Cochlear Limited

Submission to Inquiry into Hearing Health in Australia
Community Service Reference Committee

October 2009

Submission Information

Organisation: Cochlear Limited

Type of Organisation: Public Company

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Declaration of Interest:

Cochlear Limited is the manufacturer and sponsor of the Nucleus® brand of cochlear implant systems and the Baha® brand of bone conduction implant systems in Australia.

1.0 Executive Summary

- Hearing loss results in a reduced capacity to communicate and participate in mainstream society
- Hearing Loss is estimated to cost Australia 1.4% GDP.
- Timely access to suitable technology and hearing health professionals provides people with access to age appropriate language development, education, employment, friends, family and society
- Investment in hearing technologies such as cochlear implants is cost effective and even results in cost savings
- No established routine hearing screening program in place for adults or children other than new borns to support timely access to hearing technologies and sustained productivity and independence
- Maintenance and support services for cochlear implant recipients are limited to those < 21 years and needs to be expanded to the >21's to ensure their hearing health is not compromised especially during the prime years of career development.
- Current policies regarding access, maintenance and support for bone conduction implants (Baha) exclude children and adults with a unilateral hearing loss or children and adults who would benefit from bilateral implantation.
- Only 30% of Cochlear implants are publicly funded today.
- Access is ad hoc and fragmented
- Where funding is available it is aligned to an acute hospital care model which does not fit well with management of chronic disease/ disability such diabetes and hearing loss
- Significant parts of the post surgical section of the treatment pathway are underfunded risking the potential return on investment made on technologies
- Funding not allocated to support efficient utilisation of existing (and often world class) infrastructure/ hearing health professionals.

2.0 Terms of Reference a:

The extent, causes and costs of hearing impairment in Australia

One in six Australians is affected by hearing loss with a higher rate correlated with increasing age due to the onset of progressive loss.

The predicted incidence a prevalence of significant hearing loss by age group in Australia is presented below:

- 0.1% children will be born with ≥ moderate bilateral hearing loss
  - **270 children each year**
- 0.05% babies will have a severe to profound hearing loss
  - **135 babies have SHI - PHI**
- A further 0.23% (23/10000) children will acquire a hearing impairment that requires hearing aids by the age of 17 years
  - **9,500 children, 50 with SHI - PHI**
- Each year 0.013% adults will acquire a severe to profound hearing loss
  - **1800 adults (aged 18 – 65yrs) will acquire SHI – PHI**
- 0.019% of the elderly will acquire a severe to profound hearing loss/ year
  - **500 elderly (> 65 years) will acquire SHI - PHI**

Hearing loss is estimated to cost the Government over $11 Billion dollars per annum. Current investment in implant technology solutions undertaken by the Government is less than $15 million.

(*Source: Listen Hear! The Economic Impact and Cost of Hearing Loss in Australia – A report by Access Economics Pty Ltd, February 2006))*

There are three different types of hearing loss, namely conductive, sensorineural and mixed (both conductive and sensorineural). Details regarding the causes of hearing loss are provided in Table 1 below.

Type of Hearing Loss	Conductive	Sensorineural
Physiological	• **blockage or damage to the outer and/or middle ear**	• **damage to, or malfunction of, the cochlea (sensory) or the auditory nerve (neural).**
Consequence	**loss of loudness**	• **loss of loudness & clarity**
Causes	– **Blockages of the ear canal due to wax or foreign objects** – **Outer ear infection (e.g. after swimming)** – **'Glue ear" (middle ear infection),** – **Perforated eardrum (due to middle ear infection or accident)** – **Otosclerosis, a hereditary condition, bone grows around stapes** – **Partial or complete closure of the ear canal.**	– **The ageing process** – **Excessive noise exposure*** – **Diseases e.g. meningitis, meniere's** – **Viruses e.g. measles, mumps** – **Ototoxic drugs e.g. gentamycin** – **Head injuries** – **Genetics, inherited** – **Premature birth, lack of oxygen or other birth defects**

Cochlear's implantable hearing technologies support those people who are not able to benefit from traditional acoustic hearing aids.

