

# **CHAPTER 3**

## **THE COSTS OF HEARING IMPAIRMENT IN AUSTRALIA**

In 2005, the real financial cost of hearing loss [in Australia] was 11.75 billion dollars or 1.4% of [Gross Domestic Product].

Access Economics, Listen Hear! The economic impact and cost of hearing loss in Australia (February 2006), p. 5.

### **Introduction**

3.1 This chapter will examine the costs of hearing loss to Australia. These include the costs of providing government services, and lost productivity due to hearing loss.

3.2 The financial costs of hearing loss to individuals, such as clinical costs and the purchase and maintenance of hearing devices, are discussed below in chapter four.

3.3 The total cost of hearing loss for 2005, as calculated by Access Economics, was \$11.75 billion. This figure is broken down at Table 3.1. Line items are explained in further detail in the following sections of this report.

*Table 3.1: Hearing Loss, Financial Cost Summary, 2005 (\$m)*

| Cost element   | Real cost <sup>1</sup> | Transfer payment <sup>2</sup> |
|--|------------------------|-------------------------------|
| <i>Direct Costs</i>  |                        |                               |
| Total health costs plus hearing aids and implants (direct costs) | 674                    | 315                           |
| <i>Indirect Costs</i>  |                        |                               |
| Lost earnings (people with a hearing loss)                       | 6,667                  |                               |
| Tax foregone (people with a hearing loss)                        |                        | 1,333                         |
| Value of carers  | 3,168                  |                               |
| Welfare payments   |                        | 1,328                         |
| Education, support and aids                                      | 191                    |                               |
| Deadweight losses  | 1,048                  |                               |
| Sub-total, indirect costs  | 11,073                 |                               |
| <b>Total financial costs</b>                                     | <b>11,748</b>          | <b>2,662</b>                  |

Access Economics, 2006, p. 68.

3.4 The committee notes that the greatest cost to Australia of hearing loss is lost earnings of hearing impaired people, at 56.8 per cent of the total. The causes of lost productivity due to hearing loss are examined in chapter four of this report.

3.5 Access Economics noted that this cost translates to an annual cost of \$578 for every Australian, or \$3,314 for each person with hearing loss.<sup>3</sup> According to Deafness Forum Australia, this figure can be contrasted with government spending on hearing loss of \$62 per person with hearing loss.<sup>4</sup> The Hearing Care Industry Association (HCIA) claimed that this compares with \$10,904 per person with cancer and \$42,064

1 A 'real cost' in this context is one which uses real resources (such as capital or labour), or which reduces the capacity of the economy to produce goods and services.

2 A 'transfer payment' involves making a payment from one agency to another, such as disability support pension or tax revenue.

3 Access Economics, 2006, p. 68.

4 Deafness Forum of Australia, *Submission 34*, p. 13.

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per person with mental illness.<sup>5</sup> Hearing loss accounts for only 0.35% of total recurrent health expenditure in Australia.<sup>6</sup>

3.6 The Department of Health and Ageing (DOHA) gave evidence that hearing services represents 0.6 per cent of its 2009-10 health budget of \$55.3 billion. DOHA noted that hearing health expenditure growth is consistent with overall health expenditure growth. Health cost growth is largely driven by an ageing population, and is tipped to be seven per cent of Gross Domestic Product by 2046-47 (up three points from four per cent in 2006-07).<sup>7</sup>

### **Direct costs of hearing loss**

3.7 Access Economics calculated the direct costs of hearing health in 2005 at \$674 million (excluding transfer payments).<sup>8</sup> Direct costs include health system costs and the costs of hearing aids and implants, and represent both public and private expenditure.<sup>9</sup>

#### ***Health system costs***

3.8 The direct cost of hearing health to health systems in 2005 was \$247.5 million. Health system costs include the following elements:

- (a) Allied health (including audiology and speech therapy);
- (b) Outpatient expenditures (ear examinations, advanced assessment of ear disease, and minor procedures such as ear wax removal);
- (c) Medical specialist care;
- (d) Inpatient costs (corrective surgeries, clinical costs of implant surgery);
- (e) Health research;
- (f) Pharmaceuticals;
- (g) GPs;
- (h) Aged care homes; and
- (i) Diagnostic imaging and pathology.<sup>10</sup>

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5 Hearing Care Industry Association (HCIA), *Submission 62*, p. 7.

