consider the use of visual strategies for Aboriginal children with a history of otitis media, conductive hearing loss and speech and language impairments. The resource entitled *Do you hear what I hear—Living and learning with conductive hearing loss/otitis media* (Jacobs et al 2002) contains many strategies for teachers to implement.

Health and education

- Promote the cooperative development of resources by health and education agencies on middle ear infection and conductive hearing loss that are relevant to Aboriginal families and that can be provided to families who attend clinics, including outreach, general practitioners, playgroups and education programs.
- Promote one-on-one presentations to Aboriginal families on learning with hearing loss, using resources that are relevant to them.
- Ensure that the 'one-stop-shop' model offered by DECS Children's Centres (for early childhood development and parenting) recognises and caters for the needs of Aboriginal families and offers services in a culturally appropriate environment. Middle ear infection and conductive hearing loss are major health and education issues for Aboriginal children.
- Increase understanding across the education sectors that conductive hearing loss requires an educative response through the adaptation of teaching methods for Aboriginal children with hearing loss.
- Include teacher education concerning conductive hearing loss and Aboriginal children in school professional development programs, with a focus on communication, classroom and teaching strategies.
- Facilitate the delivery of hearing assessments by health services in preschools and schools.
- Support the distribution across DECS districts of the following local and interstate materials to inform immediate service provision:
 - "Referral of child/student with possible conductive hearing loss pathway" produced by DECS Hills–Murraylands district
 - Prototype document for families that lists local service providers for ear and hearing health, produced by DECS Limestone Coast district
 - Otitis Media and Conductive Hearing Loss information sheets produced by Education Queensland (accessed at <www.learningplace.com.au/deliver/content.asp?pid=27332>).
- Support continuing professional development of DECS hearing impairment coordinators and special education staff in the Catholic and Independent education sectors, regarding conductive hearing loss, behaviour and learning.
- Provide DECS Special Education Resource Unit with the *Aboriginal students with disabilities: Otitis media and conductive hearing loss* report to inform resource collection and training opportunities for educators and support staff.

Potential collaborative partners

Education

Association of Independent Schools of South Australia
Catholic Education SA
Department of Education and Children's Services

Health

Aboriginal Health Organisations
Aboriginal health teams
Australian Hearing
Children, Youth and Women's Health Service
Community Health organisations
Department of Health
Divisions of General Practice
Medical specialists (Ear, Nose and Throat, Paediatricians)

Non-government organisations

CanDo4Kids (Townsend House)
Cora Barclay
DeafSA
Inclusive Directions
Royal Institute for Deaf and Blind (rural and remote services)

SUPPORTING INFORMATION

Information requirements of families, early childhood carers and educators

Aboriginal families

Information is required by families on the following:

- the impact of hearing loss on Aboriginal children's social and emotional wellbeing, language acquisition and schooling outcomes
- milestone information, particularly speech and language information
- how children mask hearing loss and listening problems
- targeted programs that address hearing loss in childcare, preschool and schools
- education-based initiatives that assist children with hearing loss, including conductive hearing loss
- programs available to families, such as DECS Early Learning Program and DECS Learning Together Program.

Early childhood carers and educators

Information is required by carers and educators on the following:

- the impact of hearing loss on Aboriginal children's social and emotional wellbeing, language acquisition and schooling outcomes
- identification of speech and language milestones
- how children mask hearing loss and listening problems
- programs that carers and educators can implement to address issues arising from hearing loss and listening problems
- the acoustic environment
- resources that provide communication and teaching strategies for Aboriginal children with hearing loss and subsequent listening problems.

Current information provision for families and early childhood carers and educators

Aboriginal families

Specific information

- DECS hearing impairment coordinators and early intervention services provide advice and support to families of newly diagnosed children and students who are Deaf or hearing impaired.

