

Executive summary

Introduction

This report is the first complete assessment of the health of Australians to be released in the new millennium.

The findings in this report identify the extent and distribution of health problems in Australia, and quantify the contribution of key health risk factors to these problems.

Levels of death and disability from a comprehensive set of diseases, injuries and risks to health are combined to measure the total health 'burden'.

This report is the second of this type in Australia, the first having been released in 1999. It expands the scope of that previous report and also presents for the first time:

- the differentials of health burden across areas and population groups in Australia
- the joint contribution of key health risks – including combined lifestyle, physiological, social and environmental factors – on health
- an analysis of past trends of health burden and the likely health of Australians in 20 years from now should those trends continue.

The findings of this report describe the health loss due to disease and injury that is not ameliorated by current treatment, rehabilitative and preventive efforts of the health system and society generally. Thus they represent the 'unmet' challenges of the health system and are best interpreted as opportunities for health gain.

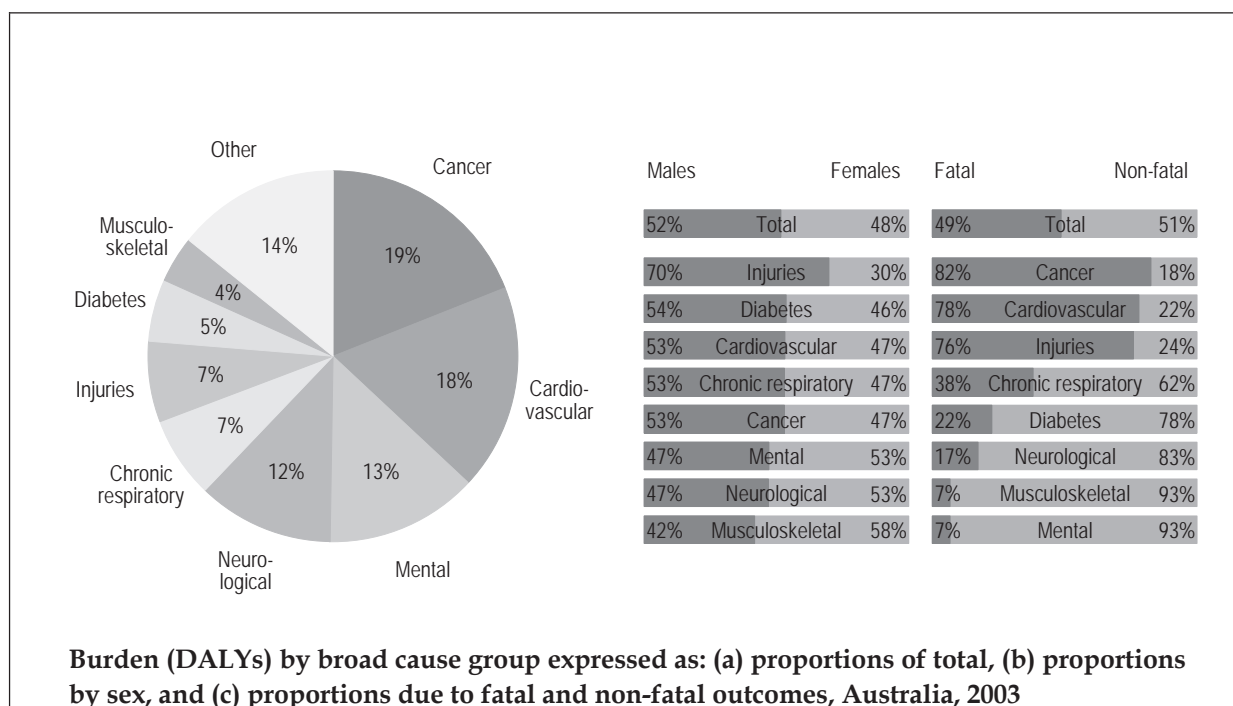
By providing a comprehensive database of all relevant epidemiological and burden parameters through time, the report will benefit health policy development and research in relation to preventive and curative health interventions, health care expenditure projections, and further assessments of health burden in the period before the next major update.

