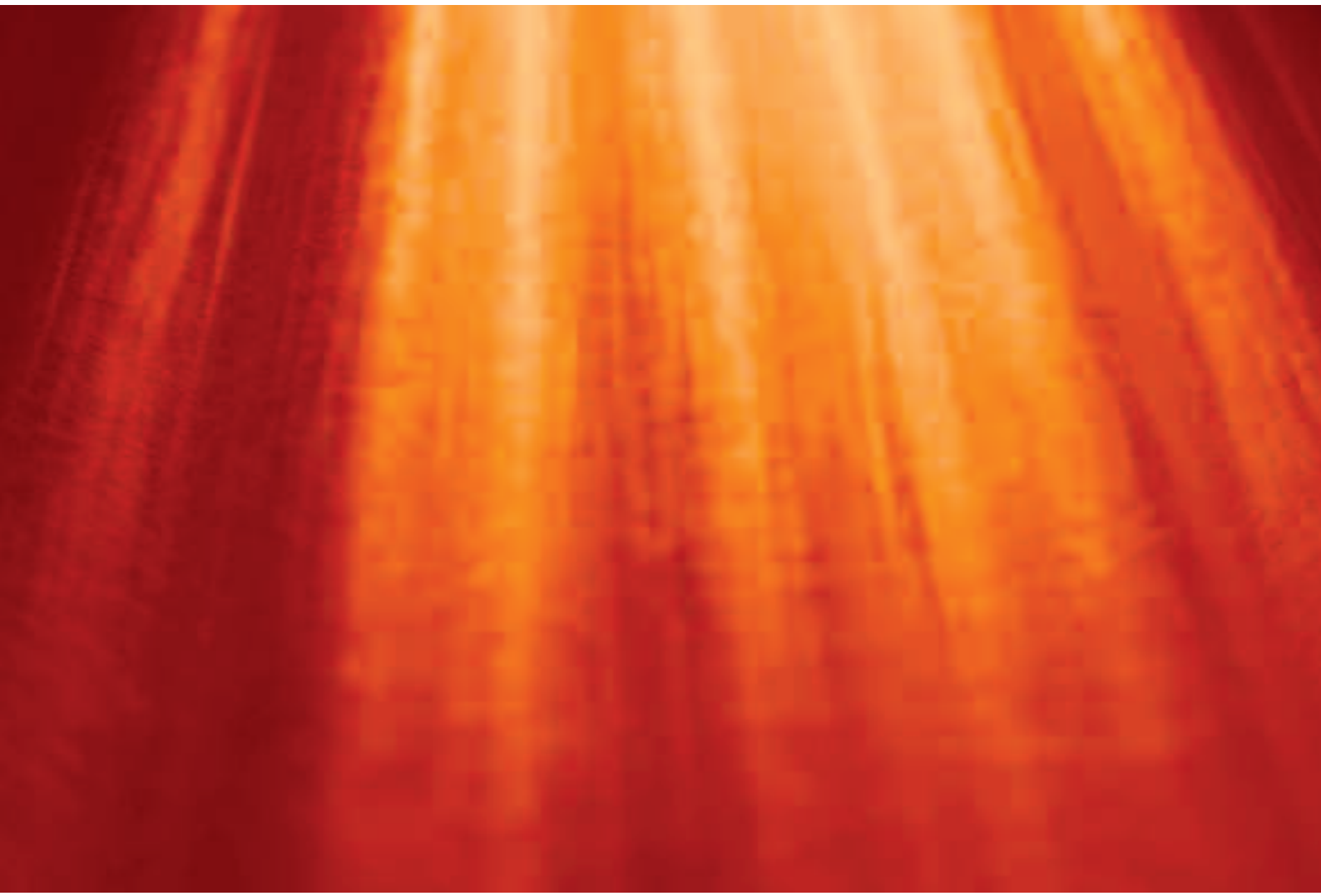
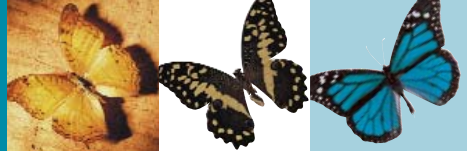
Victorian Burden of Disease Study

Mortality and morbidity in 2001



State Government Victoria



Victorian Burden of Disease Study

Mortality and morbidity in 2001

Public Health Group

Department of Human Services

The butterfly

In the 1996 Burden of Disease Study, we chose the butterfly as a symbol of what we set out to achieve–that is, to transform complex data into clear, user friendly information about the health of Victorians, akin to the development of a butterfly, which starts as a characterless grub that many would fail to recognise as the eventual creature that is both eye catching and familiar to people of diverse backgrounds. The Burden of Disease Study, like the butterfly, provides information that is highly visible and readily appreciated by a wide audience. The life cycle of the butterfly symbolises our responsiveness to the need for ongoing redevelopment of a system to provide information that is both attractive and relevant.

The butterfly effect

In keeping with the butterfly theme, we would also like to draw the analogy of the Burden of Disease Study 2001 to 'the butterfly effect'. The butterfly effect was first described by Lorenz at the December 1972 meeting of the American Association for the Advancement of Science in Washington DC, and vividly illustrates the essential idea of chaos theory. In a 1963 paper for the New York Academy of Sciences, Lorenz quoted an unnamed meteorologist's assertion that if chaos theory were true a single flap of a single seagull's wings would be enough to change the course of all future weather systems on the earth. By the time of the 1972 meeting, he had examined and refined that idea for his talk, 'Predictability: does the flap of a butterfly's wings in Brazil set off a tornado in Texas?'. The example of such a small system as a butterfly being responsible for creating such a large and distant system as a tornado in Texas illustrates the impossibility of making predictions for complex systems; despite the fact that tornado systems are determined by underlying conditions, we can never sufficiently articulate those conditions to allow long-range predictions.

With the Burden of Disease estimates, we too try to assess many complex diseases and injuries, using the best available data or otherwise incomplete data and even educated guesses where there are no data. Faced with imperfect data, researchers of the burden of disease often face the dilemma of whether to present or abandon an analysis. The general approach is to make estimates if they have at least some degree of plausibility. Given that burden of disease results are intended to contribute to policy decision-making, the alternative of abandoning the analyses would convey the message to policy makers that health problems for which poor information exists are not important. Within this philosophy, we argue that our data sources had enough strengths to warrant completing the analyses, and we hope that the impact of the study is large and no disease is too complex to remain untouched.

Published by the Public Health Group, Rural and Regional Health and Aged Care Services Division.
Victorian Government Department of Human Services. Melbourne Victoria

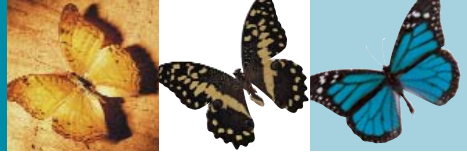
June 2005

ISBN 0 7311 6223

Authorised by the State Government of Victoria, 555 Collins Street, Melbourne.

Printed by Impact Printing (Vic) Pty Ltd

This document may also be downloaded from the Department of Human Services website at
www.health.vic.gov.au/healthstatus/bod/bod_vic.htm



Ministerial foreword

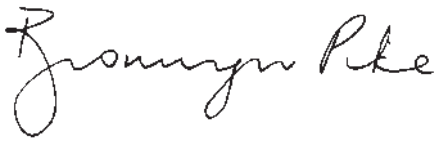
In the past 200 years, human health has improved dramatically in the western world and people now generally live a lot longer than ever before. Most of this improvement can be attributed to the decline in infectious diseases. It has been possible to make substantial improvements in health in the past by improving hygiene, sanitation, immunisation and diet, the major factors influencing these diseases.

Today we are confronted by new epidemics of disease, such as cancer and heart disease, which are the two biggest killers in the western world. These too are largely preventable. Epidemiological (population) studies have identified many of the factors that contribute to, or increase the risk of these and other common diseases. These risk factors include smoking, unhealthy diets high in fats and low in fresh vegetables, and lack of exercise. The poorest social groups suffer more from cancer, heart disease, respiratory and gastrointestinal problems, accidents and violence, and overall have a higher mortality compared with that of the rest of the population. There is a growing awareness that societal and/or environmental factors such as poverty and pollution have a tremendous impact on the frequency of occurrence of more and more diseases. For this reason, studies that provide a detailed analysis of ill health enable public health services to set appropriate priorities and respond more effectively to health inequalities in the community.

