

Making Sense – An update.

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Able Australia

Acronyms

ABS	Australian Bureau of Statistics
BMES	Blue Mountains Eye Study
DALY	disability adjusted life year
DWL	dead weight loss
VSLY	value of a statistical life year

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Making sense — an update

Past research has focused mainly on hearing and vision impairments separately, rarely considering the particular impacts of the two impairments in combination, called “dual sensory impairment” or “deafblindness”, or the impacts of at least one of these sensory impairments together with at least one other disability (referred to as “multiple disabilities”).

This report provides estimates of the prevalence and economic and social costs of dual sensory impairment and other multiple disabilities (sensory and physical, sensory and psychological, and sensory and intellectual) in Australia for the year 2010. It updates a previous report prepared for Able Australia which estimated the prevalence and economic and social costs in 2005. **Readers are referred to the previous report where there is a full description of the methodology and approach used.**

Technological advances and demographic ageing are changing the profile of dual sensory impairment and multiple disabilities in Australia. For example, the measles, mumps and rubella vaccination program has resulted in a large reduction in people with dual sensory impairment caused by congenital rubella syndrome. On the other hand, neurological and sensory disabilities linked to preterm infants have increased due to improved survival rates from new technologies.

Prevalence

Importantly, an ageing Australian population with increasing life expectancies has led to increasing incidence of acquired dual sensory impairment and multiple disabilities, since both hearing loss and visual impairment are strongly age-related. In people aged 85 years or older, data from the Blue Mountains Eye Study (BMES) suggest that:

- the prevalence of hearing and vision loss is 81% and 41% respectively;
- the prevalence of dual sensory impairment is over 36%;
- the prevalence of combined sensory and physical disabilities is 32%; and
- the prevalence of sensory and psychological disabilities is 19%.

For people aged 65 years or older with combined sensory and intellectual disabilities the prevalence rate is approximately 0.08%. It should be noted that a high proportion of people with a combined intellectual disability and sensory impairment remain undiagnosed (Beange et al, 1995). This high proportion of undiagnosed people leads to a likely underestimated prevalence of the sensory and intellectual impairment group. The population projections have been revised since the previous report and are now based on the 2006 Census (rather than the 2001 Census as for the previous report).

Dual sensory impairment and multiple disabilities are closely associated with age. In 2010:

Approximately 332,400 people (1.49% of Australians) had dual sensory impairment, of which approximately 324,800 were aged 65 years or older.

Around 323,300 people had combined sensory and physical impairment (1.45% of Australians), of which 314,700 were aged 65 years or older.

Approximately 181,900 people had combined sensory and psychological impairment (0.83% of Australians), of which 177,500 were aged 65 years or older.

Around 2,900 people had combined sensory and intellectual impairment (0.01% of Australians), of which 2,500 were aged 65 years or older.

Moreover, the ageing of the Australian population will continue. Over the next forty years, the increasing number of Australians aged 65 years or older implies a substantial increase in the number of Australians affected by dual sensory impairment and multiple disabilities, as well as in the overall population prevalence of these conditions. As above, the population projections have been revised since the previous report and are now based on the 2006 Census. The new projections for the year 2050 are therefore different to the projections in the previous report.

The total prevalence of people with dual sensory impairment and multiple disabilities is expected to rise markedly with the ageing Australian population. By 2050:

Over 1,065,100 people (3.02% of Australians) are expected to have dual sensory impairment.

Over 1,008,900 people (2.86% of Australians) are expected to have combined sensory and physical disabilities.

Over 576,700 people (1.64% of Australians) are expected to have combined sensory and psychological disabilities

Over 6,900 people (0.02% of Australians) are expected to have combined sensory and intellectual disabilities.

Gender association

Hearing loss is more prevalent in males than females so, under 75 years of age, this is also true for dual sensory impairment. Between 75 and 84 years, however, there is only slight difference between the genders and, in people with dual sensory impairment aged 85 years or older, the prevalence in females is around 41% compared to 27% in males. While this finding may be a result of relatively small sample size for men aged 85 or older in BMES, further research might be warranted in the oldest old.