6 Access Economics, 2006, p. 48.

7 Department of Health and Ageing (DOHA), *Submission 54*, pp 26-27.

8 Access Economics, 2006, p. 68.

9 Access Economics, 2006, p. 44.

10 Access Economics, 2006, pp 45-46.

3.9 Table 3.2 shows the cost of each of these elements of health system expenditure on hearing loss from highest to lowest.

*Table 3.2: Hearing Loss, Cost to Health Systems, 2005*

| Health system cost item          | Cost in 2005 (\$m) | Proportion of total cost (%) |
|----------------------------------|--------------------|------------------------------|
| Allied health                    | 130.2              | 52.6                         |
| Outpatient expenditures          | 45.7               | 18.5                         |
| Medical specialist care          | 32.9               | 13.3                         |
| Pharmaceuticals                  | 13.2               | 5.3                          |
| Health research                  | 10.2               | 4.1                          |
| Inpatient costs                  | 8.8                | 3.6                          |
| GPs                              | 3.5                | 1.4                          |
| Aged care homes                  | 2.7                | 1.1                          |
| Diagnostic imaging and pathology | 0.4                | 0.2                          |
| <b>Total</b>                     | <b>247.5</b>       | <b>100</b>                   |

Access Economics, 2006, p. 46.

### *Hearing aids and cochlear implants*

3.10 The cost to health systems of providing hearing aids and cochlear implants in 2005 was \$376.7 million. This represented the largest single cost of hearing health to health systems.<sup>11</sup>

### *Hearing aids and related interventions*

3.11 Access Economics has calculated the cost to the Office of Hearing Services (OHS) of providing hearing services as \$243 million. These services include more than just the provision of hearing aids. They include hearing tests and audiological interventions.<sup>12</sup> As noted in *Listen Hear!* the majority of vouchers provided under the voucher program are used for hearing aids (in 2004-05, of 192,149 vouchers issued 161,849, or 84.2 per cent, were used for hearing aids).<sup>13</sup>

11 Access Economics, 2006, p. 49.

12 DOHA, viewed 23 April 2010, <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-hear-applic.htm>

13 Access Economics, 2006, p. 49.

3.12 DOHA noted the rise in real costs (i.e. adjusted for inflation) of OHS programs over the past decade. The voucher program (which provides hearing services and devices to eligible recipients via a voucher – see chapter five for more details) costs have risen by 75 per cent since 2000-01 (from \$154.1 million to \$268.9 million in 2008-09), and the Community Service Obligation (CSO) program costs rose by 23 per cent over the same period (from \$36.2 million to \$45.9 million).<sup>14</sup>

### *Cochlear implants*

3.13 The annual cost of cochlear implant technology in 2005 was estimated at \$10 million.<sup>15</sup> This figure does not include the clinical cost of the implants, which was captured under recurrent health costs above. This cost will grow as a proportion of hearing health costs as the technology improves, and the eligibility conditions for implantees widens.<sup>16</sup> The Sydney Cochlear Implant Centre estimated that whilst there are 6,000 implantees today, as many as 84,000 more people might benefit from a cochlear implant.<sup>17</sup>

## **Indirect costs of hearing loss**

### *Lost earnings*

3.14 As noted in *Listen Hear!:*

Hearing loss can have an impact on a person's capacity to work. If employment rates are lower for people with hearing loss, this loss in productivity represents a real cost to the economy.<sup>18</sup>

3.15 Lost earnings due to hearing loss has been inferred from employment data about hearing impaired people, which was controlled for other variables such as gender, age and other disability.<sup>19</sup> It has also been shown that people with a hearing impairment are less likely to earn a high income than people with normal hearing.<sup>20</sup> Access Economics estimated the cost of lost earnings due to hearing loss in 2005 as \$6.67 billion.<sup>21</sup>

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14 DOHA, *Submission 54*, p. 28.