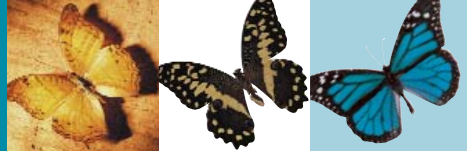
In 1999 the Public Health Group of the Department of Human Services began the Victorian Burden of Disease Study–a comprehensive review of the health status of Victorians in 1996. This publication presents the results of the second study, which quantifies the contribution to the 'burden of disease' of mortality, disability, impairment, illness and injury in 2001 from over 175 diseases, injuries and risk factors.

The most important aspect of this series of reports, compared with other health status reports, is that estimates are expressed in terms of a summary health-outcome measure that combines both mortality (death) and morbidity (ill health causing disability). The inclusion of non-fatal health outcomes that cause disability provides a substantially different picture from that provided by traditional mortality statistics: mental disorders are now the third leading cause of disease burden after cancers and cardiovascular diseases. Disability also contributes to the prominent position of neurological and sense disorders and chronic respiratory diseases, ahead of the burden from injuries, which has predominantly a mortality component. Such findings are already helping the planning for services that can improve the health status of all Victorians.

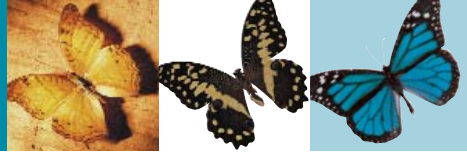
This report, in what is now a series of publications on the Victorian burden of disease, represents the next important milestone in the provision of improved information to health service policy makers, planners and managers. In time, we hope to see a more equitable and efficient system of health service delivery in Victoria.



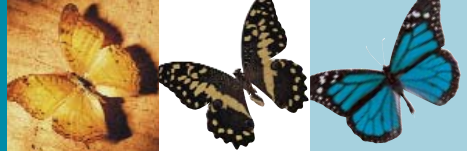
Minister for Health



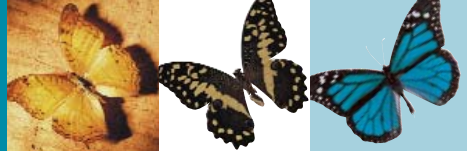
Contents



List of figures



List of tables



Executive Summary

This report on the Burden of Disease Study 2001 provides the second comprehensive assessment of the health status of the Victorian population. It quantifies the contribution to the 'burden of disease' of mortality, disability, impairment, illness and injury in 2001 from over 175 diseases, injuries and risk factors in a single indicator: the disability-adjusted life year (DALY). One DALY can be thought of as one lost year of 'healthy' life and is calculated as a combination of (1) years of life lost (YLL) as a result of premature mortality and (2) equivalent 'healthy' years of life lost as a result of disability (YLD). The burden of disease, therefore, measures the gap between current health status and an ideal situation in which everyone lives into old age free of disease and disability. As such, it indicates the 'unfinished' health agenda, identifying areas in which additional health gains can be made. The study uses the methods developed for the Global Burden of Disease Study, adapted to the Victorian context and drawing extensively on Victorian sources of population health data.

The burden of disease reflects current health status in the context of Victoria's history of attempts to improve population health. The burden of many diseases in Victoria is small, given the success of ongoing prevention and treatment activities. The relatively small burden for most infectious diseases and maternal and early childhood conditions, for example, should not be taken as a licence to disinvest in the public health effort that has successfully contained the disease burden in these areas.

Key Findings–mortality (YLL)

- Cancer is responsible for about 34 per cent overall of the YLL as a result of premature mortality; cardiovascular disease is responsible for 29 per cent, while injuries are responsible for a further 9 per cent.
- Injuries are a greater cause of mortality burden in males (13 per cent) than in females (6 per cent).
- Ischaemic heart disease and stroke are the commonest cardiovascular diseases leading to death.
- The lungs, bowel, prostate and breast are the most common sites of fatal cancers.
- Suicide, followed by road traffic accidents, is the main cause of injury mortality.
- Diabetes is ranked ninth in males and seventh in females among the top leading causes of YLL.
- Conditions listed under five national health priority areas in 2001 (cardiovascular disease, cancer, injuries, diabetes and mental health) account for 16 of the top 20 conditions in terms of YLL for males and females.
- Chronic obstructive pulmonary disease (emphysema and chronic bronchitis, both strongly linked to smoking), nephritis and nephrosis, and dementia are the most important fatal conditions not addressed as a national priority.

Key findings–morbidity (YLD)

- Mental disorders are the leading cause of disability, accounting for 26 per cent of the non-fatal burden in Victoria. The next leading main cause groups are nervous system and sense organ disorders, chronic respiratory diseases and cancer. These are responsible for 18 per cent, 9 per cent and 9 per cent of the disability burden respectively.
- In terms of specific conditions, depression is the leading cause of non-fatal burden in Victoria, causing 8 per cent of the disability burden in males in 2001 and 10 per cent in females. Diabetes and hearing loss are the second and third leading contributors to the non-fatal burden for males. Dementia and diabetes are the second and third leading contributors for females.

- In contrast to the mortality burden, the disability burden is smaller for males than for females. Musculoskeletal disorders are a greater disease burden in females than in males. The male burden is higher for injuries. The proportions of disease burden due to mental disorders, chronic respiratory diseases, diabetes, cancers, neurological and sense disorders, and cardiovascular disease are similar between the sexes.
- In more general terms, females have a greater incidence and prevalence of the more common non-fatal health problems, whereas males have a greater incidence of the major diseases and injuries associated with high case fatality. This means that some of the years of the longer life span females enjoy are lived at the expense of a greater loss of healthy life.
- As well as estimating the burden of non-fatal conditions using the standard DALY incidence-based approach (with 3 per cent discounting), this study also presents prevalence-based YLD. The latter counts each lost year of good health at the age it is lived, rather than discounting it back to the time of incidence and counting it as an incident loss of health at that age. As expected, prevalence-based YLD are lower in childhood and higher at older ages, compared with incidence-based YLD.

Key findings–burden of disease and injury (DALYs)

- The inclusion of non-fatal health outcomes provides a substantially different picture from that provided by traditional mortality statistics: e.g. mental disorders are the third leading cause of burden after cancers and cardiovascular diseases. Disability also contributes to the prominent position of neurological and sense disorders and chronic respiratory diseases ahead of the burden from injuries, which predominantly has a mortality component. The leading main disease groups contributing to the burden of disease are cancer (21 per cent), cardiovascular disease (18 per cent), mental disorders (14 per cent), neurological and sense disorders (12 per cent), chronic respiratory conditions (7 per cent) and injuries (6 per cent).
- The total burden of disease and injury in Victoria in 2001 amounts to just over 650,000 DALYs, or 136 DALYs lost per 1,000 population. Put simply, for every 1,000 Victorians during 2001, the years of healthy life lost represents about 14 per cent of the total life years lived. The male burden (in total DALYs) is about 11 per cent higher than the female burden.
- In terms of specific conditions, ischaemic heart disease and stroke head the list in females, together causing almost 14 per cent of the total disease burden. In males, ischaemic heart disease and diabetes account for almost 15 per cent of the total disease burden. Dementia, depression and breast cancer are the third, fourth and fifth leading causes in females, together accounting for over 16 per cent of the total female burden of disease and injury. Stroke, lung cancer and depression occupy the third, fourth and fifth ranks for males, together accounting for just over 12 per cent of the total male burden.
- Dementia is the eighth largest cause of disease burden in men and the third in women. Even though dementia is equally common in men and women at any given age, the dementia burden is 66 per cent higher in women than in men, given the much larger number of elderly women in the Victorian population, particularly over the age of 85 years.
- Diabetes is the second and sixth leading cause of disease burden in Victorian males and females respectively, accounting for more DALYs lost than attributed to either chronic obstructive pulmonary disease (COPD), lung cancer or bowel cancer. Inclusion of the attributable burden of cardiovascular disease due to diabetes doubles the burden of diabetes from 4 to 8 per cent of total DALYs.
- The seven national health priority areas (cardiovascular disease, cancer, mental health, injury, diabetes, asthma and musculoskeletal disorders) account for almost 70 per cent of the total burden of disease and injury in Victoria, comprising 78 per cent of the YLL and 62 per cent of the YLD.