Prevalence rates of sensory and physical disabilities, as well as sensory and psychological disabilities, are higher for males in all age groups. However, older women with multiple disabilities seem to have more severe/profound overall disability than older men, perhaps in part because they live to an older age.

Burden of disease (Loss of Life and Wellbeing)

People with dual sensory impairment and multiple disabilities are more likely to have difficulties with communication, mobility and accessing information. In young people, the underlying cause is almost always irreversible and, for congenital conditions, tailored specialist care and education is required as they develop without the visual and auditory cues that others are afforded. In older people, the burden of disease impacts is quite substantial. The burden of disease that results from dual sensory impairment and multiple disabilities was estimated using Disability Adjusted Life Years (DALYs), which reflect the detriment to health and incorporate loss of healthy life due to disability as well as premature death.

The burden of disease associated with dual sensory impairment and multiple disabilities in 2010:

Dual sensory impairment: 47,400 DALYs.

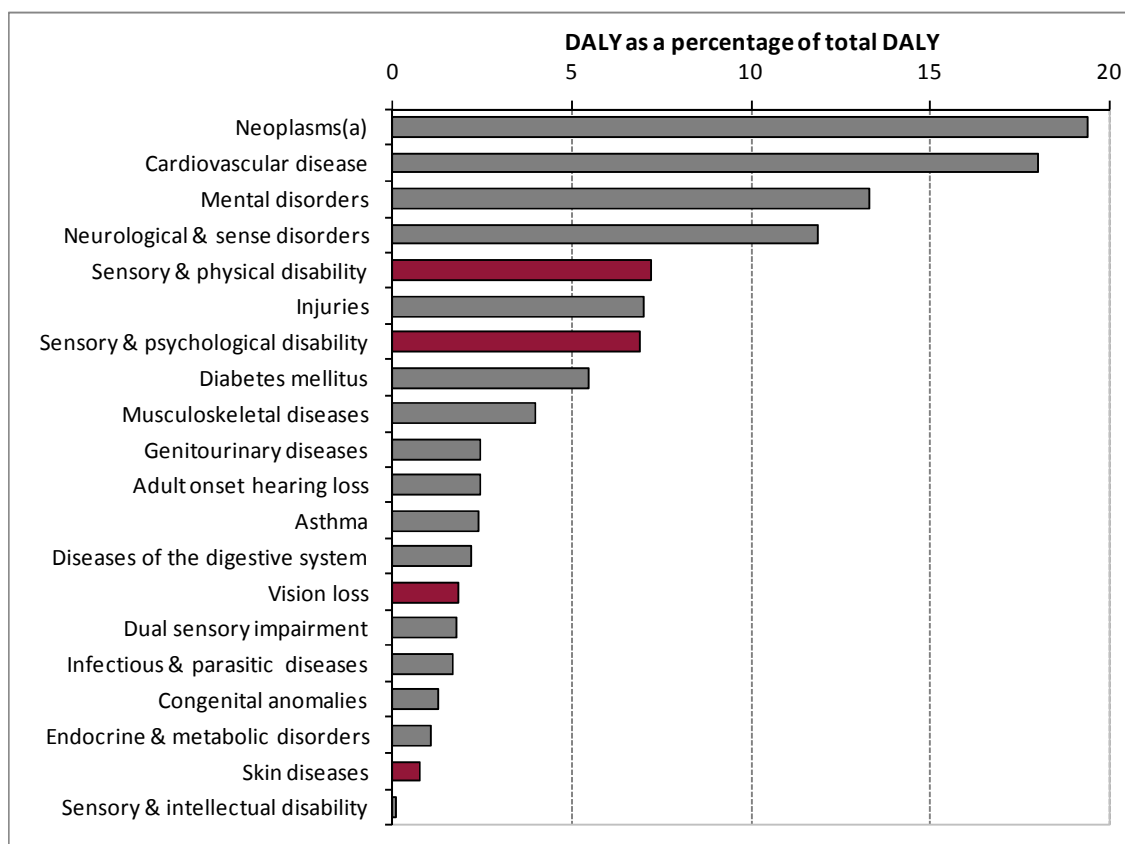
Combined sensory and physical disabilities: 182,200 DALYs.