15 Access Economics, 2006, p. 50.

16 Professor Harvey Dillon, Director, National Acoustic Laboratory (NAL), *Committee Hansard*, 19 March 2010, p. 11.

17 Sydney Cochlear Implant Clinic, *Submission 28*, [p. 6].

18 Access Economics, 2006, p. 52.

19 Access Economics, 2006, pp 52-54.

20 Access Economics, 2006, p. 52.

21 Access Economics, 2006, p. 54.

### ***Tax foregone***

3.16 There are two aspects to the impact of hearing loss on taxation revenue for the government. Lower workforce participation, absenteeism and premature death mean that the people affected are contributing less income tax revenue. Lower income levels among the hearing impaired mean lower capacity to consume goods and services than people with normal hearing. Reduced consumption of goods and services means reduced consumption tax contributions.<sup>22</sup>

3.17 Access Economics calculated that the cost of tax foregone in 2005, based on the premises set out above, was \$2 billion. Of this, \$1.33 billion (67 per cent) represents lost income tax revenue and \$0.67 billion (33 per cent) is lost consumption tax.

### ***Value of carers***

3.18 The cost of carers in this context represents the financial impact of 'informal care'. *Listen Hear!* provides a description of what this care may look like:

Informal care, in a hearing loss context, can encompass repeating what has just been said for a person, buying a train ticket for them, making telephone calls, taking notes in a meeting at work or in a classroom, or assisting with communication at a medical appointment. Such care is usually provided by a family member or close friend. By example, the reader may recall the scene in *Four Weddings and a Funeral* where the lead [character] Charles (Hugh Grant) was required to interpret in sign language for his brother at a job interview.<sup>23</sup>

3.19 For the purpose of its report, Access Economics chose to estimate the cost of informal care for people with hearing loss by placing a value on the cost of buying a similar amount and type of services from the formal care sector.<sup>24</sup>

3.20 Whilst acknowledging that their methodology may underestimate the 'true cost' of informal care for people with a hearing loss, Access Economics estimated the cost of informal care in 2005 at \$3.17 billion.<sup>25</sup>

### ***Welfare payments***

3.21 Welfare payments are transfer costs, as opposed to 'real' costs.

3.22 The cost of welfare payments from hearing loss was based on the number of people in receipt of welfare payments who are thought to be not working due to

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22 Access Economics, 2006, p. 55.

23 Access Economics, 2006, p. 64.

24 Access Economics, 2006, p. 65.

25 Access Economics, 2006, p. 65.

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hearing loss. Access Economics estimated the cost of welfare payments due to hearing loss in 2005 at \$1,328.3 million.<sup>26</sup>

### ***Education support and aids***

3.23 There are several cost components to this item, which are explained below. In total they were estimated to cost \$191 million in 2005.

#### *Early intervention services*

3.24 Early intervention describes the hearing impairment services available for children less than five years of age. These include newborn hearing screening, early intervention programs for children diagnosed with hearing loss, and pre-school preparation and education programs.<sup>27</sup>

3.25 Access Economics estimated the total cost of these services in 2005 at \$20.8 million. The committee notes that universal newborn hearing screening is being implemented during 2010, and therefore early intervention costs are likely to increase as a result of increased diagnoses. This issue is discussed in chapter five.

#### *Primary and secondary education services*

3.26 The services provided for education can include a range of things, such as additional teaching and teacher aid staff, interpreters, and the cost of fitting out classrooms as well as other specialised teaching and support equipment.

3.27 Drawing on international economic models, and in the absence of reliable data about hearing impaired students in Australian schools, Access Economics estimated that the 'extra' cost of educating children with hearing loss in 2005 was \$117.2 million.<sup>28</sup>

#### *Post school education services*

3.28 People with a hearing loss undertaking study after compulsory schooling also often require additional support. This often takes the form of note-takers or interpreters who can assist the person with a hearing loss access lectures and other oral delivery methods.

3.29 Access Economics estimated the cost of supporting tertiary students with hearing loss in 2005 at \$2.6 million.<sup>29</sup>

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26 Access Economics, 2006, pp 65-66.

27 Access Economics, 2006, p. 56.

28 Access Economics, 2006, p. 59.

29 Access Economics, 2006, pp 59-60.

### *Other support services*

3.30 There are a range of support services available to people with a hearing impairment in Australia, many of which are discussed in more detail in chapter five. These services can include interpreter services, captioning, and the services provided by support and volunteer organisations.

3.31 Access Economics estimated the value of these services in 2005 at \$36.2 million.<sup>30</sup>

### *Communication devices*

3.32 The cost of communication devices in this section excludes hearing aids and cochlear implants, which have been discussed previously. Access Economics has considered a wide range of communication devices and their costs. Devices allowed for here include fax machines, specialised phones, telephone relay services and even pads and pencils.

