

Making Sense:

The economic impact of dual sensory impairment and multiple disabilities

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Making Sense report for Able Australia, 2007

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Aims of the Making Sense report (and outline of this talk)

Estimate the economic impact of *dual sensory impairment* and *multiple disabilities* by estimating the:

1. Prevalence of dual sensory impairment and multiple disabilities.
2. Loss of wellbeing (“disability adjusted life years”).
3. Health system costs.
4. Other financial costs.

Definition of *dual sensory impairment*

- Both vision and hearing loss combined.

Severity	Hearing loss children aged <15 years	Hearing loss People aged 15 years or more	Vision loss (metres)
Mild	0 to 30 dB	≥ 25 dB and < 45 dB	6/12 to 6/18
Moderate	31 to 60 dB	≥ 45 dB and > 65 dB	6/24 to 6/60
Severe	61 to 90 dB	≥ 65 dB	< 6/60
Profound	91 dB plus	-	Unable to see light (totally blind)

Definition of *multiple disability*

- Sensory loss plus: physical disability; or psychological disability; or intellectual disability.

Physical disability	Psychological disability	Intellectual disability
Shortness of breath or breathing difficulties that restrict everyday activities.	Nervous or emotional condition that restricts everyday activities.	Difficulty learning or understanding things.
Blackouts, fits or loss of consciousness.	Mental illness or condition requiring help or supervision.	-
Chronic or recurrent pain or discomfort that restricts everyday activities.	Head injury, stroke or other brain damage, with long-term effects that restrict everyday activities.	-
Incomplete use of arms or fingers.	-	-
Difficulty gripping or holding things.	-	-
Incomplete use of feet or legs.	-	-
Restriction in physical activities or in doing physical work.	-	-

Severity of multiple disability

Severity	Degree of core activity limitation
Mild	<p>The person needs no help and has no difficulty with any of the core activity task, but uses aids and equipment.</p> <p>Cannot easily walk 200 metres.</p> <p>Cannot walk up and down stairs without a handrail.</p> <p>Cannot easily bend to pick up an object from the floor.</p> <p>Cannot use public transport.</p> <p>Can use public transport but needs help or supervision.</p> <p>Needs no help or supervision but has difficulty using public transport.</p>
Moderate	<p>The person needs no help but has difficulty with a core activity task.</p>
Severe	<p>The person sometimes needs help with a core activity task.</p> <p>Has difficulty understanding or being understood by family or friends.</p> <p>Can communicate more easily using sign language or other non-spoken forms of communication.</p>
Profound	<p>The person is unable to do, or always needs help with, a core activity task.</p>

Some more common causes:

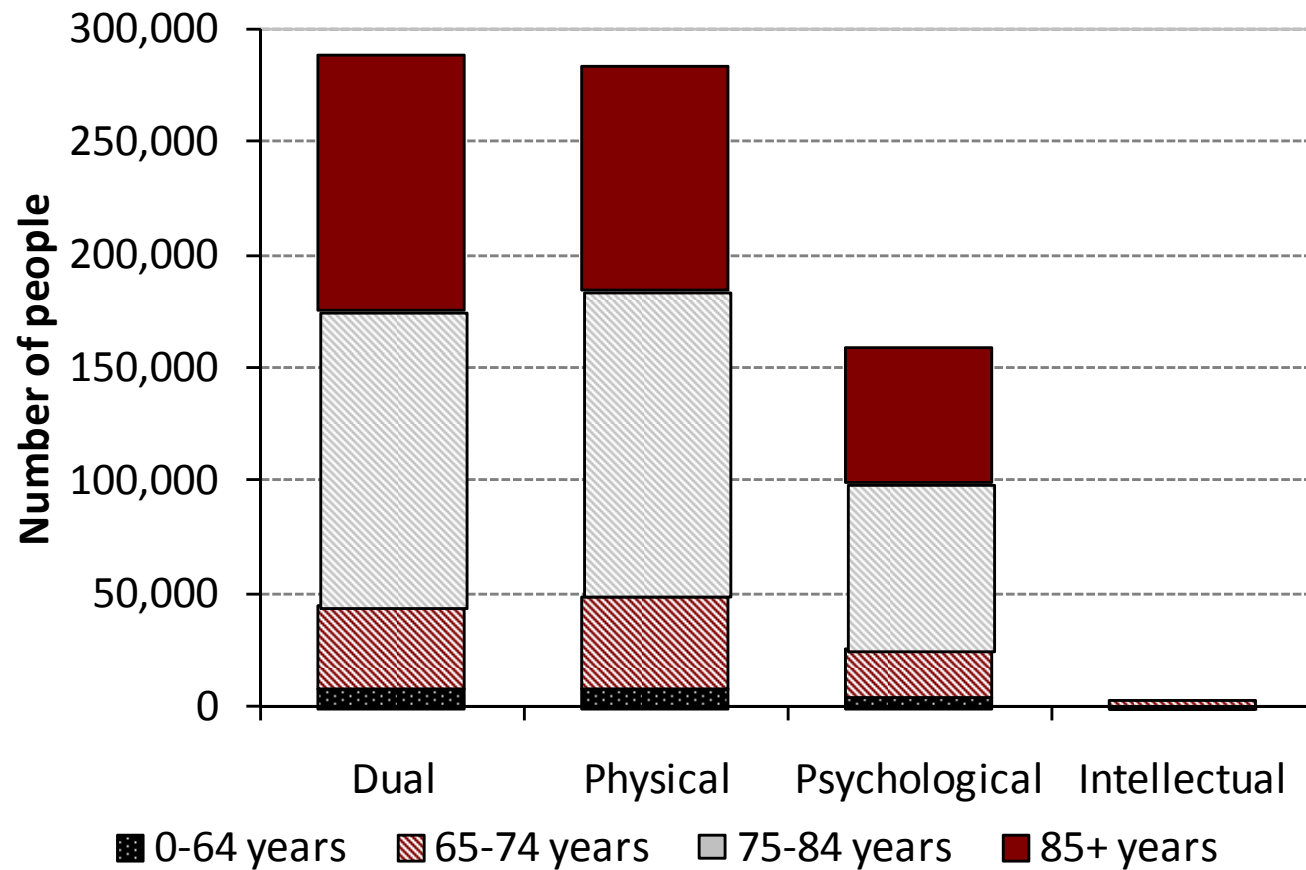
- Disease (during pregnancy or after)
 - Rubella
 - Infectious disease e.g., encephalitis
 - Stroke
- Birth complications
 - Cerebral palsy
- Genetic/hereditary conditions
 - Down Syndrome
- Accidents and injuries (causes 6% to 12% of dual sensory impairment and multiple disability - except sensory and intellectual)
 - Acquired brain injury
- Degenerative ageing
 - Age related macular degeneration

Prevalence rates

- Dual sensory and multiple disability = 4% of the population in 2005.