Key findings–attributable burden of risk factors

- Risk factors, including lifestyle factors (such as tobacco smoking, physical inactivity, alcohol consumption, diet, unsafe sex and intimate partner violence), physiological states (such as obesity, high blood pressure and high cholesterol) and societal conditions (such as occupational exposures and air pollution) are responsible for a sizeable proportion of the total burden of disease in Victoria.
- Tobacco use (8.2 per cent of the total disease burden), increased body mass (8.0 per cent), blood pressure (7.3 per cent) and cholesterol (6.1 per cent) are each responsible for a greater burden than that caused by stroke, which is the second leading cause of disease burden. Physical inactivity (4.1 per cent of the total burden), insufficient intake of fruits and vegetables (3.3 per cent), intimate partner violence (3.2 per cent for females) and the harm caused by alcohol (3.2 per cent) rank in size with the top 10 disease conditions, while illicit drugs (1.5 per cent), occupational hazards (1.5 per cent) and unsafe sex (0.4 per cent) are as large as diseases in the second half of the top 20 causes of burden.
- Tobacco smoking is the risk factor responsible for the greatest burden of disease in Victoria: about 10.0 per cent of the total burden of disease for males and 6.2 per cent for females.
- The net harm associated with alcohol consumption is around 1.5 per cent of the total burden, because the injury and chronic disease burden associated with harmful and hazardous levels of alcohol consumption is offset by the burden of cardiovascular disease prevented by alcohol consumption. The protective effect is relevant only after age 45 years, however, the harmful effects of alcohol are apparent at all ages.
- HIV/AIDS accounts for 28 per cent of the total burden of disease that is attributable to unsafe sex.
- Intimate partner violence accounts 3.2 per cent of the total disease burden for females but 9.0 per cent of the burden in women aged 18–44 years.
- Occupational exposures to toxic chemicals and injury risks are responsible for an estimated total of 489 deaths in Victoria in 2001. The total attributable burden of occupational exposures is 1.5 per cent of total DALYs lost in 2001. Cancers are responsible for 48 per cent of this attributable burden, followed by other chronic diseases (30 per cent) and injuries (22 per cent).

Key findings–comparison of 1996 and 2001 studies

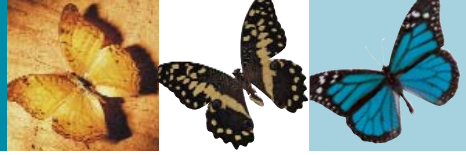
- This report provides an improved estimate of the disease burden and importance of risk factors, because we have used more sophisticated techniques and more recent data, than were available in 1996.
- Between 1996 and 2001, the life expectancy at birth of Victorian men rose by two years from 76.1 to 78.3 years, while for females it improved from 81.8 to 83.4 years.
- Over the same period, the total male YLL rate per 1,000 fell by 16 per cent from 81 to 68 YLL per 1,000, while the improvement for females was smaller at 12 per cent, with 63 falling to 55 YLL per 1,000.
- Improvements in cardiovascular disease and cancer explain over 70 per cent of the total improvement in male YLL rates and nearly 100 per cent for females.
- Approximately 60 per cent of the improvement in cardiovascular disease, for both males and females, is explained by a reduction in the YLL rate for ischaemic heart disease. Stroke contributes the second largest improvement to the total cardiovascular disease YLL rate, at 22 per cent in females and 16 per cent in males.
- Over half of the improvement in the total male cancer YLL rate is explained by lung cancer. The largest contributor to the improvement in the female cancer YLL rate was the change in breast cancer.

- We cannot directly compare the total DALY rate between the two study years, because the method was changed for the YLD estimations of several diseases. However, we can group all diseases studied into three subgroups according to the ease of comparability of estimates in the 1996 and 2001 studies: high comparability (65 per cent of total DALYs in 2001), moderate comparability with some caution (17 per cent of total DALYs in 2001) and poor comparability where comparisons are not recommended (18 per cent of total DALYs in 2001).
- In the subset of highly comparable diseases (65 per cent of total 2001 DALYs),there is a 3 per cent fall in the male DALY rate (from 92 to 89 DALYs per 1,000), while there is a 1 per cent change in females from 79 to 78 DALYs per 1,000.
- Disease groups that cannot be compared between 1996 and 2001 include diabetes, neurological and sense disorders and oral diseases.
- The first and second ranking of cardiovascular disease and cancer in 1996 has been reversed in 2001. Cancer is now the largest contributor to total DALYs (21%) with cardiovascular disease responsible for only 18%.
- The predicted fall (in the 1996 study) in the importance of cardiovascular disease by 2016 has already occurred in both males and females. The ranking of diabetes in females has already risen to 6th, higher than its predicted position of 7th in 2016.
- The relative contribution (slice of the pie) of cardiovascular disease, musculoskeletal disease and injuries to the total DALYs have fallen while the relative contribution of cancer, neurological and sense disorders, diabetes and mental disorders have each slightly increased. The relative contribution of major disease groups to total DALYs have altered since 1996 for three main reasons: due to expansion and ageing of the population, methodology in estimating the morbidity component of the DALY, as well as disease incidence.
- The risk factors contributing most to the total DALYs were tobacco smoking, hypertension, obesity and physical inactivity in 1996. The most important risk factors assessed in 2001 are tobacco smoking, obesity, hypertension, high blood cholesterol and physical inactivity. The relative contribution of the various risk factors have altered due to four main reasons: the relative contribution of major disease groups to total DALYs in 2001 is different, the population is larger and older, risk taking behaviours may be more or less common and the methods of calculating the importance of risk factor contributions have altered considerably.

Key findings–precision of results, data gaps and future plans

- The calculation of the mortality burden (YLL) is straightforward, and the precision of the estimates depends almost entirely on the quality of the data on underlying cause of death.
- The calculation of the disability burden (YLD) requires extensive epidemiological modelling, drawing on a diverse range of data sources, research findings and expert opinion, each with varying levels of uncertainty.
- Overall, about half the burden is contributed by the YLL, where estimates are generally fairly precise. Around 40 per cent of the YLD burden is contributed by a small number of diseases (including ischaemic heart disease, cancers, stroke, diabetes, and affective and anxiety disorders), for which reasonably good Australian or Victorian data are available. This leaves around 30 per cent of the total disease burden with varying levels of uncertainty.

- The extensive epidemiological modelling carried out in this study enabled us to identify many data gaps and deficiencies in Victorian population health data. Incidence or prevalence data for some diseases (for example, cancer and some infectious diseases) are relatively complete, but data for many others are unavailable or have severe limitations. The most important of these diseases, in terms of their contribution to the YLD, are diabetes, musculoskeletal disorders, asthma, hearing loss, COPD and ischaemic heart disease. The data on mental health are now quite 'old' and there is a lack of regular representative measurement surveys. Ideally we should have surveys every 5 years measuring conditions and risk factors where we know there are problems with self-report or there are no other accurate data sources: such as anaemia, diabetes, COPD, hearing and vision loss and risk factors such as blood pressure, body mass and cholesterol. In addition, information on the distribution of severity of disease and case fatality rates is inadequate or lacking for many important conditions.
- There are major inconsistencies between self-reported health data from population surveys and best estimates from epidemiological studies for some important diseases (for example, arthritis, asthma, and upper and lower respiratory conditions). The major limitations of self-reported data on health conditions relate to under-reporting of undiagnosed conditions (for example, many mental health problems and diabetes), over-reporting of some conditions (for example, where symptoms such as joint pain are incorrectly labelled as osteoarthritis, or occasional wheezing as asthma) and lack of information on condition severity (resulting in high prevalence figures due to the inclusion of minor conditions or minor symptoms).
- The paucity of valid risk factor prevalence figures and estimates of relative risk make it difficult to calculate attributable fractions for risk factors. Also, the attribution of disease burden to single risk factors is a simplification of reality. Several risk factors are often present in the same individual, which may increase that person's risk by more or less than the addition of individual risk estimates. We have attempted to account for this problem by performing a rather simplistic joint effects analysis. However, new models, based on surveys and cohort studies that measure multiple risk factors in the same people, are needed to measure the interaction among risk factors and their effects on the calculation of the burden attributable to risk factors.