Combined sensory and psychological disabilities: 189,800 DALYs.

Combined sensory and intellectual disabilities: 3,300 DALYs.

The chart below illustrates the comparisons between the loss of life and wellbeing experienced as a result of dual sensory impairment and multiple disability and from other diseases and injuries in Australia for the year 2003 (the latest available information for Australia reported by Begg et al, 2007). Compared with the total burden of disease in Australia from diseases and injuries in 2003, sensory and physical disability, and sensory and psychological disability were similar in terms of the loss of life and wellbeing to all injuries, and were higher than the burden of disease from diabetes mellitus. Dual sensory impairment accounted for around 1.8% of all wellbeing lost, measured in DALYs, comparable to the total wellbeing lost from infectious and parasitic diseases. The loss of wellbeing of an individual suffering from sensory and intellectual disabilities is high. People in this group are estimated to gain only 20% to 55% of a life year for each year lived (depending on age and severity) compared to a healthy individual who gains a full life year for each year lived. The low prevalence rate for this group of people results in a low percentage of total DALYs, calculated to be 0.1% of the total.

Burden of disease associated with multiple disability, comparison with other diseases and injuries, 2003



Note: (a) Includes cancers (malignant neoplasms) and other (non-malignant) neoplasms.
 Source: Access Economics estimates and Begg et al (2007).

The monetary value of the burden of disease was estimated by multiplying the DALYs by the value of a statistical life year (VSLY). Since the previous report, the Department of Finance and Deregulation Office of Best Practice Regulation has released an estimate it recommends should be used for the VSLY (OBPR, 2008). The Department of Finance and Deregulation estimate (OBPR, 20089) is not vastly different to the estimate used in the previous report and has been used here.

The monetary value of the burden of disease associated with dual sensory impairment and multiple disabilities in 2010 was:

Dual sensory impairment: \$7.9 billion.

Combined sensory and physical disabilities: \$31.6 billion.

Combined sensory and psychological disabilities: \$30.4 billion.

Combined sensory and intellectual disabilities: \$0.55 billion.

The financial impact of dual sensory impairment and multiple disabilities

The financial impact of dual sensory impairment and multiple disabilities was measured according to six main categories:

- health system expenditure;
- loss of earnings and productivity;
- value of care provided by friends and family (informal care);
- aids, equipment and home modifications;
- education and support services; and
- dead weight losses (DWLs) from transfer payments.

Health system costs, informal care costs, productivity losses and DWLs are the most significant costs associated with multiple disability.

Direct health system expenditure is incurred for the diagnosis, treatment and management of dual sensory impairment and multiple disabilities. These accounted for a variable proportion of the total real financial costs within each disability group.

The health system costs associated with dual sensory impairment and multiple disabilities in 2010 were:¹

Dual sensory impairment: \$3,452.0 million or 32.9% of total financial costs for this disability.

Sensory & Physical: \$12,406.5 million or 62.3% of total financial costs for this disability.

Sensory & Psychological: \$8,056.7 million or 70.6% of total financial costs for this disability.

Sensory & Intellectual: \$647.2 million or 79.6% of total financial costs for this disability.

Loss of earnings and productivity reflects the impact of multiple disability on the stream of income from employment compared to the average Australian. Most Australians with multiple disability are older than 65 years and so the associated loss of productivity is not as high a proportion of total financial costs as for other types of illness or injury. Updated average weekly earnings from the Australian Bureau of Statistics (ABS) were used for the new

¹ Note that for the purposes of this summary document, expenditure on hearing aids, State, Territory and Commonwealth Government funding for disability support services, and spending on assistance to people with dual sensory impairment or multiple disability by not for profit organizations have all been included in the total health system costs. Expenditure on these items for dual sensory impairment was \$149.8 million, for sensory and physical was \$135.5 million, for sensory and psychological was \$87.0 million and for sensory and intellectual was \$76.5 million.

estimates here. The ABS Survey of Disability Ageing and Carers (SDAC) has not been updated since the previous report so the employment data is based on the SDAC for 2003.