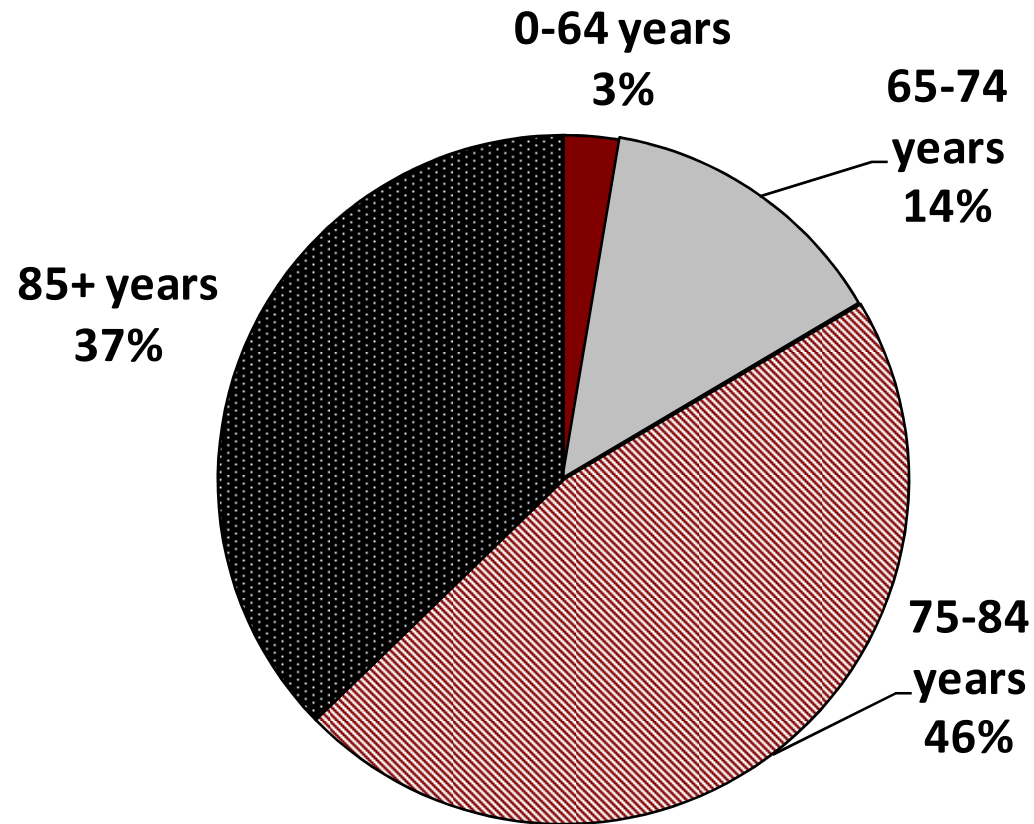
Age	Dual sensory	Sensory and physical	Sensory and psycholog.	Sensory and intellectual
0-64	0.04%	0.05%	0.02%	0.002%
65-74	2.7%	2.9%	1.53%	0.08%
75-84	13.6%	14.2%	7.71%	
85+	36.2%	31.5%	18.91%	
Total population 2005	1.4%	1.4%	0.78%	0.01%

Prevalence in 2005 (730,000 people)

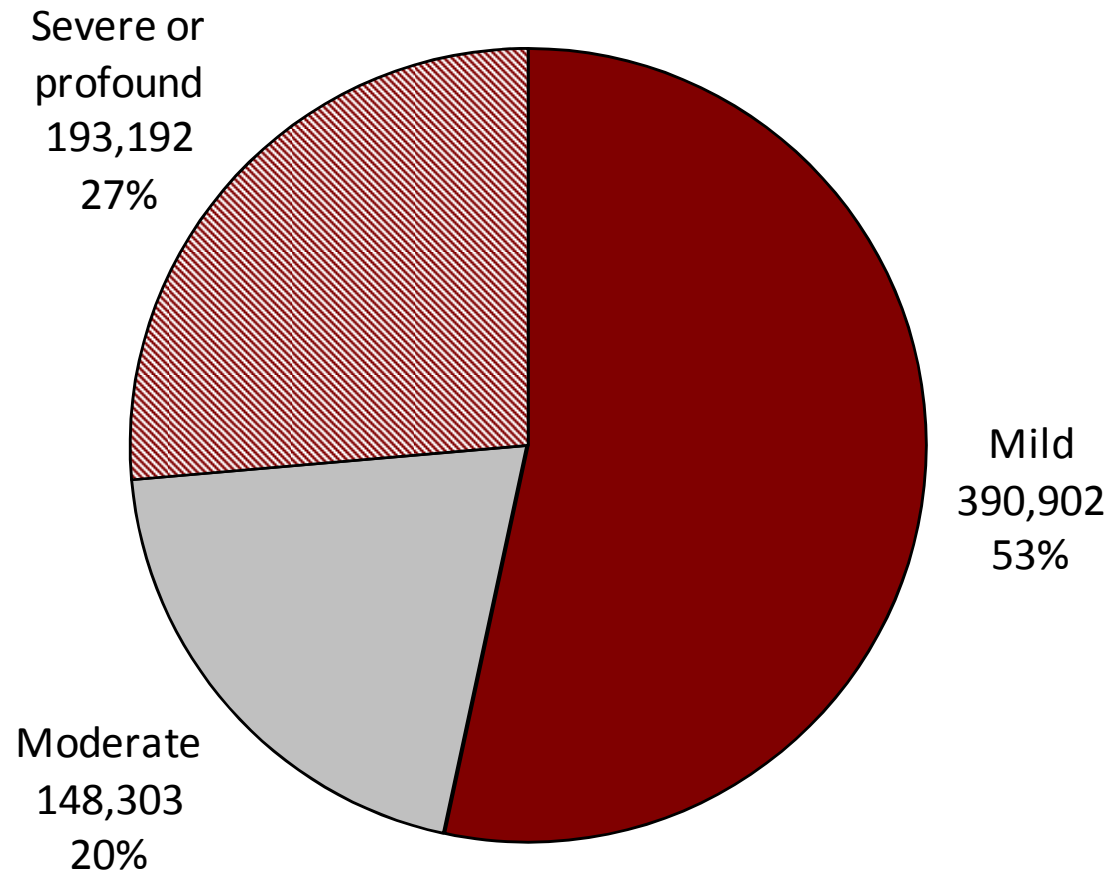


Prevalence by age in 2005

- Most people are aged 65 years or more.



