Report

Criminology Research Council

Research Project – 15

1997-1998

HEARING LOSS AND COMMUNICATION DISABILITY WITHIN THE CRIMINAL JUSTICE SYSTEM

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June 2003

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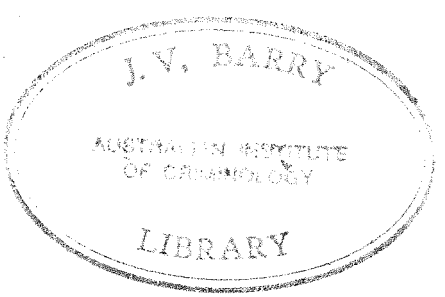
ACKNOWLEDGEMENTS

This research was supported by a grant from the Criminology Research Council. The investigators are extremely appreciative of the Council's interest in the project and their financial support.

The investigators would like to thank the staff of the Deafness Association of the Northern Territory (DANT) for their support and insight during focus groups. In particular, the tireless work of Mary Salter, whose support for the project is matched only by her dedication toward hearing issues in the Northern Territory.

The investigators wish to thank the staff of the Darwin Correctional Facility and from the Don Dale Juvenile Detention Centre. In particular, the staff of the Corrections Health Service who facilitated audiological testing at the two sites.

The investigators would also like to thank a number of dedicated professional's who supported the research with their insight into hearing disability and the criminal justice system in the N.T. In particular, Mr. Joe Daby, Ms. Jeanette Scott, Dr. Damian Howard, Dr. Steve Guthridge as well as staff from Danila Dilba Aboriginal Medical Service and from the North Aboriginal Legal Aid Service (NAALAS).



Summary of Research Project

This research project examined the role of hearing loss and communication disability within the Northern Territory (NT) criminal justice system. In particular, the research project focused on the identification of areas of disadvantage to Aboriginal and non-Aboriginal persons involved within the criminal justice system. Methods of identification included assessment of audiological function of inmates, identification of current and appropriate follow-up services, consequences of deleterious acoustic factors in courtrooms and rooms throughout all stages of the criminal justice system as well as identifying current professional opinion of aspects of hearing loss in the criminal justice system.

The research examined literature on the prevalence of hearing loss and communication disability in the criminal justice system, with particular attention to the NT. A focus group consisting of medical staff, audiologists, lawyers, hearing service providers, police and prison staff outlined issues pertinent to the study as well as provided recommendations to assist in the development of appropriate models of service delivery. Inmates at the Darwin Correctional Facility, Berrimah, and the Don Dale Juvenile Detention Centre were provided audiological assessment and referred for follow-up services where necessary. Also, measures of noise and reverberation levels in rural and remote courts and other rooms used in the criminal justice system are provided to develop guidelines for providing assistive listening devices to defendants.

Overview of Hearing Loss in the Northern Territory

Otitis Media and Conductive Hearing Loss

Hearing loss has been described as an "invisible handicap." It is the most common disability in the Australian population, constituting 50 percent of all disabilities (Wilson, Xibin, Read, Walsh and Esterman, 1992). Otitis media (OM), or middle ear disease, affects most children at least once before they reach school age (Teele et al., 1983). Several prospective studies have indicated that children with early-onset OM and conductive hearing loss (CHL) are at increased risk for communication and educational disability (Teele et al., 1984; Wallace et al., 1988). Aboriginal Australians, particularly those living in remote areas, have exceptionally high rates of OM and associated CHL (Sunderman & Dyer, 1984). In a remote Northern Territory community, OM commenced within the first weeks of life in all infants examined, was associated with mild to moderate hearing loss and was persistent throughout early childhood (Boswell and Nienhuys, 1995). In 2000, close to one-half of the children attending the community's primary school wore personal listening devices in the classroom to reduce the adverse effects of CHL (AHS, 2000).

Research has also demonstrated residual effects of CHL on listening, especially to English speakers in background noise (Yonovitz et al., 1995). As adolescents and later as adults these deficits in auditory processing may persist, limiting educational potential and presenting as a communicative disability compromising personal interaction and preventing successful employment opportunities.