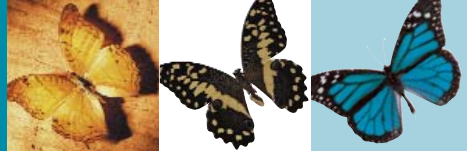
Acknowledgments

The Victorian Burden of Disease Study 2001 was undertaken by the Health Surveillance and Evaluation Section of the Public Health Group in the Victorian Department of Human Services. The project team comprises Dr Theo Vos, Dr Leonard Sunil Piers and Ms Anne Magnus. Dr Vos has been the driving force behind this important body of work – his experience in the use of burden of disease research methods and analytical insights have underpinned important methodological advancements relevant to international work in this area. Dr Piers has been responsible for developing a number of these methods and has taken a lead role in preparing this publication. Ms Magnus has been responsible for updating the mental health models and comparing the 2001 study to the 1996 study.

The 2001 study was run in parallel with a national analysis of the burden of disease for Australians, under the leadership of Professor Alan Lopez from the School of Public Health, University of Queensland. The two project teams worked closely on the development of common methods. Critical feedback from the research group at the University of Queensland, along with that group's willingness to share its work, has considerably enhanced this study.

Dr Michael Ackland and Dr Robert Hall are responsible for the management of the study within the Public Health Group and have been a source of vision and inspiration since its inception. Dr Vijaya Sundararajan made available the linked Victorian Admitted Episode Dataset, which formed the basis of many of the disease models. Mr Adrian Serraglio and Ms Kaye Brown provided us with data and results from the Victorian Population Health Surveys. Ms Naomi Payne, a Victorian public health trainee, and Mr Francois Tsafack contributed to parts of the study. Ms Alison Markwick kindly read early drafts of the manuscript and provided useful feedback. Ms Barbara Scott provided efficient administrative support throughout. The report was edited by Ms. Rachael Dullahide (Editor's Mark) and designed by Ms. Julie Kirkpatrick (d *fa* Design).

Many other people throughout the Australian and international public health community have also provided invaluable advice and information to this study. They include staff from the Victorian Department of Human Services and other state and territory health authorities, the Australian Institute of Health and Welfare and the Australian Government Department of Health and Ageing, as well as health researchers and clinical experts. The goodwill and support of these people has greatly facilitated the progress and success of the adoption of methods for researching the burden of disease in Australia.



1. Introduction

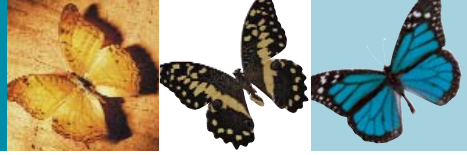
In the past century, human health improved significantly. During this period, half of all the gains in life expectancy of the past several thousand years occurred. Two successive revolutions drove these improvements. The first was a transformation in public health resulting from new knowledge about the links between the environment, hygiene and disease, which led to improvements in the quality of water, sanitation and housing in industrialised countries. The second revolution, resulting from advances in sciences such as chemistry, biochemistry and medicine, was in the prevention, detection and treatment of diseases through the application of vaccines, diagnostics and drugs (Matlin, 2004). As such, the public has ever-growing expectations of health services. The repertoire of health services to respond to these demands is expanding. Governments are thus under pressure to justify their health resource allocation.

In response to this need for comparable information on health outcomes, the Public Health Group in the Department of Human Services undertook the Victorian Burden of Disease Study 1996 (DHS, 1999a, b). The study used the methodology developed by researchers at Harvard University and the World Health Organisation (WHO) for the World Bank's 1993 World Development Report (World Bank, 1993). The measurement unit used to quantify the burden of diseases, injuries and risk factors on human populations–the disability-adjusted life year (DALY)–is grounded on cogent economic and ethical principles and can guide policies towards delivering more cost-effective and equitable health care (Murray & Acharya, 1997).

This report builds on the work done for the 1999 report on the 1996 study and provides burden of disease estimates for 2001. It aims to provide a comprehensive assessment of premature mortality and disability attributable to diseases, injuries and various risk factors in 2001. To achieve this goal, the study has several objectives:

1. to develop internally consistent estimates of mortality for over 100 causes of disease and injury
2. to develop internally consistent estimates of the incidence, duration and severity of the major non-fatal health outcomes associated with the more than 100 causes of disease and injury
3. to calculate the burden of premature mortality and disability in terms of DALYs
4. to estimate the attributable burden of disease due to several well-recognised risk factors.

Details of the methods are presented in chapter 2. An overview of disease and injury models is presented in chapter 3. Chapter 4 presents the burden of premature mortality and morbidity in 2001. The analysis of the burden attributable to tobacco, alcohol, hypertension, obesity, physical inactivity, high blood cholesterol, intimate partner violence and other risk factors follows in chapter 5. The comparisons with the Burden of Disease Study 1996 (DHS, 1999a, b) are set out in chapter 6. Finally, we discuss the results of the 2001 update and draw conclusions in chapter 7. Detailed tables of methods and results are added as an appendix. This whole report, as well as a more detailed description of methods and results, will be available electronically via the Department of Human Services website www.health.vic.gov.au/healthstatus/



2. Methods

The Victorian Burden of Disease Study is largely based on the methods developed for the Global Burden of Disease (GBD) Study (Murray & Lopez, 1996). Its method allows the quantification of all states of ill health as a universal indicator: the disability-adjusted life year (DALY). The DALY is a health gap measure that combines time lost as a result of both premature mortality and non-fatal conditions. It extends the concept of potential years of life lost as a result of premature death (PYLL) to include equivalent years of 'healthy' life lost by virtue of being in states other than good health. DALYs for a disease or health condition are thus calculated as the sum of (1) the years of life lost as a result of premature mortality (YLL) in the population and (2) the equivalent 'healthy' years lost as a result of disability (YLD) for incident cases of the health condition:

DALY = YLL + YLD

The loss of healthy life due to non-fatal health conditions requires estimation of the incidence of the health condition (disease or injury) in the specified time period. For each new case, the number of years of healthy life lost is obtained by multiplying the average duration of the condition (to remission or death) by a severity weight that measures the loss of healthy life using an average health state weight. The DALY has already been described in detail (Murray & Lopez, 1996). Burden of disease studies make use of existing sources of information on demographics and the epidemiology of disease, injury and risk factors.

2.1 Social value choices made for the 2001 Victorian study

The calculation and specification of summary measures of population health involves several explicit social value choices. One key issue is whether to differentially weight healthy years of life lost at different ages and, if so, on what basis. Even if most people consider the period of young adulthood (for example, the early childbearing years) as more valuable than years lived at the beginning or end of life, this view may be objectionable if the basis is the societal value of young adults compared with that of other people. Second, the choice of a discount rate for health benefits, even if technically desirable, may entail morally unacceptable allocations across generations. Are there other widely held values? And on what basis should we decide to incorporate social values into the summary measure, if at all? If such values are to be incorporated, should they be determined at the local or national level for country analyses and/or at the international level for cross-national comparisons (Murray *et al*., 2002a)? The debate on social value choices, as well as their application in summary measures, is documented in a recently published book (Murray *et al*., 2002b).

2.1.1 Choice of standard against which YLL are calculated

We use the highest life expectancy observed for any nation–that is, the 82.5 years life expectancy of women in Japan–as in the GBD study. The male–female 'biological' difference in survival potential was chosen as 2.5 years. The standard expectations are thus based on a model life table–namely, Coale and Demeny West level 26 (Coale & Guo, 1989), which has a life expectancy at birth for females of 82.5 years. Given that there is no male schedule with a life expectancy of 80 years, the standard life expectancy at birth for men of 80 years was based on the female schedule of Coale and Demeny West level 25 (Mathers *et al.*, 2001). The steering committee of the previous Australian burden of disease study insisted on using the 1996 Australian cohort life expectancy (which takes declining mortality trends into account) to define the 'mortality' gap (Mathers, Vos & Stevenson, 1999), even though that would mean a loss of comparability with other studies. For the current study, we decided to use the GBD standard, because there are no compelling reasons to use an Australian life table to define the gap. It would be wrong to use an updated version of the cohort life table to define the gap in the 2001 study, because that would

violate an important principle of summary measures of population health–namely, 'if mortality in a population decreases (or increases), a summary measure should improve (or worsen)'. If a higher standard is set for 2001, the result could be that the YLL in 2001 is greater than the YLL calculated for 1996 against a lower standard despite a drop in mortality rates.