The productivity losses associated with dual sensory impairment and multiple disabilities in 2010 were:

Dual sensory impairment: \$263.4 million or 2.5% of total financial costs for this disability.

Sensory & Physical: \$357.1 million or 1.8% of total financial costs for this disability

Sensory & Psychological: \$182.7 million or 1.6% of total financial costs for this disability.

Sensory & Intellectual: \$8.1 million or 0.1% of total financial costs for this disability.

Informal community care is provided by family and friends of the person with multiple disability at no monetary cost. However, informal care still has an economic cost, as the caregiver cannot spend that time doing other activities, including paid work or leisure activities.

The cost of informal care associated with dual sensory impairment and multiple disabilities in 2010 was:

Dual sensory impairment: \$6,183.4 million or 58.9% of total financial costs for this disability.

Sensory & Physical: \$5,443.0 million or 27.3% of total financial costs for this disability.

Sensory & Psychological: \$2,086.1 million or 18.3% of total financial costs for this disability.

Sensory & Intellectual: \$82.7 million or 10.2% of total financial costs for this disability.

Welfare payments and taxation forgone are transfers (financial flows between different economic entities), not real economic costs that use up resources. However, there are costs associated with such transfers that do absorb real resources (such as administration of the welfare and taxation systems) and that could otherwise be allocated to alternative uses. The real costs are known as the DWL. Updated income and indirect tax rates were used for this report from the Access Economics Macroeconomic Model. The total DWLs include the costs of administering Commonwealth Government health system expenditure as well as the efficiency losses from transfer payments.

The DWL associated with dual sensory impairment and multiple disabilities in 2010 was:

Dual sensory impairment: \$448.0 million or 4.3% of total financial costs for this disability.

Sensory & Physical: \$1,574.6 million or 7.9% of total financial costs for this disability.

Sensory & Psychological: \$1,012.7 million or 8.9% total financial costs for this disability.

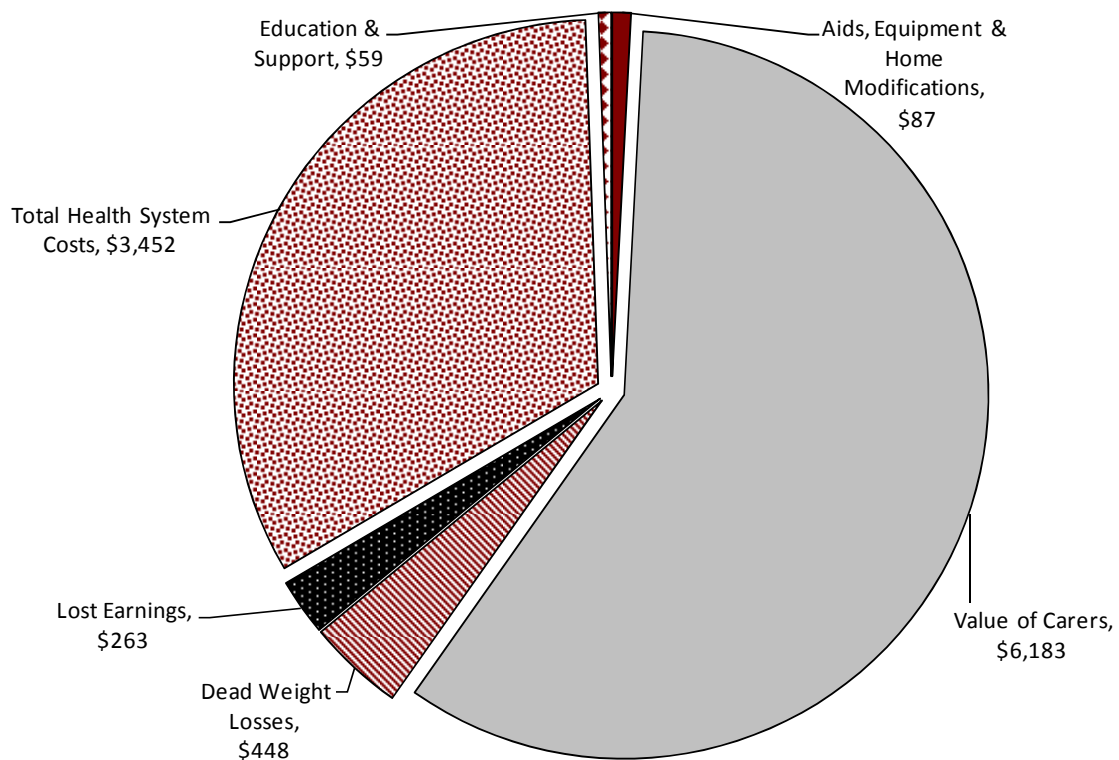
Sensory & Intellectual: \$71.8 million or 8.8% of total financial costs for this disability.