The study upon which the report is based was funded by the Australian Government Department of Health and Ageing. A report specifically examining the burden of disease and injury in Aboriginal and Torres Strait Islander people will be published separately.

Key findings

Total burden of disease and injury

The key measure used in this report to measure the total burden of disease and injury is the 'disability-adjusted life year' (DALY). It describes the amount of time lost due to both fatal and non-fatal events, that is, years of life lost due to premature death coupled with years of 'healthy' life lost due to disability.



- In 2003, more than 2.63 million years of 'healthy' life (that is, DALYs) were lost due to the burden of disease and injury in Australia.
- Cancers (19%) and cardiovascular disease (18%) were the leading causes of the burden of disease and injury in Australia in 2003, accounting for 37% of the total burden. Four-fifths of that burden was from premature deaths. For the first time, cancer has overtaken cardiovascular disease as the greatest cause of burden in Australia.
- Lung, colorectal and breast cancer were the leading specific causes of the burden of cancer.
- Ischaemic heart disease, stroke, and peripheral vascular disease were the leading specific causes of cardiovascular burden.
- Mental disorders and neurological & sense disorders were the next largest contributors, together accounting for a further 25% of the total health burden. Less than one-fifth of that burden was from premature deaths.
- Anxiety & depression, alcohol abuse, and personality disorders dominated the burden of mental disorders.

- Dementia, adult-onset hearing loss, and vision loss were the leading causes of burden due to neurological & sense disorders.
- Anxiety & depression also carries a risk of ischaemic heart disease and suicide, increasing the total burden due to the combined category of anxiety & depression from 7.3% to 8.2%.
- Diabetes also carries a risk of ischaemic heart disease and stroke, increasing the total burden of diabetes from 5.5% to 8.3%, and making it the fourth largest contributor to overall burden after cancer, CVD and mental disorders.
- The eight national health priority conditions – asthma, cancer, cardiovascular disease, diabetes mellitus, injuries, mental health, arthritis and musculoskeletal conditions, and dementia – accounted for 72.8% of the total burden in 2003.
- Distribution of the burden between the sexes was roughly equal except for injuries (70% of the burden in males) and musculoskeletal (58% of the burden in females).
- The five leading specific causes of burden in men were ischaemic heart disease (11.1%), Type 2 diabetes (5.2%), anxiety & depression (4.8%), lung cancer (4.0%) and stroke (3.9%).
- The five leading specific causes of burden in women were anxiety & depression (10.0%), ischaemic heart disease (8.9%), stroke (5.1%), Type 2 diabetes (4.9%) and dementia (4.8%).
- Disability from all diseases and injuries resulted in a loss of 1.5% of healthy time lived by children, increasing with age to 14.7% in those aged 65 to 69 years, to 41.5% in the very aged.

Fatal burden

- ‘Life expectancy’ estimates the average years of life that a person can expect to live given current risks of mortality. In 2003 in Australia, life expectancy at birth was 80.7 years (78.3 years for males and 83.2 years for females).
- Fatal burden – measured in years of life lost (YLL) – accounted for 49% of the total burden of disease and injury in Australia in 2003.
- Cancers (32.0%), cardiovascular disease (29.0%) and injuries (11.0%) were responsible for almost three-quarters of the fatal burden.
- Males experienced 55% of total fatal burden. The five leading specific causes of mortality burden among men were ischaemic heart disease (18.2%), lung cancer (7.3%), suicide & self-inflicted injury (5.4%), stroke (5.1%) and colorectal cancer (3.9%).
- Females experienced 45% of total fatal burden. The five leading specific causes of mortality burden among women were ischaemic heart disease (15.7%), stroke (8.5%), breast cancer (7.0%), lung cancer (5.5%) and colorectal cancer (4.2%).

Non-fatal burden

- ‘Health adjusted life expectancy’ (HALE) estimates the average years of equivalent ‘healthy life’ that a person can expect to live. In 2003 in Australia, the average HALE was 72.9 years (70.6 years for males and 75.2 years for females), with 9.7% of life expectancy at birth lost due to disability.
- Non-fatal burden – measured in years of ‘healthy’ life lost due to disability (YLD) – accounted for 51% of the total burden of disease and injury in Australia in 2003.