Cochlear Implant systems are indicated for individuals for:
Children:

- ❑ Aged 12 months – 17 years who have a *bilateral moderate to profound sensorineural hearing loss* and obtain little or no benefit from binaural hearing aids

Adults:

- 18 years and older who have bilateral, *post linguistic sensorineural hearing loss* and who achieve limited benefit from binaural hearing aids

Baha bone conduction implant systems are indicated for:

- **Conductive Hearing Loss**
  - Blockage of the outer or middle ear but the hearing nerve (cochlea) is intact and working
  - Unilateral or bilateral

- **Single Sided Sensorineural Deafness**
  - Normal hearing on one side and a complete hearing loss on the other
  - Unilateral

- **Mixed Hearing Loss**
  - Conductive hearing loss combined with some nerve deafness
  - Unilateral or bilateral

Australians with Cochlear implants total around 5,500 of which about 3000 are over 21 and receive no support whatsoever for maintenance and upgrades, unless they are privately insured.

3.0 Terms of Reference b:

The implications of hearing impairment for individuals in the community

The reduced capacity to communicate resulting from a moderate to profound hearing impairment has significant impacts on the individual, their family, friends and society.

- Delayed and limited language development or loss of communicative speech due to progressive loss
- Limited access to education and inability to participate in formal education
- Underemployment / Unemployment
- Difficulty participating in social activities
- Adverse health (physical and mental) effects.
- Dependant vs. Independent

Adult hearing loss is associated with an increased risk of a variety of health conditions, many of which are national health priorities. These co morbidities include:

- Diabetes
- Stroke
- Elevated blood pressure
- Heart attack
- Psychiatric disorders
- Affective mood disorders
- Poorer social relations
- Reduced health related quality of life

(*Source: Listen Hear! The Economic Impact and Cost of Hearing Loss in Australia – A report by Access Economics Pty Ltd, February 2006))*

4.0 Terms of Reference c:

The adequacy of access to hearing services, including assessment and support services, and hearing technologies

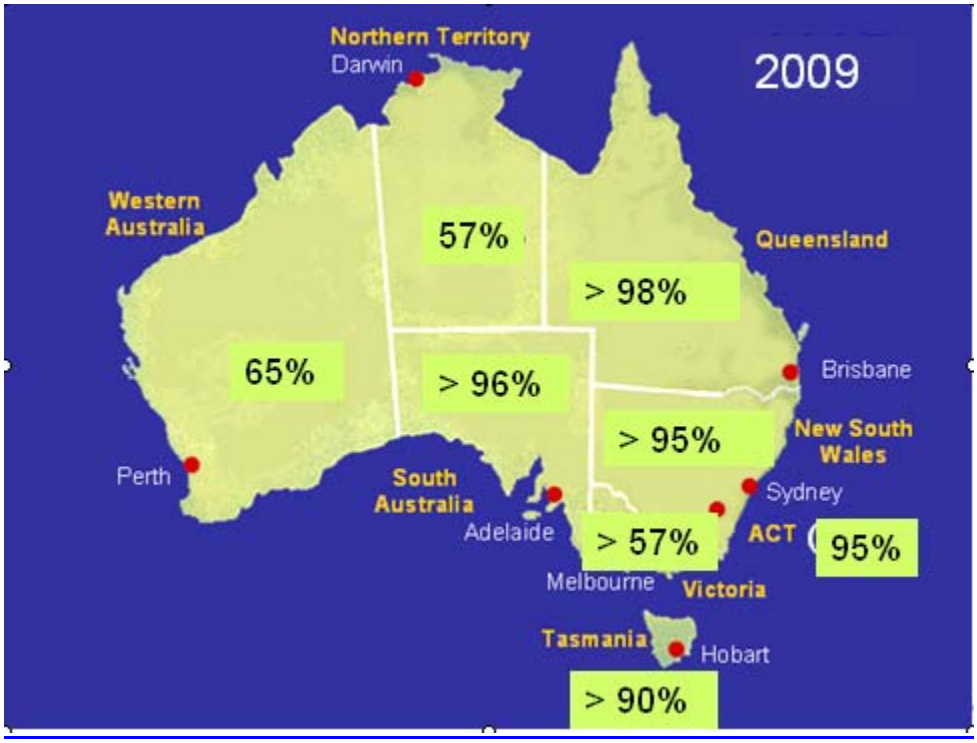
Assessment – Children:

There is an established association between identification of hearing loss before 6 months of age and improved results in language at 3 years of age. Hearing outcomes may be optimised by early identification and intervention.