Generic information

- Children, Youth and Women's Health Service (CYWHS) provides printed and website health information. Website information is presented under four subgroups: Parenting and Child Health, Kids' Health, Teen Health and Young Adult Health. The Parenting and Child Health section has health information on ear infections, including a small amount of information dedicated to Aboriginal children's ear health. The Kids' Health section of the website has information on ear function, ear protection and hearing loss, specifically tailored to a young audience (Children, Youth and Women's Health Service 2006b; Children, Youth and Women's Health Service 2006a, 2006c).
- South Australia's CYWHS, in its community health services, provides the following programs that are concerned with hearing health: Newborn Hearing Screening Program, Universal Home Visiting Program, Health checks at clinics and the Hearing Assessment Centre. These programs, all of them offered from multiple sites across the state, provide either hearing screenings, discussion with parents of hearing concerns, hearing assessment and ear examination, information and referrals for further assessment or intervention, as appropriate, in relation to hearing or ear health. The hospital-based services of CYWHS (Women's and Children's Hospital) include specialist Ear Nose and Throat and audiological services at a tertiary level, both in inpatient and outpatient clinics.

The hospital-based services of CYWHS (at Women's and Children's Hospital) include specialist ear, nose and throat and audiological services at a tertiary level, both in inpatient and outpatient clinics.

- Australian Hearing's Specialist Programs for Indigenous Australians (AHSPiA) is a national outreach program developed for Aboriginal and Torres Strait Islander people with hearing problems. Local outreach programs are delivered in partnership with key community people in urban, rural and remote locations. The program recognises the prevalence of otitis media and conductive hearing loss among Aboriginal children. Australian Hearing has produced a series of information sheets on hearing loss for Indigenous Australians (accessed at <www.hearing.com.au/>).

Early childhood carers and educators

Specific information

Department of Education and Children's Services (DECS)

Hearing impairment coordinators and early intervention services provide advice and support on the:

- management of listening devices and modifications to the acoustic environment to support the learning of students with hearing loss
- direct implications of specific hearing loss on auditory, speech, language and social development.

Hearing impairment coordinators also provide training and development on current theory and classroom practice to improve teaching and learning for students.

Generic information

Department of Education and Children's Services (DECS)

- Training and development on hearing loss is provided by district hearing impairment coordinators to staff in preschools and schools with students who are Deaf or hearing impaired, as well as training sessions open to all educators. DECS staff also provide advice to staff in Catholic preschools.

Catholic Education SA (CESA)

- Information on hearing loss is provided by the Special Education team to staff in schools with students who are Deaf or hearing impaired. Cora Barclay Centre provides advice and training and development to staff in Catholic schools on hearing loss and the educational implications of this within the school context.

Association of Independent Schools of South Australia (AISSA)

- Information on hearing loss is provided by the Special Education team to staff in schools with students who are Deaf or hearing impaired. Cora Barclay Centre provides advice and training and development to staff in Catholic schools on hearing loss and the educational implications of this within the school context.

Gaps between requirements and provision

The gaps between current provisions and current needs are identified below.

- Aboriginal health organisations often have little time and limited resources to provide community education and this is frustrating to Aboriginal health workers (Department of Health and Aged Care 2002).
- Level of information provision and support by DECS hearing impairment coordinators and early intervention services to preschool and school personnel varies by district and is according to need. Information and practical support provided to families and preschool children also varies by district.
- Research has shown that information provided to families can be inconsistent across regions and in communities, and can depend on individual professionals.
- Access to Aboriginal families with infants and young children under the age of three is often an issue for service providers.
- Obtaining audiograms to confirm hearing loss for Aboriginal children is difficult, as well as accessing trained staff to read and interpret audiograms.
- Care, early childhood and school personnel know of otitis media and hearing loss but there is usually little recognition of the problem affecting children at their sites.
- Many Aboriginal families do not have easy access to web-based information.
- There is resistance to sound amplification systems by some schools, as well as a lack of funding to train staff for their use, installation and maintenance.
- There is limited knowledge and distribution of teaching practices that assist students who have conductive hearing loss.

This information strategy framework was sourced from the University of Glamorgan UK (2002)

Glossary

Aboriginal and Torres Strait Islander person

An Aboriginal or Torres Strait Islander person is someone of Aboriginal or Torres Strait Islander descent who identifies as an Aboriginal person or Torres Strait Islander and is accepted as such by the community in which he or she lives.