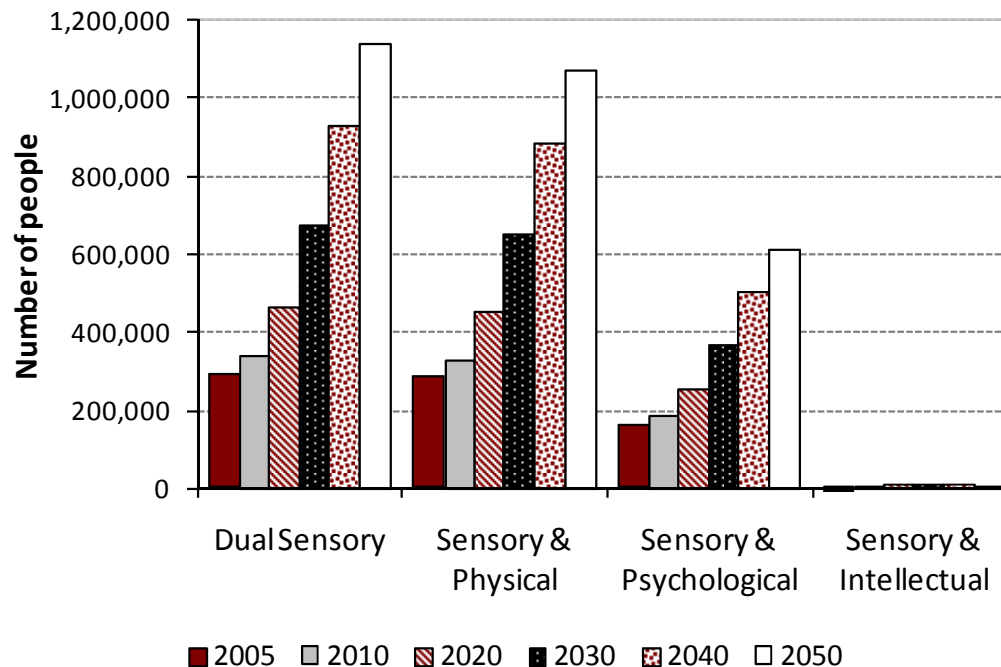
Prevalence by severity, 2005



Projected prevalence 2005 to 2050

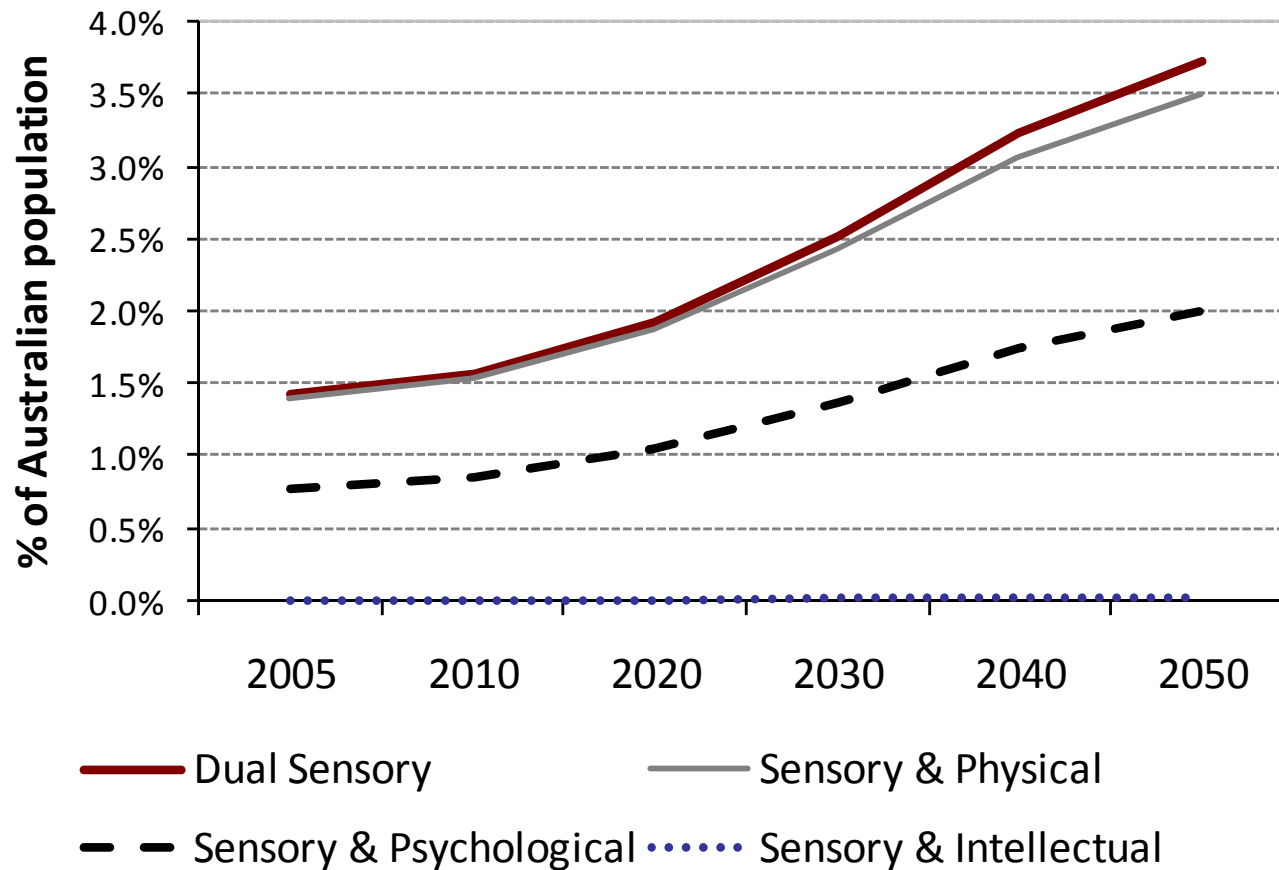
- 2.8 million people in 2050.