- Better auditory performance
  - Yoshinago-Itano, 2000, Blamey et al 2001; Geers 2006; Sharma 2007
- Rate and level of language development
  - Yoshinago-Itano, 2000
- Better speech intelligibility
  - Coulter & Thomson, 2000, De Raeve, 2002
- Better parent attachment
  - Pressman, 1998; Lichert 2001, 2003
- Higher reading (literacy) level and number in mainstream
  - Archbold et al, 2002; Geers, 2003; Scherf et al 2008; Leigh, 2008
- On set of social-emotional development as normal hearing children
  - Wiefferink et al, 2008

In 2001 an Australian National Newborn Hearing Screening Committee agreed upon a Consensus Statement. Each State and Territory was then tasked with implementing a program. There is now 83% national coverage. (Source: UNHS 2009). However, this coverage is not reflected in the rate of implantation of Cochlear's technologies in very young children. Please see graphs in Appendix 1 which show only NSW's treatment of the 0-4 age group is line with the birth rate – all other states are either inconsistent or even declining. This suggests that the counselling and referral of these screened babies is not effective.

However, beyond the screening of new born babies there are no routine hearing screening programs.



New Born Screening effectiveness by state

Assessment - Adults

The onset of progressive hearing loss for both known and unknown reasons combined with the social challenge of an ageing society prompt the needs for streamlined national / state screening programs for adults. Early identification of hearing loss supported by appropriate technology intervention helps preserve already established levels of communication and stability which would otherwise be compromised by the loss of hearing.

Identification of hearing loss of adults from as early as the rooms of a General Practitioner is an invaluable entry point for a progressive referral pathway. Early identification can minimise and prevent consequential loss of social interaction, economic stability and independence. These losses to the individual, induced by poor hearing health directly impact the public, social and healthcare systems in numerous ways.

Access to Technology

Cochlear Implants:

State (Public) Funding

State government funding is available for a limited number of patients per year. This is granted as a lump sum from which the centre must provide the implants and the support infrastructure. This sum is focused on the acute phase of care and hence is not increased annually to take into account the ongoing needs of the growing installed base.

Federal (Public) Funding
The Medicare system covers costs undertaken by the outpatient services of the hospitals and cochlear implant clinics including pre- and post-operative diagnostic procedures and MAPping services.

Veteran's Affairs covers the costs of implantation and ongoing support for those eligible for their services.

Australian Hearing, under Community service Obligations, is obliged to provide spare parts and repair costs associated with ongoing care of eligible clients (children under 21 and means tested adults). They also provide replacement speech processors for children up to the age of 21. There is no provision made for other public health care dependent adults and threatens continued use of the device.

Charity Funding
A number of centres will use fundraising as a means of providing the additional funds required to meet the needs of their patients. Charity schools and auditory-verbal habilitation centres exist which support cochlear implant children together with other hearing impaired children.

Private Health Funds
Cochlear applies to have its cochlear implants and speech processors included on the Department of Health and Ageing's Prostheses List (List) at an agreed benefit level. Health funds are legislated to pay the benefit listed for those prostheses included o the List. Coverage of the surgical procedure and hospital costs will depend on the member's level of insurance. Some health funds will also provide coverage for replacement speech processors.