There has been little attention given to Aboriginal adolescents and adults with hearing disability. A study of adult Aboriginal hearing loss (Nienhuys, Boswell and Lay, 1992) indicated adults are at increased risk of sensorineural hearing loss due to a) children have poorer health and living conditions and may be more exposed to risks such as meningitis; and b) adults have residual, secondary damage from untreated middle ear disease. In Aboriginal populations in the Northern Territory the prevalence pattern is strikingly different from that of non-Aboriginals (McPherson, 1991). A study which surveyed 100 post-secondary students found that only 40 percent have normal hearing (Nienhuys, Boswell and Lay, 1992). Another study, (Koops, Plummer, Mathews, Boswell and Nienhuys, 1993) indicated that Aboriginal adults have very few intact middle ears and that fewer than 40 percent have normal hearing. For Aboriginal and non-Aboriginal populations, the report by the Human Rights and Equal Opportunity Commission, *Human Rights and Mental Illness (1993)*, identified the urgent need for the development of appropriate services for persons with hearing loss, particularly adolescents and adults. In Aboriginal populations the need is extraordinary. The report, *The National Aboriginal Health Strategy*, identified ear health as a major area of concern in the Aboriginal population. Research shows that the prevalence of middle ear disease in Aboriginal people is up to ten times higher than that found in the general population (Boswell, Nienhuys, Rickards, and Mathews, 1993).

Otitis Media and Conductive Hearing Loss within the Criminal Justice System

Aboriginal and Torres Strait Islanders comprise 1.4 percent of the Australian population and an overall 14.6% of the national prison population (Biles, 1992). The national rate of imprisonment is 1,481 per 100,000 for indigenous Australians compared to 99 per 100,000 for non-indigenous Australians (Royal Commission Government Response Monitoring Unit, ATSI Commission, 1994) An over-representation of Aboriginal people within the prison system is evident in all Australian states and territories, however, New South Wales, Western Australia and South Australia have rates in excess of these national figures. *The Northern Territory has the highest percentage of Aboriginal representation per state/territory and 70-80 percent of the prison population is Aboriginal.* The cycle of Aboriginal over-representation in custodial institutions begins in childhood, with Aboriginal juveniles estimated to comprise between 30 and 40 percent of juvenile detention centre residents, while constituting only 1.8% of the national youth population.

It has been documented that Australia's Aboriginal population has the poorest health of any identifiable group within Australia and one of the worst standards of health of any indigenous population in the world (Beaton, 1994; Lippman, 1991); National Aboriginal Health Strategy (NAHS) Working Party, 1989). Poor health is but one manifestation of the social, cultural and economic deprivation experienced by Aboriginal Australians and the over-representation of this population in custodial institutions is another (Deaths in Custody Overview and Recommendations, 1991). These issues relating health and imprisonment within an Aboriginal context require a multi-dimensional framework that needs recognition and acceptance before noticeable differences can be achieved.

Howard et al. (1994) has addressed the potential consequences of Aboriginal hearing loss and the criminal justice system. Anecdotal evidence supporting the deleterious effects of hearing loss include the following examples (Howard et al., 1994).

"A dramatic change was noted in one adult Aboriginal male with a long criminal record after he had been identified as having a hearing loss and fitted with a hearing aid. He changed from someone who was socially isolated, uncommunicative and often violent, to being a cooperative family and community member."

"An Aboriginal youth, after being arrested for assaulting police, was placed within a psychiatric unit because of his unusual and strange behaviour while in detention. After some months it was realised that this apparently strange behaviour was related to a hearing loss."

A defendant with a hearing loss requires particular consideration within each stage of the criminal justice system. These stages include:

1. Arrest
2. Bail
3. Questioning and Confessions
4. Fitness to Plead

5. Communication with Counsel
6. Sentencing
7. Imprisonment

The need to identify *communication disability* and *disadvantage* for Aboriginal involvement with the criminal justice system is the *first, essential step in addressing neglected needs* of hearing-disabled Aboriginal defendants and prisoners. It is clear that many Aboriginals in custody require support, including medical services and audiologic intervention in all aspects of their interactions with police, judicial, correctional and rehabilitative services.

It is hoped that this research will provide needed information on hearing loss and its associated sequelae within the criminal justice system. The major aims of this research included:

(1) To provide *assessment of audiological function* of prison inmates (Aboriginal and non-Aboriginal) in the Darwin (Berrimah) Correctional Centres. This evaluation will also include referrals to the Correctional Centre and to the relevant service agencies (medical and rehabilitative) that will form the basis for improved hearing and communication.

(2) To provide a *validation for the initial and continuing assessment* of audiological and communication profiles of prison inmates.

(3) To develop with the relevant service agencies *appropriate follow-up services* and to provide evidence how this can impact the entire rehabilitation process of prisoners.