2.1.2 Disability weights

For time to be used as a common currency for non-fatal health states and for the YLL, time must be defined and measured for living in non-fatal health states. To place a value on the time lived in non-fatal health states, we use health state weights to formalise and quantify social preferences for different states of health. Depending on how these weights are derived, they are referred to as disability weights, quality-adjusted life year (QALY) weights, health state valuations, health state preferences or health state utilities. Most such weights are measured as a number on the scale 0–1, where 0 is assigned to a state comparable to death and 1 is assigned to a state of ideal health. This assignment for the QALY is inverted compared with that used for the DALY (where 0 equals perfect health and 1 equals death), because the QALY measures equivalent healthy years lived, whereas the DALY measures years of lost health.

Following the GBD terminology, and consistent with the WHO International Classification of Functioning, Disability and Health (ICF), the term 'disability' is used broadly in burden of disease analyses to refer to departures from good or ideal health in any of the important domains of health. These include mobility, self-care, participation in usual activities, pain and discomfort, anxiety and depression, and cognitive impairment. In some contexts, 'health' is understood to mean 'absence of illness', but in the context of summary measures of population health, health is given a broader meaning. As well as implying the absence of illness, it also means that there are no impairments or functional limitations due to previous illness or injury. Note that disability (that is, a state other than ideal health) may be short term or long term–for example, a day with a common cold is a day with disability.

Although the disability weights used in DALY calculations quantify societal preferences for different health states, the weights do not represent the lived experience of any disability or health state, or imply any societal value for the person in a disability or health state. Rather, they quantify societal preferences for health states in relation to the societal ideal of good health. A weight for paraplegia of 0.57, therefore, does not mean that a person in this health state is 'half dead', that they experience their life as halfway between life and death, or that society values them less as a person compared with 'healthy' people. Rather, such a weight means that society judges, on average, that a year with blindness (weight 0.43) is preferable to a year with paraplegia (weight 0.57), and a year with paraplegia is preferable to a year with unremitting unipolar major depression (weight 0.76). It also means, on average, that society would prefer a person to have a year in good health followed by death, than a year with paraplegia followed by death. Society would also prefer a person to live three years with paraplegia followed by death (three years x 0.57 = 1.7 lost 'healthy' years) than to have one year of good health followed by death (two lost years of good health).

Researchers in the Netherlands have derived weights for 53 diseases of public health importance, including weights for 175 disease stages, sequelae and severity levels (Stouthard *et al.*, 1997). They used methods based on those used in the GBD study, in that a relatively small number of indicator conditions were weighted by panels of medical experts using the person trade-off (PTO) valuation method, from which a much larger range of disease stage weights were interpolated by a deliberative process. This study departs from the GBD method in the choice of indicator conditions, the use of a standardised descriptor of health states (a variant of the EuroQol 5D classification that includes a sixth dimension for cognitive functioning–referred to throughout this report as the EQ-5D+) and the application of a visual analogue scale in addition to the PTO valuation.

The GBD 2000 project adopted a similar approach to health state valuation, using a standard health state description based on eight core domains of health (mobility, self-care, pain and discomfort, cognition, interpersonal activities, vision, sleep and energy) (Murray *et al.*, 2001).

The GBD disability weights cover a wider range of conditions than covered by the Dutch weights, but are generally less specific in terms of the disease and sequelae categories to which they refer. (The exception is the injury category, for which the GBD has a much more comprehensive set of weights for the short- and long-term sequelae of 32 specific injuries.)

However, while the Dutch study covers a more restricted range of conditions than covered by the GBD study, it differentiates more finely between condition stages and severities, thus allowing more detailed disease models in estimating the YLD than is possible with the GBD weights. Moreover, the conditions for which Dutch weights are available are those of most relevance in the Australian context.

No comparable study has yet been undertaken to determine local weights for the range of health states most relevant to Australia. We thus use actual or derived weights from two published sources: the GBD study (Murray & Lopez, 1996) and *Disability weights for diseases in the Netherlands* (Stouthard *et al.*, 1997). The previous Victorian (DHS, 1999a, b) and Australian (Mathers, Vos & Stevenson, 1999) studies applied the Dutch weights, given their greater detail and their focus on the most common disabilities found in low-mortality countries such as Australia. As before, here we resort to the GBD weights for conditions not considered in the Dutch study. Appendix table 1 presents the complete list of weights used.

2.1.3 Discounting

The DALY measures the future stream of healthy years of life lost as a result of each incident case of disease or injury. It is thus an incidence-based measure rather than a prevalence-based measure. The GBD applied a 3 per cent time discount rate to DALYs in the future to estimate the net present value of DALYs. With this discount rate, a year of healthy life lived in 10 years time, for example, is worth 24 per cent less than one lived now. Discounting of future benefits is standard practice in economic analysis. Murray and Acharya's arguments for applying discounting to the DALY in measuring population health (Murray & Acharya, 1997) are as below:

- to be consistent with measurement of health outcomes in cost-effectiveness analyses
- to prevent giving excessive weight to deaths at younger ages. Without age weighting and discounting, a male death at age zero results in 44 per cent more YLL than does a death at age 25 years and 97 per cent more than a death at age 40 years. With discounting at 3 per cent, an infant death results in only 12 per cent and 29 per cent more YLL than a death at age 25 years and 40 years respectively.
- to account for the disease eradication/research paradox. Assuming that investment in research or disease eradication has a non-zero chance of succeeding, then without discounting, all current expenditure should be shifted to such investment because the future stream of benefits is infinite. This is a particular case of the excessive sacrifice argument.

It has been argued that discounting should not be applied to future health gains or losses and that discounting is rarely used by epidemiologists and demographers for summary health measures. Murray and Acharya concluded that the strongest argument for discounting is the disease eradication/research paradox, and that the social discount rate should be smaller than average individual discount rates (Murray & Acharya, 1997). They noted, however, that the choice of a discount rate for health benefits, even if technically desirable, may result in morally unacceptable allocations across generations. Because the discount rate issue is not easily resolved, the GBD study published

discounted and undiscounted estimates of the global burden. A discount rate of 5 per cent per year has been standard in many health economic and other social policy analyses for many years. Environmentalists and renewable energy analysts have argued in recent decades for lower discount rates for social decisions. The World Bank's Disease Control Priorities Project and the Global Burden of Disease project both used a 3 per cent discount rate. As such, we too decided to retain the 3 per cent discount rate.

2.1.4 Age weighting

The GBD Study weighed a year of healthy life lived at a very young age and at older ages, less than a year of healthy life lived at ages in between these extremes. This choice was based on a number of studies that have indicated there is a broad social preference to value a year lived by a young adult more highly than a year lived by a young child or at older ages (Murray & Lopez, 1996). The age weights are the most controversial value choice built into the DALY. some find age weights unacceptable on equity grounds (every year of life is of equal value a priori), others on empirical grounds (that the standard age weights do not well reflect actual social values). Murray and Acharya have argued that the age weights are not in themselves inequitable, because everyone potentially lives through every age, and that they do reflect legitimate societal priorities (Murray & Acharya, 1997). However to be consistent with the 1996 Victorian study (DHS, 1999a, b) and the 1999 Australian study (Mathers, Vos & Stevenson, 1999) we do not use age weights.

2.2 Population

The source for estimates of 2001 Victorian resident population data is the Australian Bureau of Statistics (ABS).

2.3 Deaths

State Offices of the Registrar of Births, Deaths and Marriages compile information on death certificates. The ABS receives this information from each state and provides a unit record file of deaths with diagnosis, date of death, age, sex and place of residence as the most important variables. For the burden of disease estimates, we considered all deaths of Victorians (along with their usual place of residence in Victoria) that occurred anywhere in Australia and were registered in 2001.