Baha:
State Government
- There is very limited State Govt funding. In NSW this relies on the hospital funding from their general ENT budget and only covers the implants. Patients are reliant on receiving the processor from Australian Hearing. In Victoria DHS has granted 9 systems each (18 in total) to The Alfred Hospital & Eye & Ear Hospital. The grant is for the entire system (implant & sound processor) for clients who do not have private health insurance and who are not covered by AH for the sound processor

Federal Government
Australian Hearing (AH) – First point for recipients (Speech processor only, not Implant)
- Australian Hearing fund the Baha sound processor (initial & upgrade), accessories & audiology time for eligible OHS clients who also meet the AH Baha criteria
- To be eligible for a Baha through AH the client must have a bilateral conductive or mixed hearing loss. They will then only be approved for one Baha processor
- **Australian Hearing unfortunately do not provide or support Baha for children under 5, unilateral hearing loss (conductive & sensorineural), Softband fittings or bilateral implantation. This is not consistent with contemporary clinical practice for Baha.**

- AH Baha clients must then find funding for implant

Private Health Insurance

- The Baha System is fully covered under private health insurance policies that cover surgically implanted prostheses. This includes all approved indications (Conductive mixed and unilateral hearing loss) some health funds will cover replacement processors.

5.0 Terms of Reference d:

The adequacy of the current hearing health and research programs, including education and awareness programs

Lack of up to-date education programs on interventions' such as Cochlear Implants and Bone conduction implants across the country do create unwanted delays with administering the most appropriate intervention and compromising on an ideal outcome. Inappropriate or inadequate interventions also give rise to unwanted waste of the much needed funds being directed at unproductive outcomes.
The fact that the majority of clinics supporting the habilitation of people post implantation having to rely on donations and charity to be able to run their clinics is grossly inadequate to address the exponentially growing needs..

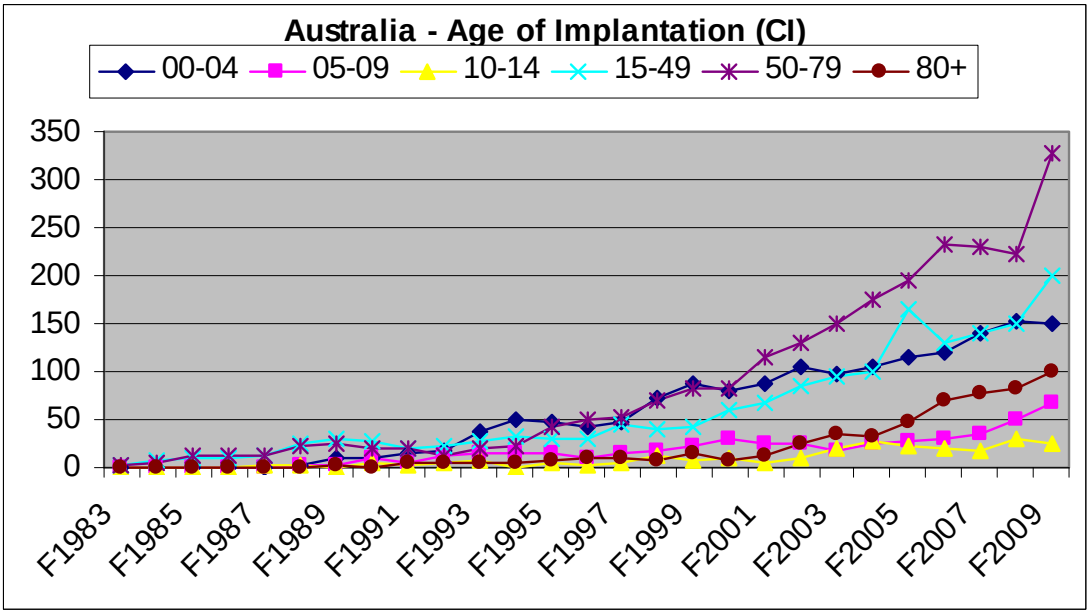
6.0 Terms of Reference e:

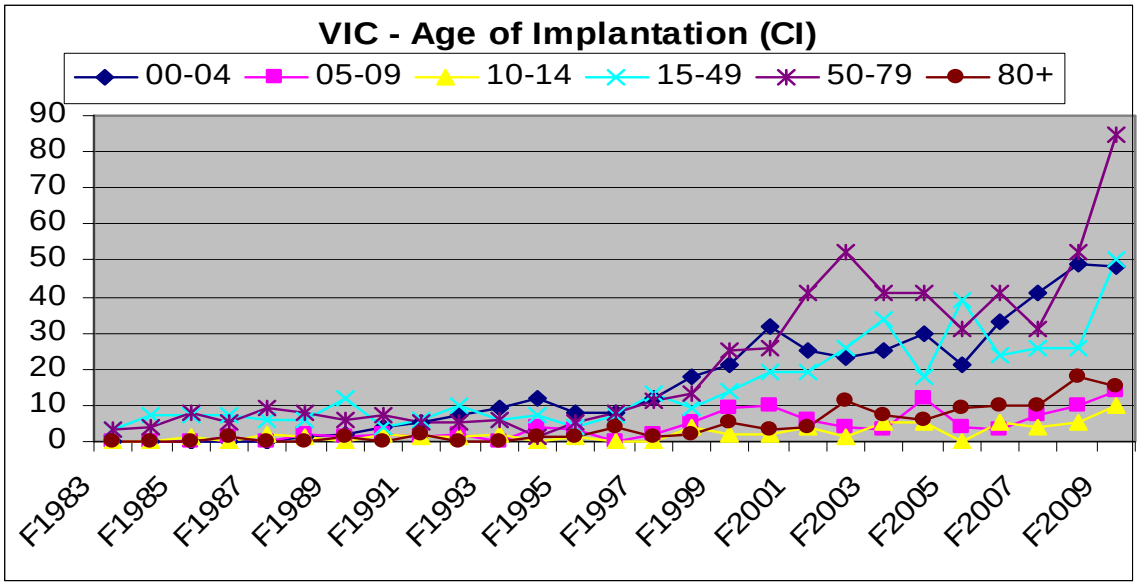
Specific Issues affecting Indigenous communities

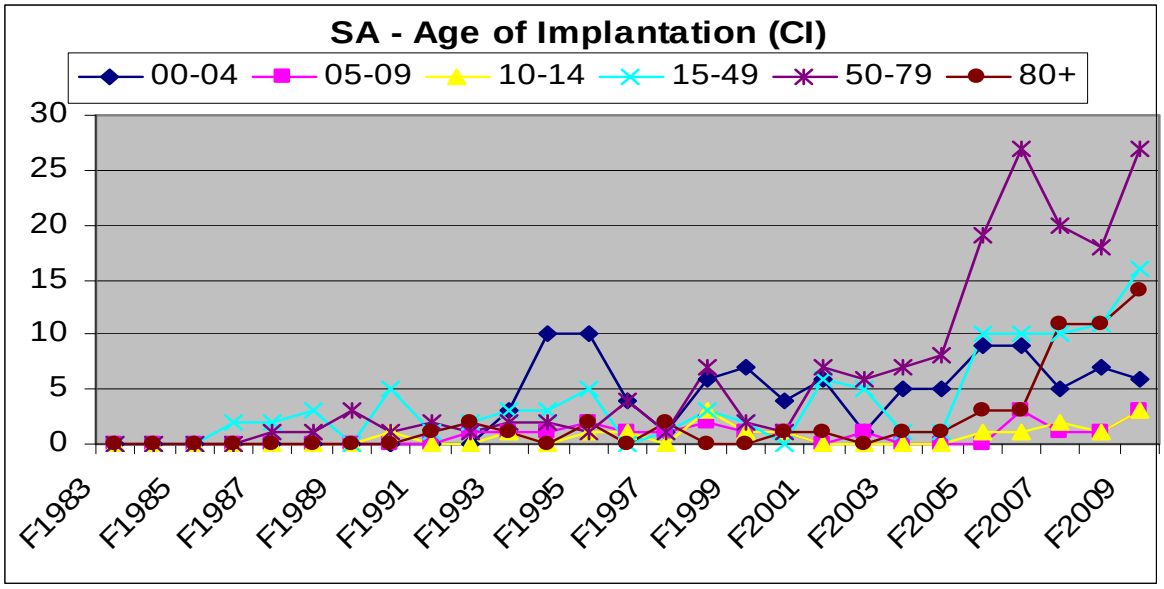
Hearing loss in the aboriginal community is very common. Of note is the extremely high prevalence (10-54%) of conductive hearing loss in children due to chronic ear disease such at Otits Media.