The percentages in the grey boxes above do not add up to 100% because other smaller costs have not been itemised separately. These other costs include aids, equipment and home modification, and education and support.

Financial costs of dual sensory Impairment

The costs of dual sensory impairment were \$10.49 billion in 2010. The annual economic cost per person with dual sensory impairment in 2010 is \$31,560 per affected person or \$470.9 for every Australian.

Figure 1.1: Real economic costs, dual sensory impairment (\$million)



The largest financial component for people with dual sensory impairment is the value of informal care, which accounts for almost 59% (or \$6.18 billion) of all financial costs.

Total health system costs account for over 32% (or \$3.45 billion) of the total real financial costs.

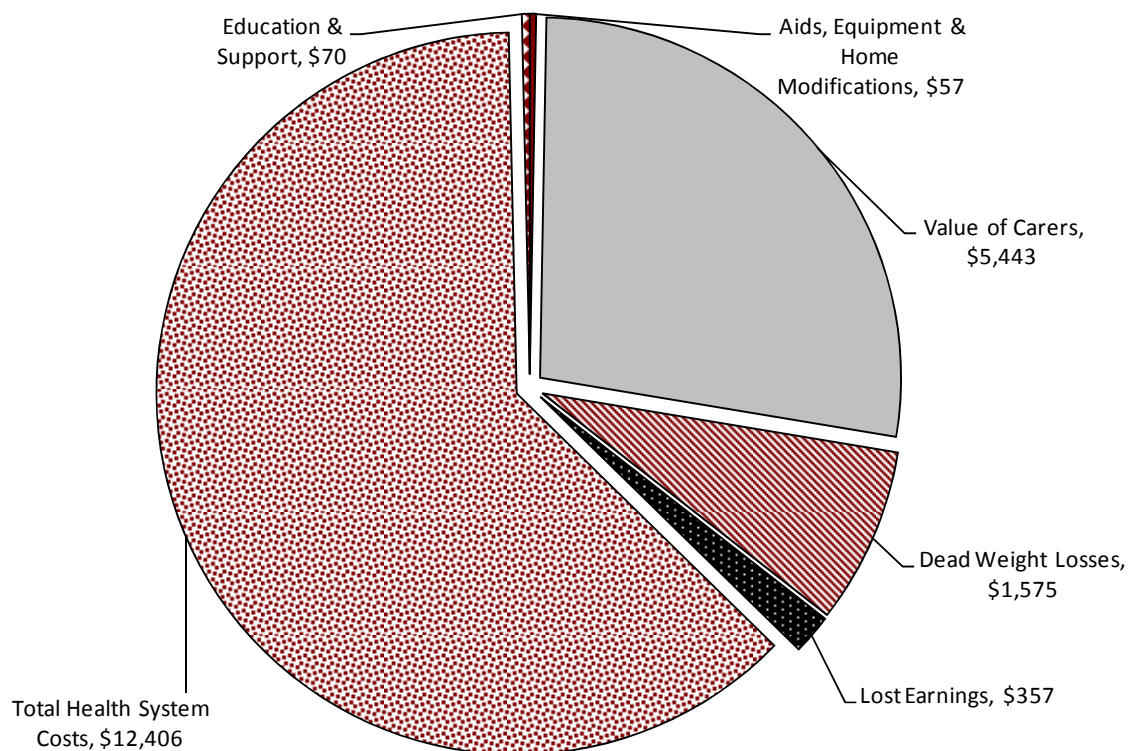
- The largest health system expenditure component is 'hospital inpatients' which is estimated at \$792.68 million. This expenditure accounts for people who are admitted to hospital overnight, and is greatest in people aged 75-84 years.
- The second largest health system expenditure component is 'other health professionals', which include optometrists and audiologists as well as other allied health professionals. Expenditure within this component is greatest for people aged 0-64 years.