Using the 10th revision of the International Classification of Diseases (ICD-10) codes, deaths were classified into a comprehensive list of three major disease groups, 18 categories of disease and injury and 133 specific conditions following the structure of the GBD list of conditions. Full details of the conditions considered in this study are presented in appendix table 1. The deaths assigned to ill-defined and senility codes (ICD-10 codes R50-R99) excluding the code for sudden infant death syndrome (R95) were redistributed proportionally by age and sex to other causes with the exception of injuries (because an injury death is assumed to be unlikely to be classified as ill-defined). Cancers of unspecified sites (D47-D48) were redistributed proportionally by age and sex across all specified sites. As before, for the previous Australian and Victorian studies (DHS, 1999a, b) (Mathers,Vos & Stevenson, 1999), we decided to redistribute the majority of cardiovascular 'garbage codes' to ischaemic heart disease (IHD). Heart failure was attributed to IHD, inflammatory heart disease, non-rheumatic heart disease and hypertensive heart disease in proportions varying by age and sex. Deaths coded as gastric haemorrhage (K92.2) were redistributed equally across peptic ulcer disease and liver cirrhosis as the most likely underlying aetiologies. Ill-defined injury deaths (T14) were redistributed proportionally by age and sex across all unintentional injuries. The few deaths classified as 'query intentional' or 'query unintentional' injury were reassigned, with 90 per cent classified as suicide at ages 15 years and above, and the remaining 10 per cent classified as an unintentional injury.

2.4 Years of life lost

The interpolated life expectancy for each age category and sex was estimated from the observed mean age at death in the age interval and the life expectancy figures at the exact ages defining the age interval. The mean life expectancy in each age interval was then discounted at 3 per cent using the formula:

$$YLL = \frac{(1-e^{-0.03L})}{0.03}$$

where L is the life expectancy from the standard life table. For each age group (0, 1–4, 5–14 …75+) the average remaining life expectancy was determined by the average age at death in that age category calculated from the death record file and a linear interpolation between the model life table life expectancy figures for exact single year ages. Conversion figures were thus calculated for each age group and sex, and then multiplied by the number of observed deaths to derive the YLL by cause, age and sex.

2.5 Years lost as a result of disability

Years lost as a result of disability are the disability component of the DALY. The basic formula for calculating the YLD is:

$$YLD = I \times DW \times L$$

where I is the number of incident cases in the reference period, DW is the disability weight (in the range 0–1) and L is the average duration of disability (measured in years). With discounting at a rate of 3 per cent, the formula becomes:

$$YLD = \frac{I \times DW \times (1-e^{-0.03L})}{0.03}$$

Consistent and meaningful YLD estimates depend on a clear definition of the condition, in terms of case or episode and severity level or disease stage. It is then necessary to ensure the disability weight and the population incidence or prevalence data relate to the same case definition. The most difficult step in estimating the YLD for most diseases is matching existing population data to the disease stage or severity categories for which weights of different severity are available. Errors in this matching can result in a substantial error in the YLD estimate.

2.6 Disease categories

One of the objectives of the GBD study was to develop a method for determining internally consistent estimates of disease burden that avoided overestimation of the contribution of a specific disease or injury through double counting. The approach adopted was to define mutually exclusive categories for more than 100 conditions and 400 disabling sequelae using the International Classification of Diseases. We adopted a similar approach, and the classifications we use can be found in appendix table 1. A consequence of adopting this approach is that arbitrary divisions sometimes result between conditions stemming from the same aetiology.

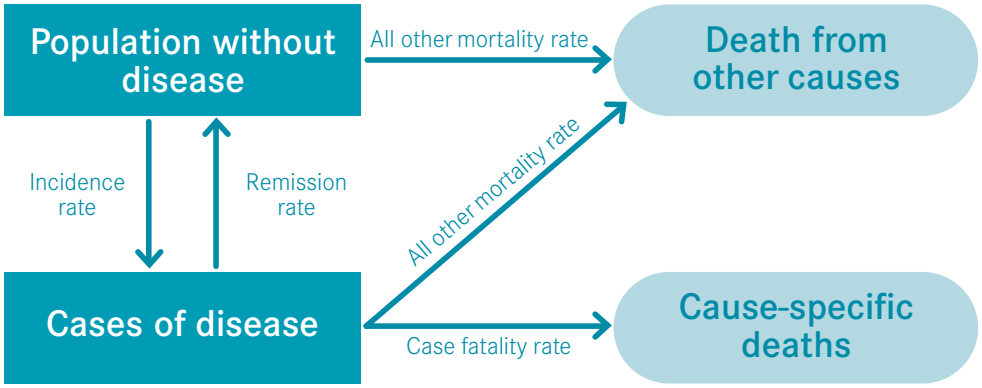
The methods described in this report show how we calculated the YLD for the large number of diseases and injuries and their sequelae for which we have developed models, including all those that make significant contributions to the total morbidity burden. While this list is extensive, it is not exhaustive, and explicit models have not been developed for many conditions.

To balance the total burden picture, therefore, we made the following assumptions regarding the residual morbidity not already captured by these models. For high mortality conditions, we assumed morbidity in the residual category is proportional to its mortality using the average YLD:YLL ratio of the related categories for which we developed models. For low mortality conditions, this method is not appropriate, and we mostly developed approximate models from the available data. For mental disorders, however, we made no attempt to model residual morbidity, because most of the important disabling conditions are covered by our disease models.

2.7 Incidence and duration

The starting point for the YLD calculation is to determine the number of new cases of a particular disease or its sequela in the year of interest. While for some conditions, we derived numbers of incident cases directly from disease registers, routine databases or epidemiological studies, only prevalence data are available for most conditions. For these latter conditions, we relied on a software program called DisMod 2 (Barendregt *et al*., 2003). We used this software to find a set of incidence rates by age that match observed prevalence, given estimates of remission rates and cause-specific mortality risk derived from population data or epidemiological studies. Figure 1 summarises the underlying model used by DisMod 2

Figure 1. DisMod 2 model of incidence, prevalence and duration of disease



While different assumptions regarding remission and case fatality affect the age distribution of incident cases and the YLD estimates, total YLD is relatively insensitive to these assumptions if matched to a fixed prevalence distribution. This is because the YLD estimates are proportional to incidence multiplied by duration, which approximately equals the prevalence of the condition. In other words, for most conditions, the combination of incidence, case fatality and remission rates (and thus derived durations) used in the YLD calculations makes relatively little difference to total YLD across age groups, assuming the same prevalence figures are used as the basis. The effects of discounting are a complication, however, with low-incidence and long-duration conditions being more affected than high-incidence but short-duration conditions.

For sequelae of short duration (for example, the recovery time post surgery, or the disseminated phase in cancer), we based our assumptions about duration on advice from experts or on findings reported in the literature.

2.8 Derived weights

For some health states, there is no equivalent in either the Dutch or GBD set of weights, or the weights that appear in the published material seem implausible. In these instances, we derived weights using a method developed for previous burden of disease studies. This method relies on a multiplicative regression model of the Dutch weights in terms of the six dimensions of the EuroQol EQ-5D+ summarised in table 1. Weights are derived by specifying values that correspond with the health state being described on each of these dimensions–for example, laparotomy for caesarean section or hysterectomy is described by the health state 222211 (that is, some problems with the mobility, self-care, usual activities and pain/discomfort dimensions but no problems with the remaining two dimensions–table 1), which results in a derived weight of 0.349. We derived thirty-three disease stages, severity levels or sequelae weights using this method.

Table 1. The EuroQol 5D+ classification of health status

Dimension	Level	Code
Mobility	No problems walking about	1
	Some problems walking about	2
	Confined to bed	3
Self-care	No problems with washing or dressing self	1
	Some problems with washing or dressing self	2
	Unable to wash or dress self	3
Usual activities	No problems performing usual activities (for example, work, study, housework, family and leisure)	1
	Some problems with performing usual activities	2
	Unable to perform daily activities	3
Pain/discomfort	No pain or discomfort	1
	Moderate pain or discomfort	2
	Extreme pain or discomfort	3
Anxiety/depression	Not anxious or depressed	1
	Moderately anxious or depressed	2
	Extremely anxious or depressed	3
Cognition	No problems in cognitive functioning (for example, memory, concentration and coherence)	1
	Some problems in cognitive functioning	2
	Extreme problems in cognitive functioning	3

2.9 Extrapolated weights

For a few mental disorders, we asked Australian experts to extrapolate new weights by giving a distribution of severity across the seven classes of weights anchored by the 22 'tracer' conditions used in the GBD valuation panels. In the longer term, it may be appropriate to carry out a full Australian disability weight study, unless or until international consensus is reached on a set of standard weights for national studies.