(4) To examine the *consequences of deleterious acoustic factors in courtrooms* and rooms used throughout all stages of the criminal justice system including prison areas needed for successful communication. Measures of noise and reverberation levels in these rooms will be used to develop guidelines for providing assistive listening devices to defendants.

(5) To provide a *focus group in the area of "Hearing Loss in the Criminal Justice System."* Participants in the focus group will include medical staff, audiologists, attorneys, hearing service providers, police and prison administrators. This focus group will meet regularly throughout the requested grant period and will continue as a self sustaining effort beyond the grant period. This focus group will assist in formulating recommendations to be forwarded to relevant agencies and assist in the development of appropriate models of service delivery.

A Professional Focus Group: Hearing Loss and the Criminal Justice System

An important aim of the research program was to identify issues related to hearing impairment that concerned professionals involved in aspects of the criminal justice system. Individuals and community groups, medical staff, audiologists, lawyers, hearing service providers, police and prison staff were asked to participate in a focus group entitled "Hearing Loss and the Criminal Justice System". The focus group met regularly throughout the grant period with the aim of formulating recommendations to assist in the development of appropriate models of service delivery to hearing impaired clients. Enthusiasm for this aspect of the project was extremely positive, in attendance included representatives from the Menzies School of Health research, the Deafness Society of the NT, the Department of correctional Services, Australian Hearing, Quality Hearing Care, the Office of Ethnic Affairs, NT Hearing Services and the North Australian Aboriginal Legal Aid Service, the Magistrates Court NT, NT Police Services, Darwin Community Legal Services as well interested professional's such as Darwin Psychologist, Damian Howard and Jenny Blokland, Dean of Law at NT University.

A proposed schedule of meetings was devised in which three participant groups would form to discuss issues devised in a plan of action. The three participant groups included subcommittees devised to discuss areas identified in the plan of action, NAALAS and a working party to oversee the development of a final report. Items described in the plan of action included Historical Perspectives & Legal Issues, Listening Spaces within the CJS, Personal Communication Deficits Specific to Aboriginals, Non-Specific Personal Communication Deficits and Protocols for Assurance of Adequate Hearing within the CJS.

Numerous anecdotes were presented to the participant groups identifying areas in which individuals have had detrimental experiences with the criminal justice system this includes both aboriginal and non-aboriginal defendants and plaintiffs. The examples presented below provide evidence of an area of great concern to hearing impaired advocacy groups.

- A man accused of a series of assaults against children was dismissed from court because the children involved could not follow the court proceedings. Not only were they from a community with serious middle ear pathology, English was spoken, however, not as their first language.

- An NT magistrate found that an Aboriginal man charged with murder could not be committed for trial because he was unable to follow proceedings owing to his profound deafness.

- In the NT an Aboriginal interpreter was trialled for six months and then the service was discontinued (1998). This means that the Aboriginal population has compounding disadvantage of a huge incidence of hearing loss and no interpreter to help follow proceedings.

- The high court of Australia ruled that it is unfair for a non-English speaking defendant be ordered to trial without an interpreter, this would, in fact, result in an unfair trial.

The legal concerns for both plaintiffs and defendants are inherent in these examples. It is the right of all Australians to have their day in court. A hearing impairment places an individual in an unfairly disadvantaged position because they cannot understand the proceedings properly. The indignation and distress caused by this lack of care is unfair and could be prejudicial to due process.

Audiological Assessment of the Northern Territory Criminal Population

There is considerable research to indicate that Indigenous Australians are over represented in the criminal justice system (Walker and McDonald, 1995; Carcach, Grant & Conroy, 1999). As the Indigenous population increases, it is highly likely that this trend will continue. Several variables have been sighted as causal relationships with this over representation including serious social problems such as unemployment and socio-economic status, poverty, drunkenness, an abusive childhood and education level attained (Walker and McDonald, 1995). This project offers data on the relationship of hearing loss, as the result of recurrent otitis media and associated sequelae, and the over representation of Aboriginal inmates in the NT. This includes the Darwin Correctional Facility (Berrimah) and the Don Dale Juvenile Detention Centre. As has been described above, hearing loss creates individual problems within each of the sectors of the criminal justice system. However, the prevalence of hearing impairment within the criminal population has not been thoroughly investigated.

To determine if hearing loss is prevalent in Indigenous inmates, the researchers conducted audiometric testing at the Darwin Correctional Facility, Berrimah, and at the Don Dale Juvenile Detention Centre.