- Mental disorders (24%) and neurological & sense disorders (19%) contributed most to non-fatal burden.
- The five leading specific causes of non-fatal burden among men were anxiety & depression (10.0%), Type 2 diabetes (8.5%), adult-onset hearing loss (6.5%), asthma (4.2%) and dementia (3.9%).
- The five leading specific causes of non-fatal burden among women were anxiety & depression (18.1%), Type 2 diabetes (7.2%), dementia (6.4%), asthma (4.5%) and ischaemic heart disease (3.3%).

Age patterns and total burden

Distribution of population and burden (DALYs) by five broad age groups, Australia, 2003

Age group	Population ^(a)	Per cent of total	DALYs	Per cent of total
0–14 years	3,979,410	20.0	221,536	8.4
15–44 years	8,622,610	43.4	633,260	24.1
45–64 years	4,733,808	23.8	681,566	25.9
65–74 years	1,349,949	6.8	428,904	16.3
75 years and over	1,195,692	6.0	667,504	25.4
Total	19,881,469	100.0	2,632,770	100.0

(a) Estimated resident population figures as at 30 June 2003 (ABS cat. no. 3201.0).

- Adults aged 45 to 64 years comprised 23.8% of the population in 2003 and experienced the largest proportion (25.9%) of disease and injury burden across key age groups. Cancer (28%), cardiovascular disease (16%) and neurological disorders (10%) accounted for more than half the total burden in this age group. Almost half of the burden was due to mortality.
- Adults aged over 75 years comprised 6.0% of the population but experienced the second highest proportion of burden (25.4%). Cardiovascular disease (34%) and cancer (19%) accounted for more than half of the burden. Overall, 68% of the burden was due to mortality.
- Adults aged 15 to 44 years represented the largest age group (43.4% of the population) and experienced 24.1% of the burden. Mental disorders (36%) and injuries (17%) accounted for more than half of the total burden in this age group. Mortality contributed 29% to the burden in this age group.
- Children aged 0-14 years comprised 20.0% of the population and experienced 8.4% of the total burden of disease and injury in Australia in 2003. Twenty-three per cent of this burden was due to mental disorders, 18% to chronic respiratory disorders, and 16% to neonatal conditions. About one-quarter of the burden was due to mortality.

Health risks

Individual and joint burden (DALYs) attributable to 14 selected risk factors by broad cause group, Australia, 2003

	Broad cause group							All causes
	Cancer	CVD	Mental	Neuro-logical	Injury	Diabetes	Other	
Total burden ('000)	499.4	473.8	350.5	312.8	185.1	143.8	667.4	2,632.8
Attributable burden (%) ^(a)								
Tobacco	20.1	9.7	—	-0.6	0.5	—	8.9	7.8
High blood pressure	—	42.1	—	—	—	—	—	7.6
High body mass	3.9	19.5	—	—	—	54.7	1.1	7.5
Physical inactivity	5.6	23.7	—	—	—	23.7	>-0.1	6.6
High blood cholesterol	—	34.5	—	—	—	—	—	6.2
Alcohol								
Harmful effects	3.1	0.9	9.7	—	18.1	—	<0.1	3.3
Beneficial effects	—	-5.6	—	—	—	—	>-0.1	-1.0
Net effects	3.1	-4.7	9.7	—	18.1	—	<0.1	2.3
Low fruit & vegetable consumption	2.0	9.6	—	—	—	—	>-0.1	2.1
Illicit drugs	—	<0.1	8.0	—	3.6	—	2.5	2.0
Occupational exposures & hazards	3.1	0.4	—	0.8	4.7	—	3.4	2.0
Intimate partner violence	0.5	0.3	5.5	0.1	2.5	—	0.2	1.1
Child sexual abuse	<0.1	<0.1	5.8	—	1.4	—	<0.1	0.9
Urban air pollution	0.8	2.7	—	—	—	—	0.4	0.7
Unsafe sex	1.0	—	—	—	—	—	1.4	0.6
Osteoporosis	—	—	—	—	2.4	—	—	0.2
Joint effect ^(b)	32.9	69.3	26.9	0.2	31.7	60.1	17.2	32.2

(a) Attributable burden within each column is expressed as a percentage of total burden for that column.