Table 2 summarises the sources of weights for disease sequelae, stages and severity levels used in this study. GBD weights were used for sequelae of different types of injury for each of the 18 external causes of injury. Dutch or derived weights were used for over 75 per cent of the non-injury sequelae. Appendix table1 lists all these weights and their sources.

Table2. Sources of disability weights used in the Victorian Burden of Disease Study 2001

Source of weights	Diseases	Injuries	Total
Dutch weights[a]	375	-	375
Derived weights (EQ-5D+ regression model)	35	-	35
GBD weights[b]	121	32	153
Extrapolated weights	5	-	5
Total	**536**	**32**	**568**

a Stouthard *et al*., 1997
b Murray & Lopez, 1996

2.10 Adjustments for comorbidity

It is not uncommon for particular conditions to occur simultaneously in the same person, either dependently or independently of each other. The GBD and Dutch disability weights, however, were estimated for each condition as it exists independently from other conditions, and no attempt was made to estimate weights for comorbid (or coexisting) conditions. It makes little sense to simply add the independently determined weights for conditions that are found to coexist, because this could lead to the illogical possibility of having a combined weight of more than 1 (that is, more disabling than death), particularly in the case of two heavily weighted conditions. Further, for someone with a severe condition such as Alzheimer's disease or cancer, the additional weight of 0.056 for eczema is unlikely to be appropriate or meaningful.

We address the issue of comorbidity in this study for the following disease and injury categories: common coexisting non-fatal conditions of older age (for example, hearing loss, osteoarthritis, heart conditions and diabetes); the main mental health disorders (although comorbidity between mental and physical disorders was not factored into the analyses); and injuries. We use a multiplicative method for the first of these categories and alternative methods for the other two.

2.10.1 Comorbidity of common non-fatal conditions

In its simplest form, this method works by calculating the difference between a composite weight for two coexisting conditions and the weight for the more severe of the conditions. This is used in place of the weight for that of the milder condition in its independent state, with the weight for the more severe condition remaining unchanged. The composite weight for the two conditions is derived using the formula:

$$\text{Composite weight} = 1 - (1 - DW_1) \times (1 - DW_2)$$

where DW1 and DW2 are the weights for the more severe and milder conditions respectively. The adjusted weight for the milder condition in its comorbid state can thus be derived using the formula:

$$DW_2^{\text{adjusted}} = 1 - (1 - DW_1) \times (1 - DW_2) - DW_1 = DW_2 \times (1 - DW_1)$$

This is equivalent to assuming the weights are multiplicative and has the logical appeal of resulting in a composite weight that is bounded by 1 (dead) and 0 (full health). If, for example, a person has symptomatic grade 2 osteoarthritis of the hip or knee (0.14) and severe vision loss (0.43), the composite weight for both conditions is 0.51 and the adjusted weight for the osteoarthritis is 0.08. This method can also be used for three coexisting conditions, such that the difference between the composite weight and the weight of the most severe condition is sequentially attributed to the second and third conditions in descending order of severity. If, for example, a person has mild anaemia (0.011) in addition to the above conditions, the composite weight for all three conditions is 0.515 and the adjusted weights for the osteoarthritis and anaemia are 0.08 and 0.005 respectively. Table 3 summarises the most prevalent low-severity conditions of older ages where comorbidity adjustments were made using this approach.

When a disability weight (DW) increases (or decreases) with advancing age as a result of a comorbidity correction, and the duration of the condition under consideration is greater than the width of the age groups being used, then incident YLD calculations are adjusted to incorporate the change in DW with increasing age. In other words, if the duration of a condition is 20 years, and 10-year age groups are being used, incident YLDs are computed using the age-specific DW for each 10 year period (instead of using the incident DW for the whole 20-year duration).

Table3. Disability weights used in the Victorian Burden of Disease Study 2001

	Prevalence (%) at age 65+	Disability weight	Comorbidity adjustment (%) to weight[a]	
Category			Age 65-74 yrs	Age 75+
Edentulism	29.7	0.004	94	88
Iron deficiency and mild anaemia	2.6	0.005	94	87
Osteoarthritis grade 2 asymptomatic	6.8	0.01	94	88
Moderate anaemia	0.6	0.011	94	88
Vision loss–mild	4.0	0.020	94	88
Hearing loss–mild 25–34 dB	28.1	0.020	94	87
Urinary incontinence	7.3	0.025	94	88
Hearing loss–mild 35–44 dB	11.4	0.029	93	86
Non-melanoma skin cancer	0.3	0.050	93	86
Asthma[b]	6.5	0.054	93	86
Skin problems	2.8	0.056	94	88
Diabetes mellitus–cases	20.3	0.070	95	89
Hearing loss–moderate	10.7	0.075	94	85
Ischaemic heart disease–angina[b]	1.4	0.080	94	85
Osteoarthritis grade 2 symptomatic	1.4	0.14	93	83
Osteoarthritis grade 3 asymptomatic	5.4	0.14	93	83
Hearing loss–severe	2.4	0.145	93	83
Vision loss–moderate	1.4	0.170	92	82
Chronic obstructive pulmonary disorder[b]	5.3	0.170	95	87
Melanoma[b]	0.0	0.190	94	86
Ischaemic heart disease–heart failure[b]	5.7	0.191	95	87
Peripheral arterial disease[b]	0.5	0.243	c	c
Cancer–medium average weight[b]	2.7	0.25, 0.26	c	c
Cancer–high average weight[b]	3.2	0.42, 0.35	c	c
Osteoarthritis grade 3 symptomatic	2.1	0.42	c	c
Vision loss–severe	0.1	0.430	c	c
Alzheimer's and other dementias[b]	6.1	0.479	c	c
Stroke[b]	5.7	0.520	c	c

a Only factors for older age groups are shown, but adjustment factors were applied across all age groups.

b Average of the different severity weights used for these conditions.

c Comorbidity adjustments were not made for these conditions, although they were taken into account as comorbid conditions in calculating the comorbidity adjustments for lower severity conditions.

2.10.2 Comorbidity of mental disorders

There are high levels of comorbidity among anxiety disorders, affective disorders and substance abuse. Nearly one in three people with an anxiety disorder (12-month prevalence) also has an affective disorder, while one in five also has a substance abuse disorder. More than half of those with an affective disorder also have a disorder from one of the other major mental disorder categories. The extent of comorbidity in mental health becomes even more apparent when we examine individual diagnoses. Of the 17.7 per cent of the National Survey of Mental Health and Wellbeing (ABS, 1998) respondents who have at least one of the 15 diagnoses we derive from the survey, 65 per cent have an additional mental diagnosis. Simply adding the disability for these disorders would overestimate the true disability, because the weights were originally determined without reference to other coexisting disorders.

Comorbid weights were developed from the survey for each of the 15 diagnoses to reflect the frequency and severity of single conditions, as well as the frequency and mix of comorbid conditions. Total composite disability weights adjusted for the presence of comorbidities were calculated using the formula below. Every possible combination of comorbid conditions found in two-week prevalence in the survey was evaluated.