Darwin Correctional Centre is a multi-classification prison with a capacity of 400. Facilities exist for housing remand and sentenced male and female prisoners. The centre also holds illegal immigrants and is the general processing area for the Department of Immigration. Don Dale Juvenile detention centre is a medium to high security institution with a capacity for up to 25 juveniles of both sexes. The Centre runs a structured program of behavioural and case management in support of offender rehabilitation.

Selection of participants at the Darwin Correctional Facility, Berrimah was by informed consent of those who visited the infirmary. In total, 127 inmates visited the infirmary during the testing dates, this number represents approximately one third of all inmates at the facility at the time of testing. Twenty-seven (21.24%) male inmates from low, medium and high security sections of the jail agreed to participate. Inmates held in remand were not asked to participate. The participants ranged in age from 19 to 55.3 years (Mean = 28 years, SD = 4.2). Participants included 24 Aboriginal and 3 Non-Aboriginal inmates.

Inmates waiting in the infirmary for medical treatment were asked if they wished to have their hearing testing, those that agreed were given a full disclosure of the purpose of the testing and the testing procedure and asked to sign an informed consent statement. Testing included otoscopy, to view outer ear pathology, as well as threshold testing using the Madsen MTA 86 automatic audiometer. Two forms of threshold testing were utilized, automatic and manual. The testing officer made decisions as to which method was used based primarily on an understanding of the testing procedure. At completion of the testing, results were discussed with each individual. An audiogram report was

provided to Corrections Medical Services for each individual tested. Appropriate referrals for further medical or hearing consultations were provided. Testing was performed in a quiet room, separate from the clinic. 500, 1000, 2000, 3000, 4000, 6000 and 8000 Hz frequency measures were obtained. A detailed case history was obtained as well.

Each detainee at the Don Dale Juvenile Detention Centre was audiometrically tested. Twelve individuals, ranging in age from 15 – 17 years of age (Mean = 16.2 years, SD=1.9) were tested using the same procedures as described above.

Approximately 300 inmates are currently in the Darwin Correctional Facility, Berrimah. This includes those in low, medium and high security, those under psychiatric watch and those held in remand. Testing was significantly limited by the necessity for a staff member to be present, if testing was to be held in any location other than the infirmary. Immediately, this limitation created the situation in which, only those who attended the infirmary were available for the study. Of these inmates, 70% declined a test. Informed consent was considered critically important by the examiners and by the Darwin Correctional Facility.

Forty five percent of Aboriginal inmates tested at the Darwin Correctional Centre displayed evidence of current and past outer and middle ear pathologies. Perforations of the tympanic membrane, as a result of fluid in the middle ear, as well as scarring (previous healing of perforations) were evident in 20% of the adult population tested.

Total	24	%
Abnormal L	13	42.7
Abnormal R	14	45.8
Perforation L	3	12.5
Perforation R	5	20.8
Scarring L	5	20.8
Scarring R	4	16.7

Table 1: Results of pathology indicating current and past middle ear disorder

Results support the findings of previous research that Aboriginal inmates have, proportionally, significantly greater pathological problems in the outer and middle ear as well as poorer threshold levels when compared with the general population.

Similarly, testing at the Don Dale Juvenile Detention Centre indicated a high percentage of juvenile detainees suffered from either current or past middle ear infections. Ten detainees were tested. Summary statistics for otoscopic and tympanometric testing are displayed in Table 2. Tympanometry indicated that 60% of detainees at Don Dale show evidence of fluid in the middle ear (type B tympanograms) indicating likely middle ear with effusion (OME).

Total	10	%
Abnormal	4	40
Perforation	3	30
Scarring	2	20
OME (Type B)	6	60

Table 2: Proportion of Aboriginal detainees with current and past middle ear disorder

Audiometric results for each of the groups indicated mild hearing loss consistent with otoscopy and tympanometry.

The impact of appropriate and continued assessment of audiological and communicative profiles on the rehabilitation process of prisoners

By far the most important aspect reported on by interested parties including advocacy groups as well as legal and medical professionals was that of protecting the rights of all Australian's to be allowed a fair and equitable day in court. The legal system is organised to ensure that all citizens can exercise their right in their own best interest and is a central feature in our constitution.