Transfer payments for people with dual sensory impairment totalled an estimated \$129.4 million in 2010 (\$75 million for taxation forgone and \$54.4 million for welfare payments). Only the DWLs are included in the costs. Note that the total DWLs include the costs of administering Commonwealth Government health system expenditure as well as the efficiency losses from transfer payments.

Financial cost of sensory & physical disability

Total real financial costs of sensory and physical disability were \$19.9 billion in 2010. The annual economic cost per person with sensory & physical disabilities in 2010 is \$61,560 per affected person or \$893.5 for every Australian.

Figure 1.2: Real economic costs, sensory & physical disability (\$million)



Total health system expenditures account for over 62% (\$12.41 billion) of total real financial costs. The most health system expenditure is for the 75-84 year old age group, in line with the prevalence of people with sensory & physical disabilities in 2010. The nature of a physical disability lends itself to a high utilisation of hospital resources, reflected in the high proportion of expenditure on inpatient and outpatient treatment within this group.

- Hospital inpatients and outpatients are the highest health system expenditure components, at \$4.85 billion and \$2.58 billion, respectively.
- Out-of-hospital medical services comprise the next largest cost component within this disability group, at \$1.41 billion. This expenditure component includes imaging, pathology, unreferral attendances and other medical services.

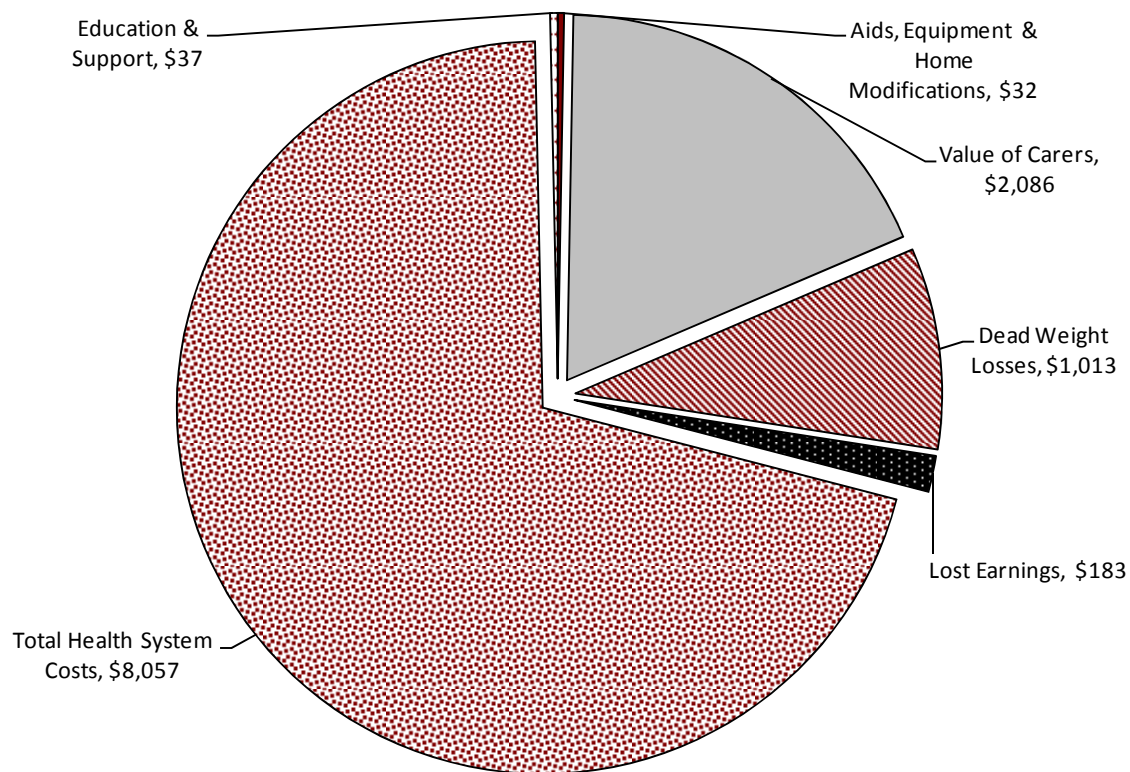
The value of informal care provided by friends and family (\$5.443 billion or 27.3% accounts for the second largest component of total real economic costs.