3.33 Access Economics estimated the cost of these devices in 2005 at \$13.8 million.<sup>31</sup>

### *Deadweight losses*

3.34 'Deadweight losses' is the last cost item at Table 3.1. A deadweight loss in this context is the cost of the 'taxation needed to finance the welfare payments' described above. The deadweight losses in 2005 generated by hearing loss in Australia was estimated at \$1.048 billion.<sup>32</sup>

### **Other issues of cost**

3.35 Whilst the Access Economics report provided the most comprehensive summary of the economic costs of hearing loss in Australia available to the committee, submissions raised other issues of relevance to cost.

3.36 As was noted in chapter two, each year there are around 3,400 successful workers' compensation claims for occupational noise induced hearing loss (ONIHL) in Australia. The direct cost of these claims is \$41 million in payments each year, though as was also noted earlier this figure is likely to be understated.<sup>33</sup>

3.37 The ONIHL issues confronting farm workers were also noted in chapter two. Based on rural populations and the prevalence of hearing loss among farm workers,

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30 Access Economics, 2006, pp 60-61.

31 Access Economics, 2006, pp 62-64.

32 Access Economics, 2006, p. 67.

33 Safe Work Australia, *Submission 5*, [p. 1].



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Farmsafe Australia provided the committee with a rough estimate of the costs of hearing health in rural Australia at \$517 million per year.<sup>34</sup>

3.38 Deafness Forum of Australia noted in their submission that early diagnosis, intervention and management of hearing impairment is 'highly cost effective', as it reduces the need for remedial programs later in life.<sup>35</sup> New South Wales Health also noted this issue:

Given the predicted increase in hearing loss incidence, the real financial cost of hearing loss is set to grow. The best protection for individuals, communities and the economy is to provide timely, appropriate services and management of hearing losses at the earliest opportunity.<sup>36</sup>

3.39 Access Economics found that although children up to the age of 14 years represent less than one per cent of all people with a hearing loss, 27 per cent of health expenditure is directed at this age group.<sup>37</sup>

3.40 As noted in chapter two, and again in chapter eight with particular regard to Indigenous people, otitis media is a common condition among children. With the exception of Indigenous children, as discussed in chapter eight, otitis media is usually self-limiting, and does not cause permanent damage. Nevertheless there are still costs associated with treating and managing the condition, including General Practitioner (GP) consultations and pharmaceuticals. These costs were estimated by one study to be in the range of \$100 million to \$400 million in 2008.<sup>38</sup>

### **Committee comment**

3.41 The economic cost of hearing health to Australia is high. In future years, as our population ages, costs will become higher still.

3.42 Many submitters and witnesses discussed the non-financial costs of hearing loss to Australia. The committee has addressed these concerns separately in other chapters of this report, particularly in chapter four.

3.43 The committee is pleased that Access Economics assigned an economic value to the role of carers in supporting people with hearing loss. The committee agrees that the estimate is probably low, for the reasons that Access Economics noted, however to recognise the value of volunteer and family support is very important in a field rich with the contributions of volunteers.

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34 Farmsafe Australia, *Submission 33*, p. 5.

35 Deafness Forum Australia, *Submission 34*, p. 11.

36 New South Wales (NSW) Health, *Submission 167*, p. 6.

37 Access Economics, 2006, p. 47.

38 GlaxoSmithKline, *Submission 43*, p. 5.

3.44 The cost to Australia of lost productivity through hearing loss is of great concern to the committee. This is the largest real cost of hearing loss. The committee is convinced by the evidence that early intervention and habilitation of people with a hearing loss will pay society back in the long term with higher workforce participation and the associated spin-off economic benefits.

3.45 The committee also believes that all governments should make every effort to attract, support and retain people with a hearing loss in the workforce, and has made recommendations which address this in chapter four of this report.

3.46 The committee notes the relatively low expenditure by governments on hearing health compared to other areas of health. The committee believes that this relatively low expenditure is reflected in the nature and tone of many submissions to this inquiry around lack of access to hearing health support by a large section of the Australian community. The committee has made recommendations in chapter five of this report to expand the eligibility criteria for Office of Hearing Services support, which may increase the per person expenditure levels in future years.