The plight of an individual with a hearing impairment concerns all aspects of the criminal justice system. Through the arrest, bail, remand, sentencing and imprisonment phases, for plaintiff and defendant and for Aboriginal and non-Aboriginal clients. In particular, for those individuals whose hearing loss is profound *and* they have English as a second language the barriers presented are extraordinary. Mildred (1997) has provided full detail on communication related to discourse issues for Aboriginals in the criminal justice system.

The role of the criminal justice system as described by Hesketh, Rawlings and Allen (1996) is to provide clear definitions of the processes needed to optimise the jail experience. In particular, it expresses the need to "achieve humane containment, facilitate re-integration into the community and provide skills development" (p. 40). This is more poignant when taking the effect of a hearing loss into account.

A hearing loss isolates an individual in the prison system more so than a normal hearing person (Howard et al, 1994). When combined with cross-cultural isolation, as in individuals from different aboriginal groups, the jail experience seems, simply, overwhelming. As well, the inability to communicate almost negates the ability of the justice system to provide the necessary skills that an inmate will need to successfully integrate in society when released. In the case of the Aboriginal inmate returning to the community in which he/she may have originally offended, it is highly likely that he/she will return to the same circumstances that saw them enter the criminal justice system as an offender.

As an organisational regimen, the ability to diagnose and treat individuals with a hearing loss can be highlighted using the following examples.

- "A dramatic change was noted in one adult Aboriginal male with a long criminal record after he had been identified as having a hearing loss and fitted with a hearing aid. He changed from someone who was socially isolated, uncommunicative and often violent, to being a cooperative family and community member."

- "An Aboriginal youth, after being arrested for assaulting police, was placed within a psychiatric unit because of his unusual and strange behaviour while in

detention. After some months it was realised that this apparently strange behaviour was related to a hearing loss."

A large proportion of Aboriginal inmates at the Darwin Correctional Facility have significantly greater ear pathology compared with the general population. Understanding the relationship between behavioural disorders and hearing loss (Howard, 2003) provides the potential for the development of rehabilitation/educational programs within the prison environment as well as for post prison rehabilitation. If there was a program of hearing testing in correctional facilities then organisational changes can be made to support re-integration into the community.

The Consequences of Deleterious Acoustic Factors in the Criminal Justice System Spaces and the use of Assistive Listening Devices

A myriad of factors can effect the perception of speech in criminal justice spaces. Such undesirable acoustic properties are predominantly a combination of noise and reverberation. Poor acoustics can be the cause of significant gaps and delays in the comprehension of listeners with normal hearing, let alone listeners with hearing loss (Crandell, et al. 1998).

The various stages within the criminal justice system have particular communication demands. In addition, room (courtroom) acoustics often create an especially difficult listening environment. The effects of reverberation and background noise have been shown to have a differentially greater effect in hearing-impaired listeners compared to normal hearing listeners. These effects have not been further studied with respect to second language perception, however, strong anecdotal evidence suggests that much greater difficulty is experienced by Aboriginals listening to English compared to their first language or Aboriginal English. A person with a hearing-impairment needs a signal to noise ratio 15-20 dB greater than normal hearing listeners (Finitzo-Hieber and Tillman, 1978; Bess and McConnell, 1981). Reverberation of sound has also been shown to have a greater deleterious effect on hearing-impaired listeners. For normal hearing listeners the ideal reverberation time is about 0.4 - 0.6 seconds. However, with hearing-impairment, reverberation begins to degrade speech understanding significantly when it exceeds 0.4 seconds (Bess and McConnell, 1981). Appropriate assistive listening technology is available to compensate for hearing deficits experienced by defendants at various stages within the criminal justice system and can also be of substantial benefit to prison inmates. Assistive listening devices (ALD) include hearing aids, infra-red/FM personal devices and sound field systems (Compton, 1993). Selecting the appropriate assistive listening device should be based upon effectiveness, affordability, dependability, versatility, cosmetic factors and cultural issues.

Protection of the rights of defendants throughout the stages in the criminal justice system is a concern of all Australians. An important bases of justice and protecting these rights requires that defendants are able to understand and comprehend issues related to their own case. Communication with the court, their attorney, and those in correctional facilities are essential. The use of Assistive Listening Devices (ALD's) is an important aspect in ensuring that hearing-impaired defendants have equal access to our legal system. Assistive listening devices include the use of FM, loop, and infrared devices for improving the signal to noise ratio and the use of sound field amplification systems. The use of sound field amplification provides a basis of sound reinforcement for improved perception of speech and does not require individuals to wear a specific ALD.