Transfer payments for people with sensory and physical disabilities, an estimated \$175 million in 2010 (\$101.7 million for taxation forgone and \$73.3 million for welfare payments). Only the DWLs are included in the costs. Note that the total DWLs include the costs of administering Commonwealth Government health system expenditure as well as the efficiency losses from transfer payments.

Financial cost of sensory & psychological disability

The total financial cost of sensory and psychological disability in 2010 was \$11.4 billion. The annual economic cost per person with sensory & psychological disabilities in 2010 is \$62,690 per affected person or \$512.0 for every Australian.

Figure 1.3: Real economic costs, sensory & psychological disability (\$million)



Total health system expenditure accounts for 70.6% (or \$8.06 billion) of total real economic costs. As with sensory & physical disabilities, the greatest level of expenditure is within the 75-84 year old age group, again reflecting the prevalence profile.

- The highest health system expenditure component is ‘hospital inpatients’, where an estimated \$2.5 billion was spent in 2010.
- The second highest expenditure component was ‘out-of-hospital medical services’ at \$1.5 billion. These expenditures relate to imaging, pathology, unreferral attendances and other medical services.

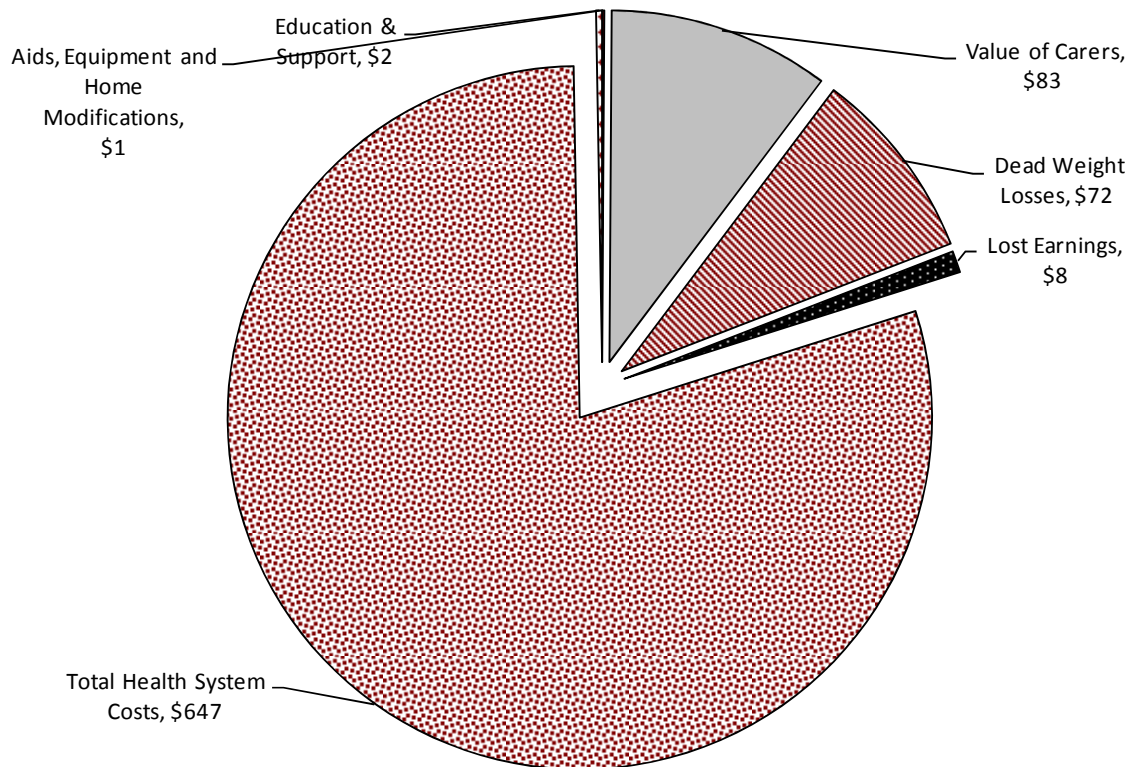
The value of informal care provided by friends and family (\$2.09 billion or 18.3%) is the second highest cost component.