Dual sensory impairment:	288,300	to	1,135,500
Sensory and physical disability:	282,800	to	1,067,900
Sensory and psychological disability:	158,500	to	613,200
Sensory and intellectual disability:	2,550	to	6,700



Projected prevalence rates

- From 4% of the population in 2005 to 9% in 2050.



Loss of health related wellbeing (method)

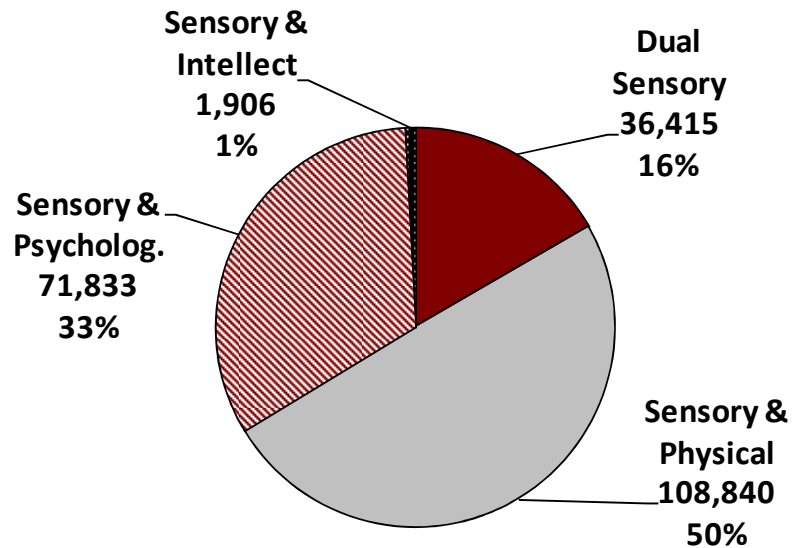
- Used Disability adjusted life years (DALYs)
- DALY = YLD + YLL where
 - YLD = Years of healthy life lost due to disability
 - YLL = Years of life lost due to premature mortality
- YLDs estimated using disability weight (W) for relevant conditions.

$$YLD_{a,t} = Prev_{a,t} \cdot W$$

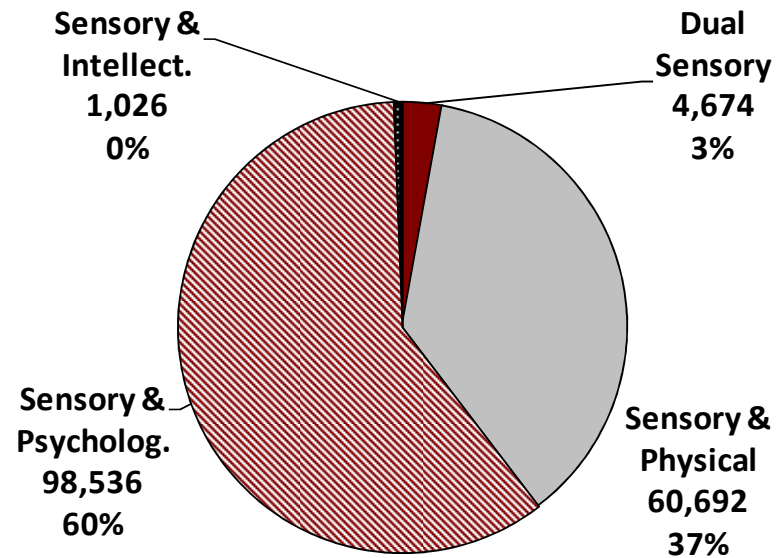
$$W_{Disease1,Disease2} = W_{Disease1} + (1 - W_{Disease1}) \cdot W_{Disease2}$$