(b) Figures for joint effects are not column totals. See Section 4.1 for further details.

Findings on the amount of burden in 2003 that was attributable to current and past exposures to risks to health considered the following:

- Lifestyle behaviours (tobacco smoking, physical inactivity, alcohol consumption, low fruit and vegetable consumption, use of illicit drugs, and unsafe sex)
- Physiological states (high body mass, high blood pressure, high cholesterol, and osteoporosis)
- Social and environmental factors (occupational exposures and hazards, intimate partner violence, child sexual abuse, and urban air pollution).

The 14 risks together explained 32.2% of the total burden of disease and injury in Australia in 2003.

- Tobacco was responsible for the greatest disease burden in Australia (7.8% of total burden), followed by high blood pressure (7.6%), high body mass (7.5%), physical inactivity (6.6%), and high blood cholesterol (6.2%).

- The five leading risks in males in 2003 were tobacco (9.6%), high blood pressure (7.8%), high body mass (7.7%), high blood cholesterol (6.6%) and physical inactivity (6.4%).
- Among women the leading risks were high blood pressure (7.3%), high body mass (7.3%), physical inactivity (6.8%), high blood cholesterol (5.8%) and tobacco (5.8%).

This report sets out for the first time the combined or 'joint' effect of these risks on health, accounting for the fact that many risks share complex causal pathways. It is difficult to quantify the exact contribution of each risk to the combined totals, but the proportion of total burden that is 'explained' by multiple risks within each disease and injury category can be reported with sufficient accuracy.

- Ten risks were associated with cancer and together explained 32.9% of the cancer burden. The majority was explained by tobacco but also included the effect of physical inactivity, high body mass, and alcohol consumption.
- Twelve risks were associated with cardiovascular disease and together explained 69.3% of the disease burden; for ischaemic heart disease this figure was 85.2%. High blood pressure and high blood cholesterol were the largest contributors.
- Three risks were associated with neurological and sensory disorders and together explained 0.2% of the burden from these disorders. This reflects a lack of knowledge about causation in this group.
- Two risks were associated with Type 2 diabetes and together explained 60.1% of the total burden. High body mass was by far the largest contributor (54.7%) followed by physical inactivity (23.7%).
- The burden associated with harmful alcohol consumption (3.2%) was partially offset by the cardiovascular disease prevented by safe levels of alcohol consumption (-0.9%). This protective factor only becomes apparent after 45 years of age, whereas the harmful effects of alcohol are apparent at all ages.

Differentials in burden across Australia

- This report shows for the first time that there are differentials across Australia in the proportion of life expectancy lost due to disability. There was a strong socioeconomic gradient in this measure, and differentials with respect to remoteness were also apparent but not as large.
- Health-adjusted life expectancy (HALE) in 2003 in Australia was 72.9 years (70.6 for males and 75.2 for females), with an average 9.7% of life expectancy at birth lost due to disability.
- Across states and territories, the proportion of life expectancy lost due to disability ranged from 7.7% in the ACT to 10.6% in South Australia. The NT had almost twice the rate of total burden of the ACT due to a higher rate of burden for most causes, but particularly cardiovascular disease, diabetes, and injury.
- Across socioeconomic quintiles, the proportion of life expectancy lost due to disability ranged from 8.7% in the highest quintile to 10.6% in the lowest. The 31.7% greater burden for the most disadvantaged population compared to the highest was due to higher rates of burden for most causes, but particularly mental disorders and cardiovascular disease.