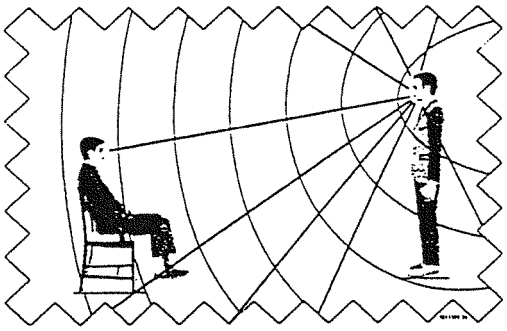


Figure 1. Sound travels from the speakers voice without the confounding effects of additional pathways (reverberation)

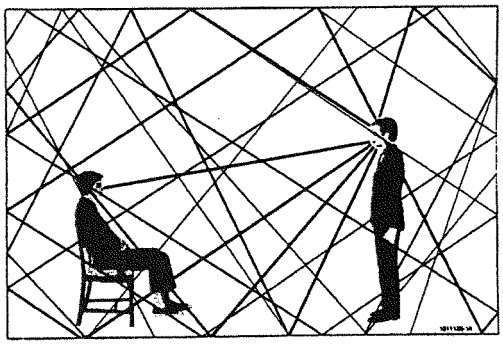


Figure 2. Sound can be more difficult to understand if multiple paths are found to exist for sound from a speaker's voice. The multiple paths are often the result of the room that is used.

Measures were obtained of noise and reverberation in a number of rural and remote locations used as criminal justice spaces for legal proceedings. These included 6 "bush courts" used throughout the top-end in the NT. The rooms that were used as "bush courts" were used for other purposes as well. These included, kitchen and lounge rooms, council meeting rooms and police meeting rooms. The noise measures of each of these rooms was within acceptable limits (<58 dBA; mean = 56.4 dBA)when ceiling fans and air conditioning units were not overbearing.

Reverberation measures varied considerably between each community. Values ranged from .48 sec to .92 sec (mean =.72 sec; SD=.30). The composition of materials used for the walls and ceilings were related to the reverberation measures.

Recommendations for the development of appropriate models of service delivery

Organisational changes should be considered that will aid inmates already within the criminal justice system. These changes include the development of structures to identify a potential hearing loss and communication disability.

Changes can also be made across all levels of the criminal justice system, prior to incarceration, for those who are at risk due to hearing loss. In particular, changes need be made to the structure of courtroom properties both physically and at a personal level, the working parties of the focus group had several suggestions for improvement of courtroom layout.

Firstly, it must be recognized by all in the criminal justice system that there is a significant problem experienced by those with a hearing impairment and that these difficulties vary with the severity of an individuals hearing loss. The greatest problem is the lack of awareness of deafness (the hidden disability). There are still many problems relating to a lack of understanding and, perhaps even, a basic prejudice against those with a disability. This problem can be solved with a campaign of awareness including media and leaflet distribution, training of staff to be aware of the problems of hearing loss and by providing adequate signage at all appropriate outlets.

Secondly, an understanding of the effects a hearing loss may have on plaintiffs and defendants should become part of the training of those involved in the judicial process. Magistrates and judges, police, lawyers and courtroom staff should not expect the complete cooperation of an individual and that this may be related to a hearing loss. They must realize that special consideration must be made to those with a disability.

Thirdly, consideration as to the severity and nature of the loss as well as the different forms of communication needs in the courtroom and other criminal justice system spaces needs be resolved. For profoundly deaf signers Auslan, Australasian Signed English or the appropriate community sign (NESB or Aboriginal) can be provided by the NT Interpreter Service and the NT Aboriginal Hearing Program. It is not good enough to recognize speakers of other languages as needing interpreters and not recognizing the needs of profoundly deaf individuals. For non-signers, an oral interpreter or written interpretations need be available. Again, the NT Interpreter Service as well numerous NT organizations can provide these services. For individuals with a mild/moderate loss, appropriate seating in courts as well as appropriate listening devices, individual and ambient need developed into courtroom structure and procedure. These services can be provided by many different organisations.

The early incidence of hearing loss and the current amount of ear disease among Aboriginal inmates in the Darwin correctional facilities has been established through a audiological testing. Results were similar at both the Darwin Correctional facility and the Don Dale Juvenile Detention Centre. The problems discussed indicate that institutional budgets should take into account the need for hearing aids and other assistive

communication devices and that staff should receive training so that they will understand the behavioural indicators of hearing loss and its implications for rehabilitation.

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