Components of DALYs

YLDs 2005

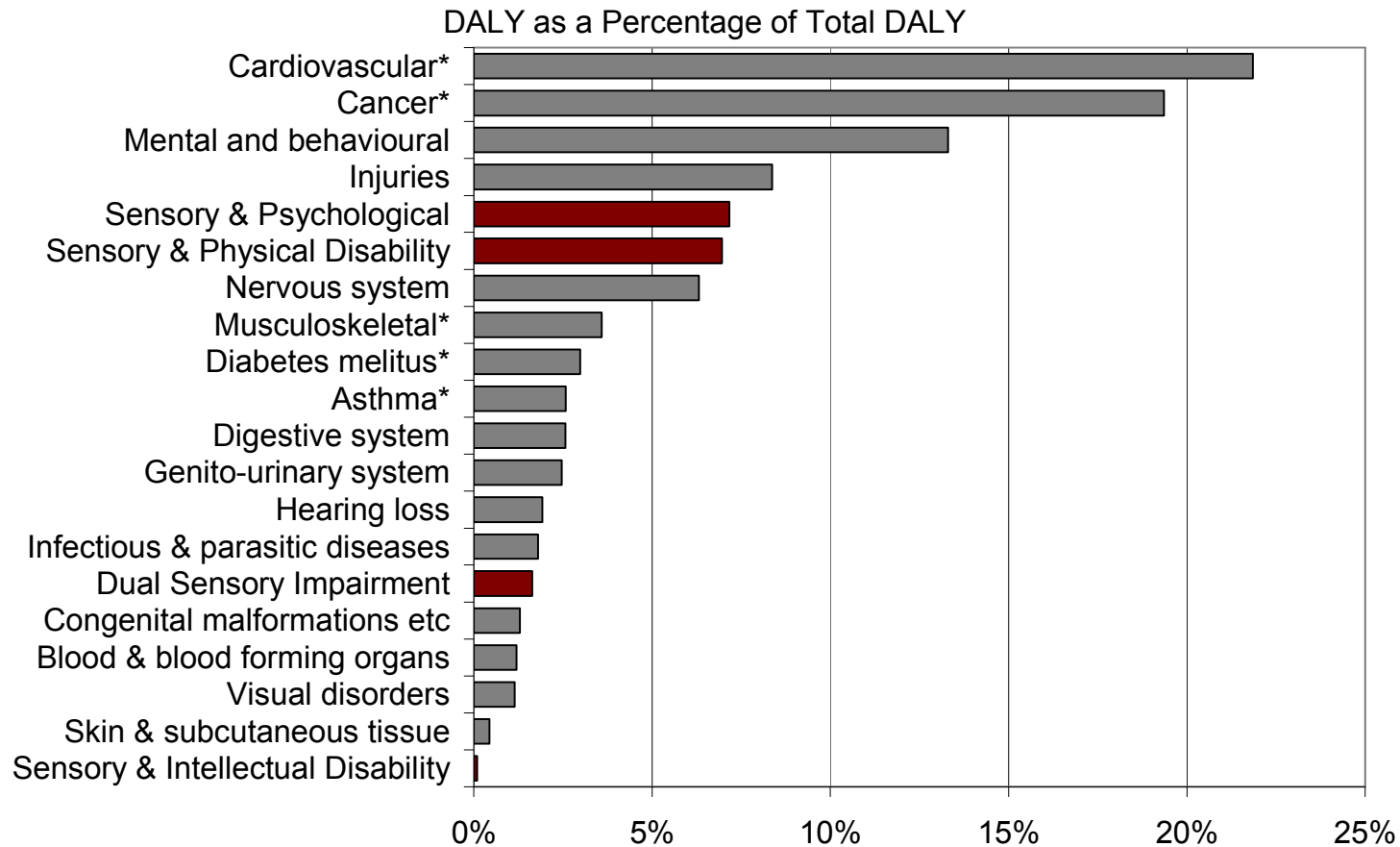


YLLs 2005



	DALYs	YLDS	YLLS
Dual Sensory Impairment	41,090	89%	11%
Sensory & Physical	169,532	64%	36%
Sensory & Psychological	170,369	42%	58%
Sensory & Intellectual	2,931	65%	35%

DALY comparisons by disease



Costing issues

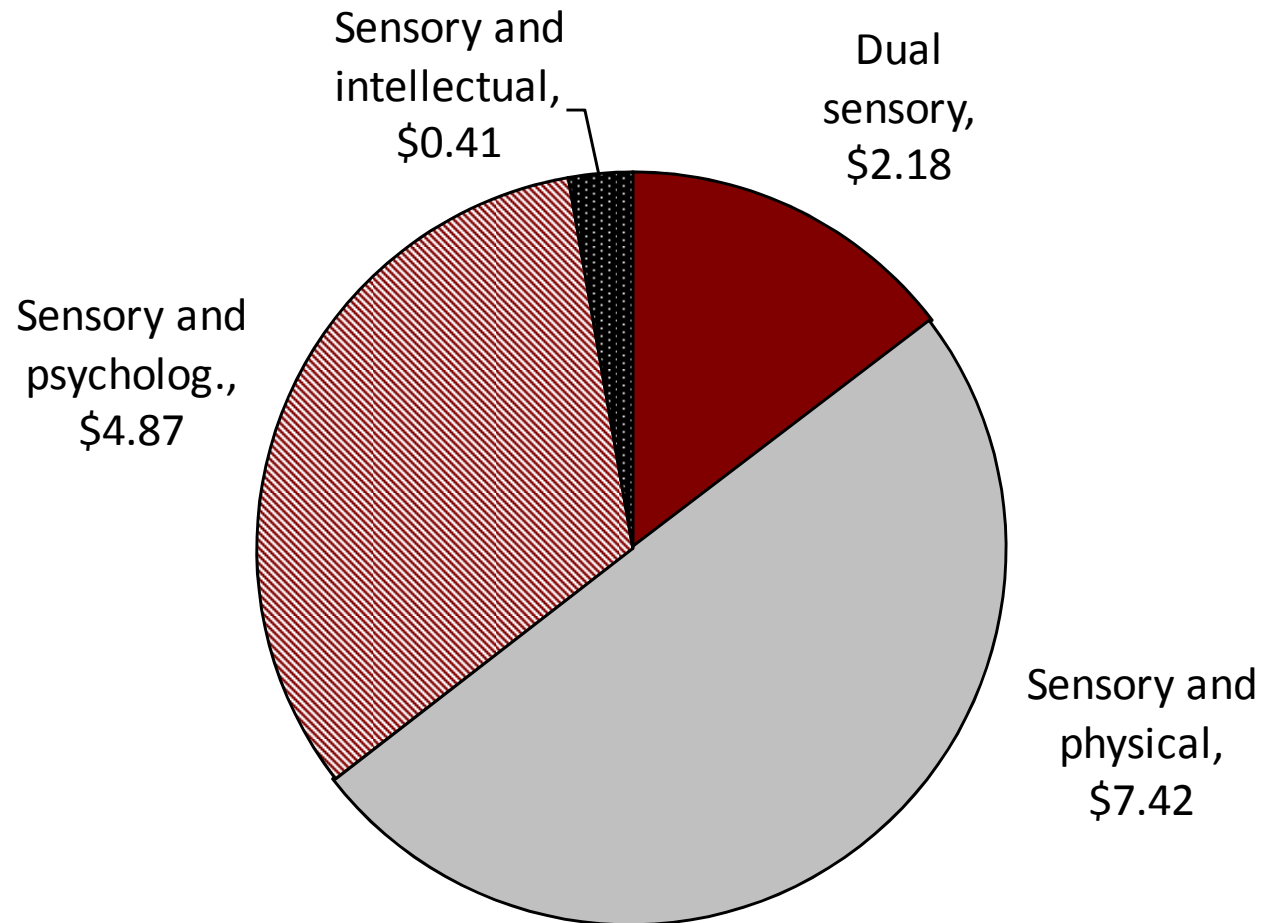
- Prevalence approach
- Costs include: health system costs, productivity losses, efficiency losses (due to transfer payments), informal care (unpaid care from family and friends), aids and equipment and other government and not for profit services.
- Transfer payments (eg taxation/welfare payments) involve payments from one economic agent to another. They are not real costs in themselves, but require resources in administration and cause systemic distortions. We estimate admin/distortion cost (economic term = deadweight loss).
- Non economic costs not part of GDP. Disease burden and informal care costs are 'non-economic'. Available costing methods are becoming more sophisticated and widely accepted. So we estimate because important and significant.