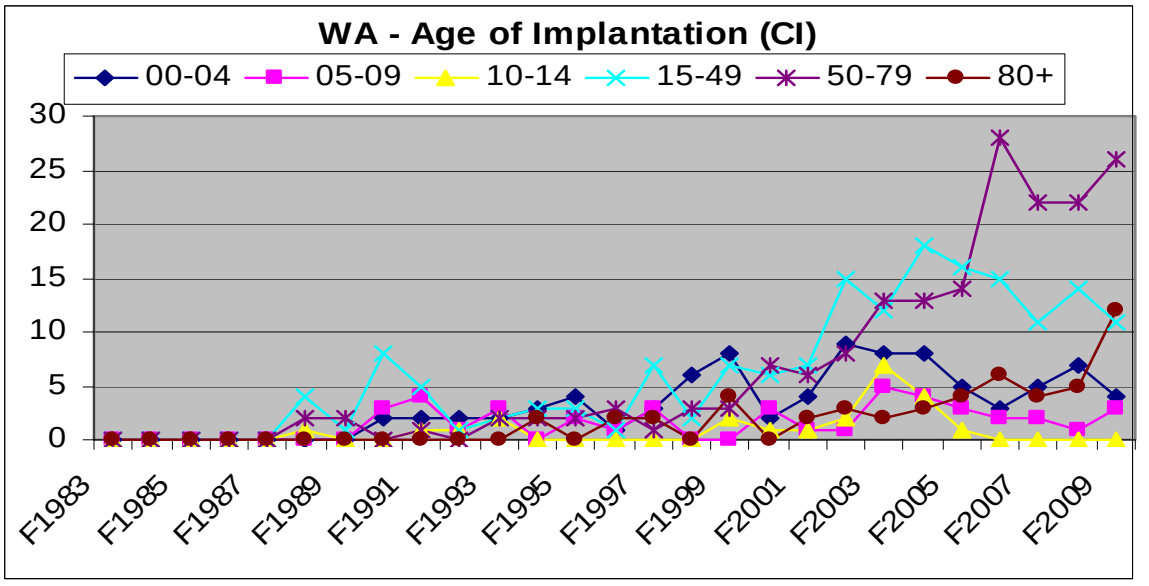
Access and compliance to hearing technologies such as bone conduction implants and cochlear implants would benefit the treatment in these indigenous communities.

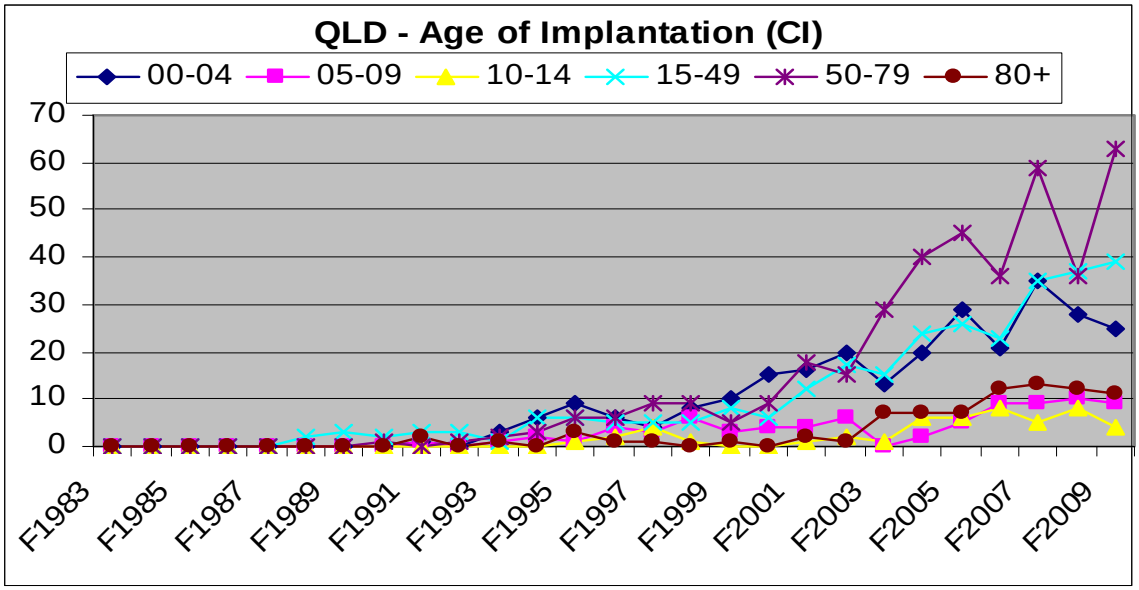
Appendix 1: Implants per year from 1983 to 2009 in Australia