Health-adjusted life expectancy (HALE) and life expectancy at birth lost due to disability by area and sex, Australia, 2003

Area	Health-adjusted life expectancy (HALE) (years)						Life expectancy at birth lost due to disability (%)		
	At birth			At age 60			Males	Females	Persons
	Males	Females	Persons	Males	Females	Persons			
Jurisdiction									
NSW	70.5	75.3	72.9	17.1	20.6	18.9	9.8	9.5	9.6
Vic	71.1	75.4	73.2	17.5	20.8	19.2	9.6	9.4	9.5
Qld	70.5	75.3	72.8	17.0	20.4	18.7	10.1	9.7	9.9
WA	71.5	75.6	73.5	17.5	20.6	19.1	9.6	9.6	9.6
SA	69.3	74.2	71.7	16.4	20.0	18.3	10.8	10.5	10.6
Tas	68.8	73.7	71.3	16.3	19.7	18.1	10.2	9.8	10.0
NT	65.8	70.2	67.7	12.6	15.1	13.6	10.0	10.6	10.3
ACT	73.9	77.8	75.9	18.9	21.9	20.5	7.8	7.5	7.7
Socioeconomic quintile									
Low	68.7	73.8	71.2	16.1	19.7	17.9	10.7	10.4	10.6
Moderately low	69.5	74.6	72.0	16.4	20.1	18.2	10.2	9.9	10.1
Average	69.9	74.6	72.2	16.6	20.1	18.4	10.0	9.8	9.9
Moderately high	71.4	75.9	73.6	17.6	20.8	19.3	9.7	9.1	9.4
High	73.8	77.2	75.5	19.2	21.9	20.6	8.7	8.7	8.7
Remoteness									
Major cities	71.3	75.6	73.5	17.5	20.8	19.2	9.6	9.4	9.5
Regional	69.6	74.5	72.0	16.5	20.1	18.3	10.3	9.8	10.1
Remote	67.3	72.3	69.5	15.4	18.5	16.8	10.8	11.3	11.0
Australia	70.6	75.2	72.9	17.1	20.5	18.9	9.8	9.6	9.7

- Based on remoteness, the proportion of life expectancy lost due to disability ranged from 9.5% in major cities to 11.0% in remote areas. The 26.5% greater burden for remote areas compared to major cities reflected a higher burden per person from most causes but particularly injuries.

Trends—past, present and future

This report presents an analysis of health trends over a 30-year period, based on the past decade and projected trends of health burden if these trends continued over the next 20 years.

- The average years of 'healthy life' a person can expect to live (HALE) will grow at a slower rate than life expectancy over the next 20 years. If past trends in morbidity and mortality continue, HALE will increase 0.22% annually and life expectancy 0.24% annually. This is partly because declines in mortality will be accompanied by a somewhat smaller decline in time that is lost to disability.

- The rate of disability will actually decline in most age groups, except for those 80 years and over, where it is expected to increase and thereby offset some of the gains for younger age groups. The growing rate of disability in the oldest age group mostly comes from expected increases in diabetes and neurological conditions.

Key implications

Key implications of the report's findings include:

- Ageing of Australia's population will result in increasing numbers of people with disability from diseases more common in older ages such as dementia, Parkinson's disease, hearing and vision loss, and osteoarthritis. This will increase demand for services in the home, community care, residential aged care and palliative care sectors.
- Cardiovascular disease has been overtaken by cancer as the major cause of burden in Australia. This has been largely as a result of programs which have reduced smoking and facilitated the use of therapies to lower cholesterol and blood pressure levels, as well as better treatment of existing cardiovascular disease. It is likely that additional gains could be made through increasing the coverage of these interventions.
- Cancer is expected to retain its share of total health burden. Age-standardised rates of death and disability are expected to fall, but cancer will remain the largest contributor to the health burden in 20 years time.
- There is likely to be strong growth in the burden of diabetes over the next 20 years, mostly as a direct consequence of increasing levels of obesity. The disability consequences of increasing obesity will be magnified as fatality rates for people with diabetes continue to decline. This increased survival will mean an increase in the risk of people developing other largely non-fatal but disabling consequences of diabetes such as renal failure and vision loss.
- Australia is likely to benefit from further efforts towards expanding the range of effective prevention and treatment strategies for all causes of burden, while recognising that the returns for these efforts can take time to be realised. Only in recent years, for example, have smoking-related cancers started to decline as the result of several decades of successful tobacco control programs.