Health costs \$14.4 billion 2005

- AIHW expenditure by disease for 2000-01, extrapolated to 2005 based on changes in prevalence and health inflation.

Hospital inpatient	\$5,738m	40%	Public and private admitted patients.
Hospital outpatient	\$2,868m	20%	Non-Admitted Patients.
Out of hospital medical	\$2,338m	16%	GPs, imaging, pathology and out of hospital specialist services.
Other health professional	\$1,420m	10%	Optometrists, audiologists etc.
Aged care RAC	\$1,021m	7%	Residential aged care.
Prescription drugs	\$502m	3%	Pharmaceuticals dispensed through the PBS, or hospitals.
Research	\$258m	2%	Research into the type of disease or injury.
Over the counter drugs	\$244m	2%	Drugs that do not require a prescription.
Total (\$million)	\$14,388m	100%	

Health costs (\$14.4 billion) 2005

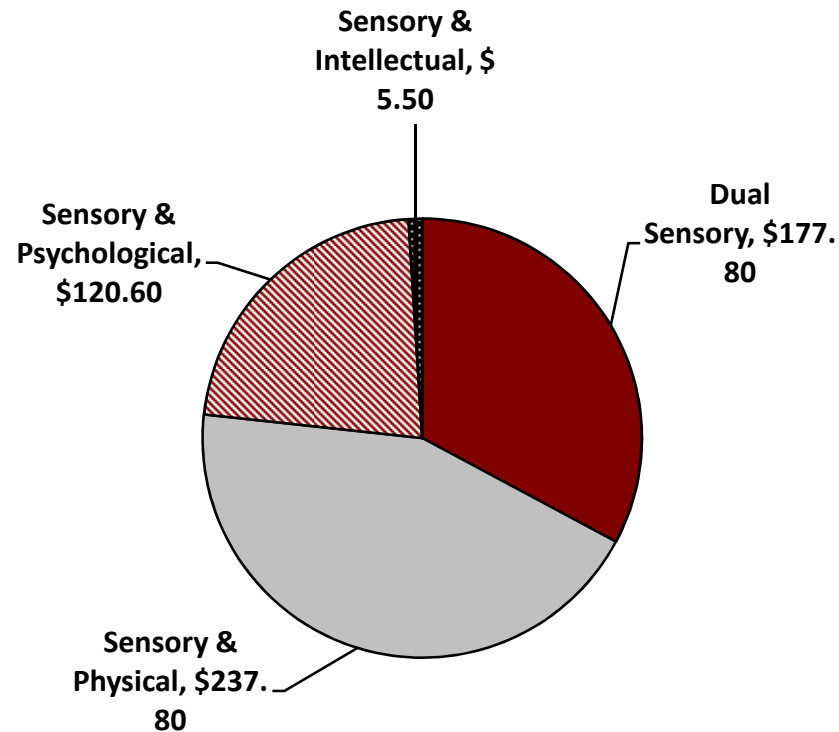


Other (non health care) costs

- Productivity losses due to impact of disability on participation in paid work.
- Informal care provided by family and friends.
- Efficiency losses from transfer payments.
- Other
 - aids and home modifications
 - government programs

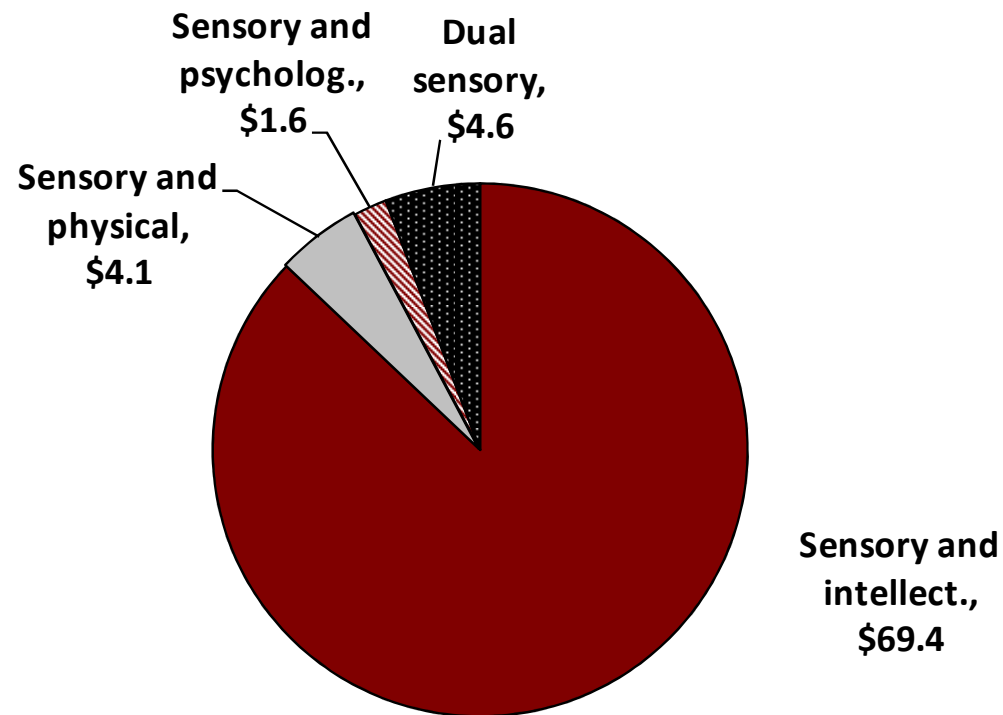
Productivity loss, \$542 million 2005

- Lower employment rate and participation in labour force by people with multiple disability (ABS SDAC).
- Premature death (loss of remaining lifetime earnings).
- Human capital valuation using ABS AWE by age and gender.