Acute otitis media

Presence of fluid behind the eardrum plus at least one of the following: bulging eardrum, red eardrum, recent discharge of pus, fever, ear pain or irritability. Bulging eardrum, recent discharge of pus, and ear pain are the most reliable indicators of acute otitis media.

Amplification devices

Any device that amplifies sound; for example, hearing aids or classroom systems.

Audiologist

(Definition below is from the Australian Government's Department of Health and Aging website at <www.health.gov.au/internet/wcms/publishing.nsf/content/health-hear-client3.htm#Audio>)

Qualified audiologists are university graduates with post-graduate qualifications in audiology or equivalent training. A minimum of twelve months' supervised clinical practice in audiology is also required. Audiologists have broad responsibilities and expertise in all non-medical areas of hearing services, including complex hearing assessment and rehabilitation of hearing impairment (which includes hearing aid prescription, fitting and management).

Audiometer

An audiometer is the machine that is used to measure hearing. The audiometer produces sounds of a measured frequency (Hz) and intensity (dB).

Audiometrist

(Definition below is from the Australian Government's Department of Health and Ageing website at <www.health.gov.au/internet/wcms/publishing.nsf/content/health-hear-client3.htm#Audio>)

Qualified audiometrists have completed a certificate course in hearing aid audiometry and/or received in-house training from the hearing aid industry. They have a minimum of three years' experience in hearing assessment, hearing aid prescription and fitting, and management of hearing loss.

Audiometry

Audiometry is the measurement of hearing using calibrated, electronic instruments.

Breathe, Blow, Cough routine

The Breathe, Blow, Cough (BBC) routine or program is a preventative program to teach children how to blow their noses and clear the Eustachian tube. It was developed by a physiotherapist from Alice Springs.

Comprehensive primary health care

Comprehensive primary health care services provide a range of services to the community, including clinical services, policy and program management, substance misuse, sexual health, mental health, community development and population health programs—all with a focus on nutrition and lifestyle factors.

Conductive hearing loss

Conductive hearing loss occurs when sound is not conducted efficiently through the outer ear canal to the eardrum and the tiny bones, or ossicles, of the middle ear. Conductive hearing loss usually involves a reduction in sound level or the ability to hear faint sounds.

Conductive hearing loss is caused by otitis media, osteosclerosis, cholesteatoma, wax blockage and swimmer's ear.

Chronic suppurative otitis media

Persistent discharge of pus through a perforation (hole) in the eardrum for at least six weeks despite appropriate treatment for acute otitis media with perforation.

Ear, nose and throat (ENT) specialist

Medical specialist specialising in medical conditions of the ear, nose and throat.

Ear toilet (also known as aural toilet)

1. The medical practice of an ear toilet is the cleaning of pus and debris from the ear canal in a discharging ear, before applying ear drops.
2. The practice of preventative measures such as dry mopping with tissues or the Breathe, Blow, Cough routine.

Early intervention

An early intervention is an action taken as soon as possible to stop the harm that the problem is causing or will cause.

Guthrie test

The Guthrie test is a medical test performed on newborn infants to detect phenylketonuria, an inborn error of amino acid metabolism.

Kendall Toy Test (1954)

A speech discrimination test to be used with toddlers from two to three years old. The test aims to find how loud speech needs to be for a child to hear vowels and consonants, and involves the child identifying, on request, one of a set of toys.

Mainstream health service

Means health and health related services that are available to, and accessed by, the general community.

National Hearing Strategy

National Aboriginal and Torres Strait Islander Hearing Strategy 1995–1999 (Department of Human Services and Health 1995).

Otitis media

Refers to all forms of inflammation and infection of the middle ear.

Otoscope

Instrument used for the visual inspection of the ear.

Otoscopy

The use of an otoscope to examine the eardrum and ear canal.

Tympanometry

Tympanometry is the test of middle ear function. It measures the movement of the middle ear system. Tympanometry can be used on children older than six months of age. The ear canal for younger infants is too elastic.

Video otoscopy

An otoscope with the additional feature of the image being transferred to a screen for easier viewing.

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