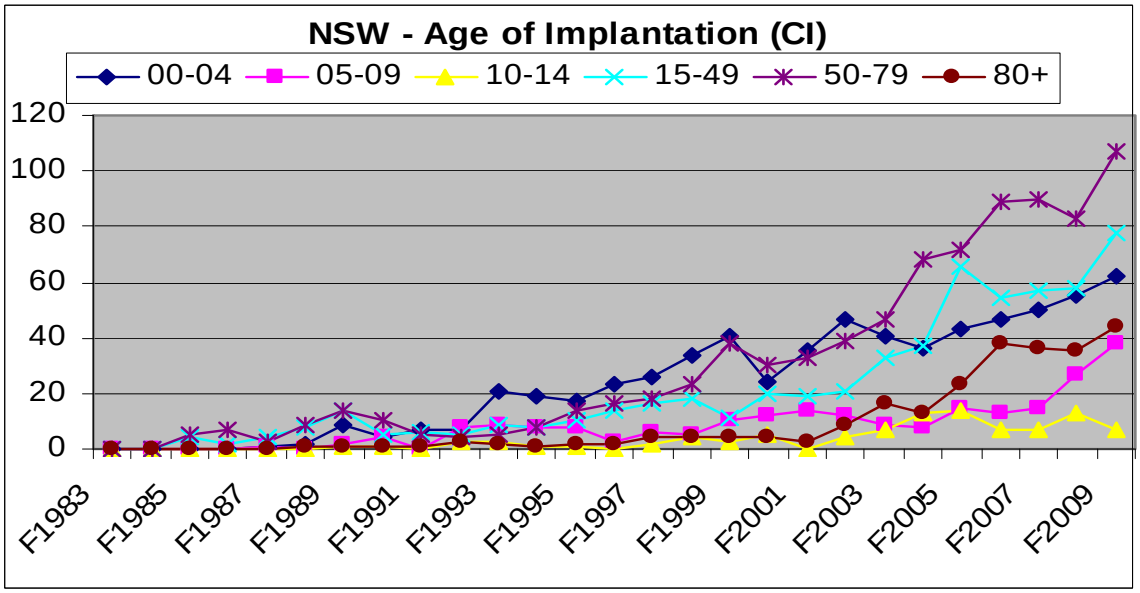





SA - Age of Implantation (CI)
00-04
05-09
10-14
15-49
50-79
80+
30
25
20
15
10
5
0
F1983
F1985
F1987
F1989
F1991
F1993
F1995
F1997
F1999
F2001
F2003
F2005
F2007
F2009


WA - Age of Implantation (CI)
00-04
05-09
10-14
15-49
50-79
80+
30
25
20
15
10
5
0
F1983
F1985
F1987
F1989
F1991
F1993
F1995
F1997
F1999
F2001
F2003
F2005
F2007
F2009


QLD - Age of Implantation (CI)
00-04
05-09
10-14
15-49
50-79
80+
70
60
50
40
30
20
10
0
F1983
F1985
F1987
F1989
F1991
F1993
F1995
F1997
F1999
F2001
F2003
F2005
F2007
F2009


NSW - Age of Implantation (CI)
00-04
05-09
10-14
15-49
50-79
80+
120
100
80
60
40
20
0
F1983
F1985
F1987
F1989
F1991
F1993
F1995
F1997
F1999
F2001
F2003
F2005
F2007
F2009