Informal care, \$11.9 billion 2005

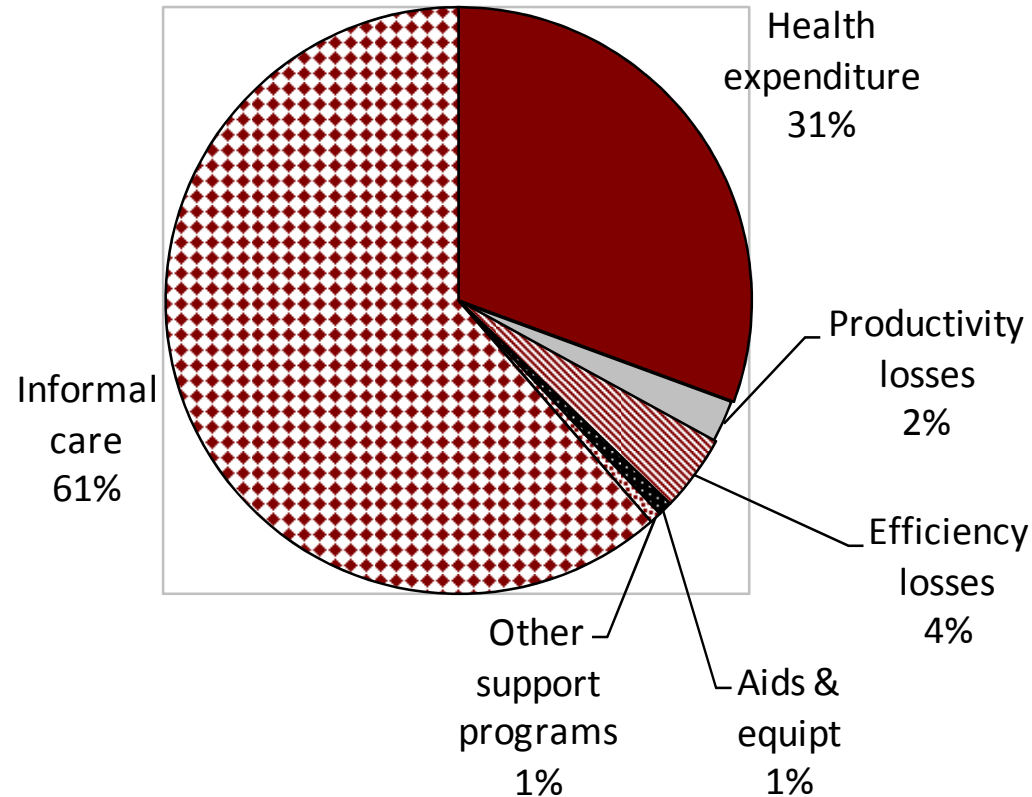
- Unpaid care provided by family and friends.
- Replacement valuation method used (ABS data wage rate for paid carer = around \$25/hour (incl. on-costs, overheads)).
- ABS SDAC on care provided and received (people with a multiple disability received around 30 hours care/week).



The rest 2005

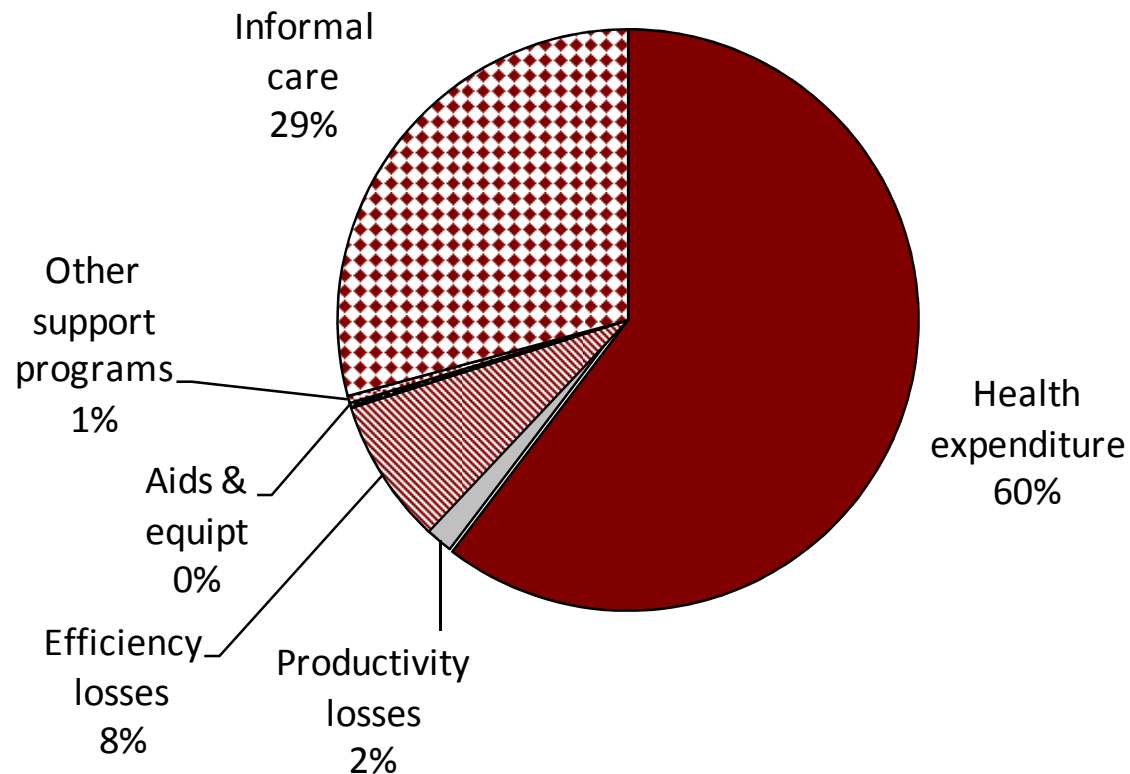
- Efficiency losses - \$2,176 million
 - Estimated costs of administering taxation, welfare payments and expenditure on government programs, plus distortions to economic behaviour.
 - Used studies found by Productivity Commission and Government Departmental Annual Reports.
- Aids and home modifications - \$122 million
 - Bottom up estimates using ABS SDAC on use, Victorian Aids and Equipment program & Independent Living Centre NSW.
- Other support programs - \$137 million
 - Commonwealth, State and Territory support .
 - Not for profit support, eg., Able Australia services.