Transfer payments for people with sensory and physical disabilities, an estimated \$79.2 million in 2010 (which is split as \$52.0 million for taxation forgone and \$27.2 million for welfare payments). Only the DWLs are included in the costs. Note that the total DWLs include the costs of administering Commonwealth Government health system expenditure as well as the efficiency losses from transfer payments.

Financial cost of sensory & intellectual disability

The total financial costs of sensory and intellectual disability in 2010 were \$812.8 million. The annual cost per person with sensory & intellectual disabilities in 2010 is \$278,540 per affected person or \$36.5 for every Australian.

Figure 1.4: Real economic costs, sensory & intellectual disability (\$million)



Total health system expenditures account for 79.6% (or \$650 million) of total real economic costs. In comparison to the previous multiple disability groups, the greatest health system expenditure occurred in the 0-64 year old age group, once again reflecting the prevalence profile.

- The highest health system component is 'hospital inpatients', where expenditure is estimated to be \$263.9 million. 'Hospital outpatients', 'out-of-hospital medical services' and 'other health professionals', have similar expenditure amounts of \$65.5 million, \$57.6 million and \$57.4 million respectively.

The value of informal care provided by friends and family (\$82.7 million or 10.2%) accounts for the second highest real financial cost component. The DWL component is only marginally smaller than the value of carers at \$71.8 million.

Transfer payments for people with sensory and physical disabilities were an estimated \$3.2 million in 2010 (\$2.3 million for taxation forgone and \$0.9 million for welfare payments). Only the DWLs are included in the costs. Note that the total DWLs include the costs of

administering Commonwealth Government health system expenditure as well as the efficiency losses from transfer payments.

Summary of economic and social costs

In 2010, the real financial costs of dual sensory impairment and multiple disabilities were:

■ Dual Sensory Impairment	\$10.5 billion or 0.81% of GDP
■ Sensory & Physical Disability	\$19.9 billion or 1.53% of GDP
■ Sensory & Psychological Disability	\$11.4 billion or 0.88% of GDP
■ Sensory & Intellectual Disability	\$0.8 billion or 0.06% of GDP

Adding the monetary value of the loss of life and wellbeing to the financial costs leads to the following:

■ Dual Sensory Impairment	\$18.4 billion
■ Sensory & Physical Disability	\$51.5 billion
■ Sensory & Psychological Disability	\$41.8 billion
■ Sensory & Intellectual Disability	\$1.4 billion

The overall economic and social cost of dual sensory impairment (combined vision and hearing loss) and other multiple disabilities (sensory and physical, sensory and psychological, and sensory and intellectual) in Australia in 2010 is \$113.1 billion.

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