Total - Dual sensory impairment, \$7.6 billion 2005



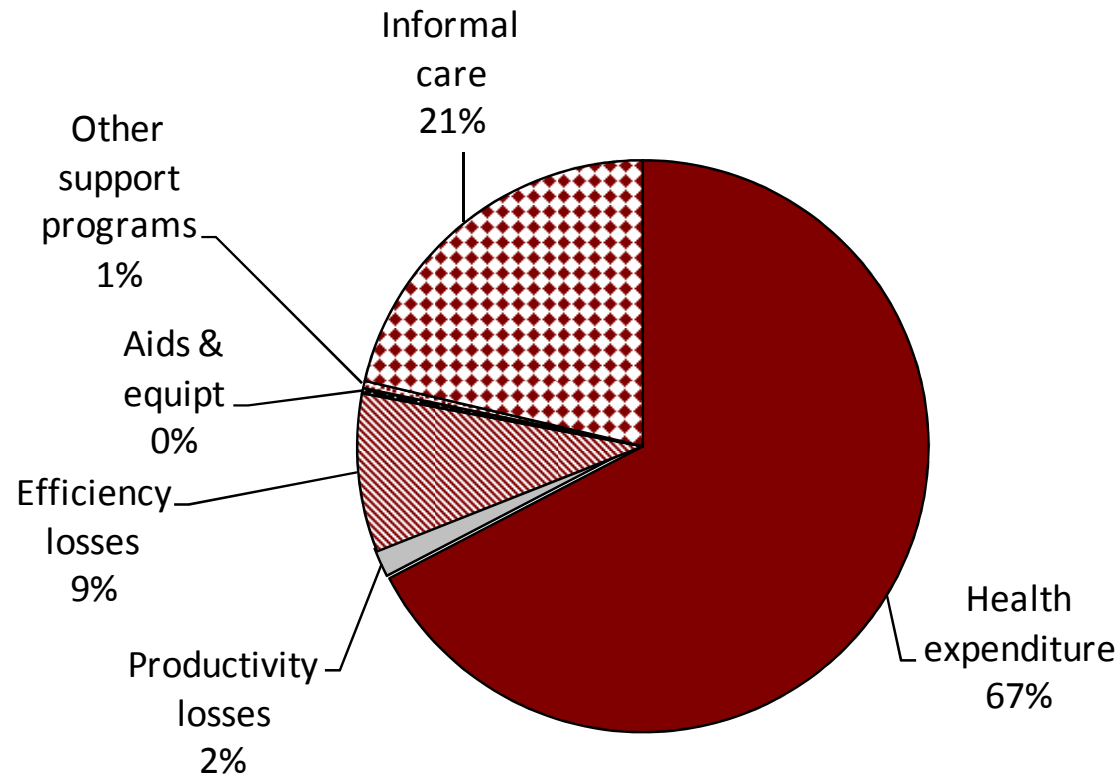
The impact on wellbeing ... 41,090 DALYs = 89% due to disability and 11% due to premature death.

Total - Sensory and physical disability, \$14.1 billion 2005



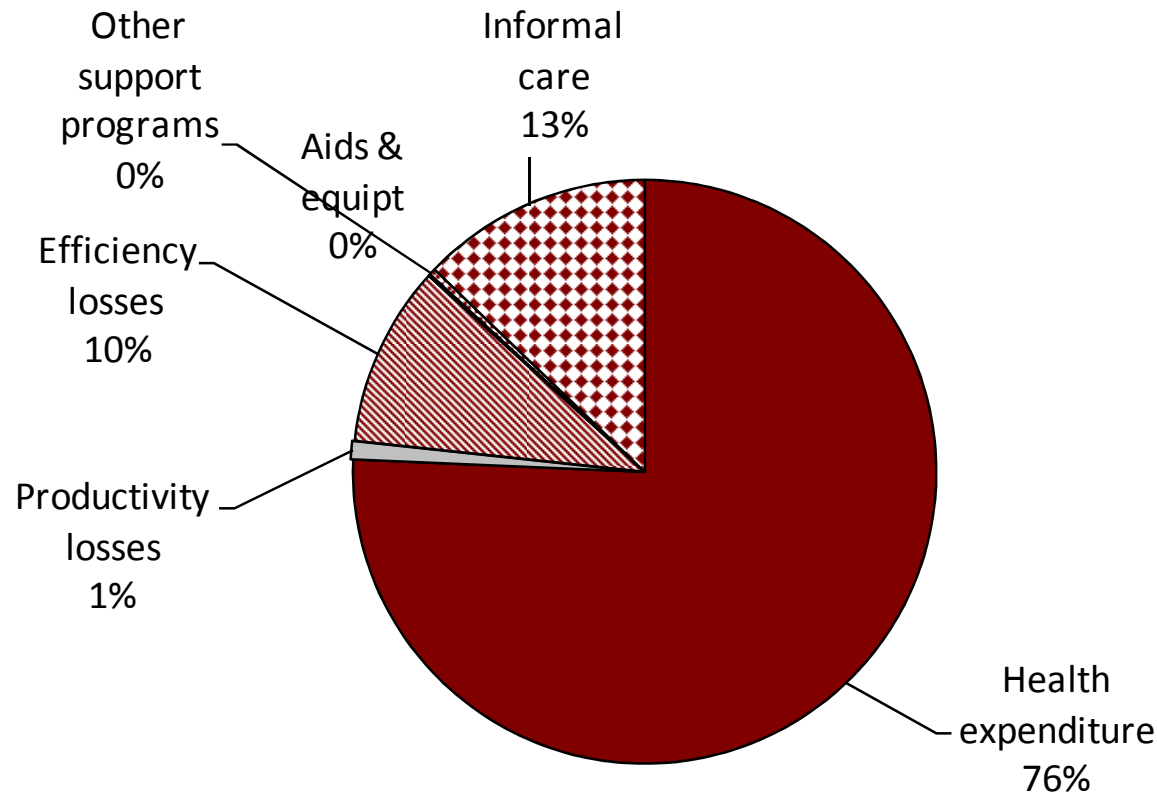
The impact on wellbeing ... 169,532 DALYs = 64% due to disability and 36% due to premature death.

Total - Sensory and psychological disability, \$7.3 billion 2005



The impact on wellbeing ... 170,369 DALYs = 42% due to disability and 58% due to premature death.

Total - Sensory and intellectual disability, \$542 million 2005



The impact on wellbeing ... 2,931 DALYs = 65% due to disability and 35% due to premature death.

Thank you

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