Severity among people identified with a single mental disorder is based on the mental component score (MCS) of the SF-12 using cut-offs for four categories: none (MCS $\geq$ 45), mild (MCS $\geq$ 35 and $<$ 45), moderate (MCS $\geq$ 25 and $<$ 35) and severe (MCS $<$ 25). Because the SF-12 questions ask about health status over the past four weeks, we quantified the average level of disability for single mental disorders in those prevalent with disease in the past four weeks. The severity-adjusted disability weight for each condition is the sum of the products of prevalence and the Dutch disability weight for each severity level. A further comorbidity adjustment follows for each individual in the survey using the formula below:

$$\text{Comorbidity adjusted disability weight} = 1-(1-DW_{\text{panic}}) \times (1-DW_{\text{social phobia}}) \times (1-DW_{\text{agoraphobia}}) \times (1-DW_{\text{GAD}}) \times (1-DW_{\text{OCD}}) \times (1-DW_{\text{PTSD}}) \times (1-DW_{\text{depression}}) \times (1-DW_{\text{dysthymia}}) \times (1-DW_{\text{bipolar disorder}}) \times (1-DW_{\text{borderline personality disorder}}) \times (1-DW_{\text{alcohol dependence}}) \times (1-DW_{\text{alcohol harmful use}}) \times (1-DW_{\text{cannabis harmful use}}) \times (1-DW_{\text{sedatives harmful use}}) \times (1-DW_{\text{stimulants harmful use}})$$

where $DW_{\text{condition}}$ is the severity adjusted DW from those with a single disorder and only those DWs are used for conditions that are present in the individual.

We made no attempt to incorporate a severity hierarchy of the disability weights by condition, in contrast to the comorbidity adjustment for other physical conditions in this and previous studies. Instead, we made a proportional downward adjustment to the disability weight of each coexisting condition, reflecting a uniform approach to all mental disorders. The proportion used to deflate individual disability weights is the total of the adjusted disability weights divided by the total unadjusted disability weight for each possible combination of comorbid conditions.

Table 4 presents the final summary-adjusted comorbid disability weights by age and sex for each mental health condition. The reduced disability weights reflect the pattern of comorbidity in the survey across age groups and conditions.

Table 4. Disability weights for mental disorder by sex and age, using two-week prevalence

	Panic disorder	Social phobia	Agora-phobia	Generalised anxiety disorder	Obsessive compulsive disorder	Post-traumatic stress disorder	Depression	Dysthymia	Bipolar disorder	Borderline personality disorder	Alcohol dependence	Alcohol harm	Cannabis dependence	Sedative dependence	Stimulant dependence
Males, by age group															
One disorder only															
	0.24	**0.18**	**0.11**	**0.19**	**0.17**	**0.20**	**0.41**	**0.14**	**0.25**	**0.24**	**0.06**	**0.11**	**0.11**	**0.18**	**0.11**
Adjusted for comorbidities															
18-24	0.24	0.17	0.10	0.19	0.15	0.19	0.38	0.11	0.25	0.23	0.06	0.10	0.11	0.14	0.08
25-34	0.24	0.16	0.09	0.17	0.15	0.17	0.37	0.12	0.25	0.24	0.06	0.11	0.11	0.14	0.08
35-44	0.24	0.17	0.09	0.18	0.16	0.17	0.36	0.12	0.22	0.20	0.06	0.11	0.10	0.16	0.08
45-54	0.22	0.16	0.10	0.17	0.13	0.16	0.37	0.12	0.18	0.20	0.06	0.11	0.11	0.12	0.08
55-64	0.22	0.15	0.10	0.18	0.17	0.16	0.36	0.13	0.18	0.23	0.06	0.11	0.11	0.12	0.08
65-74	0.22	0.18	0.10	0.19	0.17	0.17	0.37	0.13	0.18	0.23	0.06	0.11	0.11	0.18	0.08
75+	0.22	0.18	0.10	0.19	0.17	0.17	0.37	0.13	0.18	0.21	0.06	0.11	0.11	0.18	0.08
Females, by age group															
One disorder only															
	0.20	**0.19**	**0.13**	**0.21**	**0.17**	**0.13**	**0.31**	**0.16**	**0.25**	**0.34**	**0.04**	**0.11**	**0.11**	**0.18**	**0.11**
Adjusted for comorbidities															
18-24	0.18	0.19	0.12	0.19	0.17	0.12	0.28	0.13	0.24	0.33	0.04	0.11	0.11	0.15	0.11
25-34	0.18	0.18	0.12	0.19	0.16	0.11	0.28	0.14	0.24	0.27	0.03	0.11	0.11	0.15	0.07
35-44	0.19	0.17	0.12	0.19	0.15	0.12	0.28	0.15	0.22	0.26	0.03	0.10	0.11	0.17	0.10
45-54	0.18	0.18	0.11	0.19	0.14	0.11	0.27	0.14	0.22	0.28	0.03	0.11	0.11	0.15	0.10
55-64	0.20	0.18	0.12	0.20	0.14	0.11	0.28	0.14	0.22	0.26	0.03	0.11	0.11	0.18	0.10
65-74	0.20	0.18	0.12	0.20	0.15	0.11	0.30	0.16	0.22	0.26	0.04	0.11	0.11	0.18	0.10
75+	0.20	0.18	0.12	0.21	0.15	0.11	0.30	0.16	0.22	0.26	0.04	0.11	0.11	0.18	0.10

2.10.3 Comorbidity of Injuries

We used an alternative approach for injuries where it is not uncommon for multiple sites of the body to be damaged from a single accident. To overcome this problem, we estimated disability for only the most severe injury associated with each incident, using the hierarchy outlined in table 5. In this case, we assessed the severity of an injury in terms of its overall contribution to the YLD, which is influenced by both the disability weight and the duration of the resulting disability.

Table 5. Hierarchy for coexisting injuries

Rank order of importance	Injury	GBD Weight	GBD Duration
1	Spinal cord lesions	0.725	Life long
2	Brain injuries	0.350	Life long (5% of incident cases)
3	Burns to >60% of the body	0.255	Life long
4	Burns to 20-60% of the body	0.255	Life long
5	Fractured skull	0.350	Life long (15% of incident cases)
6	Fractured femur	0.272	Life long (5% of incident cases)
7	Nerve injuries	0.064	Life long
8	All other injuries		

GBD = Global Burden of Disease Study.

2.11 Data Sources

One of the guiding principles of this study has been to estimate disease burden based on judicious use of the best available information, without undertaking primary data collection activities ourselves. The results presented in this document are based on what we consider to be the most extensive and critical evaluation of health status information in Victoria to date. Appendix table 2 includes a complete list of data sources considered during this study. Many of the problems we encountered in our evaluation of these sources involved completeness, representativeness and the value of self-reported health status. Chapter 3 discusses these issues with reference to specific categories of data.

2.11.1 Disease registers and surveillance or notification systems

The advantage of disease registers and surveillance or notification systems over other health data is that these sources can provide direct measures of incidence for particular diseases in the population. It is necessary to consider the completeness of the information captured by these datasets, however, before using them. Those datasets used in our YLD calculations include the Victorian Cancer Registry (VCR), the National Influenza Surveillance System, the Victorian Infectious Diseases Epidemiology and Surveillance System (IDEAS) (DHS, 2002a), the Victorian Huntington's Chorea Register and the Victorian Birth Defects Register, and the Australian and New Zealand Dialysis and Transplant Register (ANZDATA) (McDonald & Russ, 2002). For some infectious diseases, it is widely accepted that notifications represent only a proportion of incident cases in the community due to 'under-reporting' of these diseases. We made adjustments for this, as outlined in the discussion of our models for infectious diseases. For the other datasets, we assumed procedures aimed at case ascertainment and verification were sufficient for us to derive incidence estimates without major adjustment.

2.11.2 Sources of prevalence data

For a large number of the diseases for which there are no disease registers or notification systems, we used prevalence estimates from population health surveys and we derived incidence using DisMod 2 (figure 1). The surveys we used in our calculations include:

- the 1995 and 2001 National Health Surveys (ABS, 1996a, 2002);
- the 1995 National Nutrition Survey (ABS, 1996b)
- the 1997 National Mental Health and Wellbeing Survey (ABS, 1998, 1999b)
- the Child and Adolescent Component of the National Mental Health and Wellbeing Survey 1997 (Sawyer *et al.*, 2000)
- the Low Prevalence Disorders Study (Jablensky *et al,*. 1999)
- the 1987–88 National Oral Health Survey (Barnard, 1993)
- the Australian and State Child Dental Health Surveys
- the Victorian Population Health Survey (DHS, 2002b, 2003)

For a number of diseases, we considered these to be the most reliable sources on which to base incidence estimates, with the following qualifications. Regardless of method (for example, postal surveys, telephone interviews or face-to-face interviews), the majority of surveys elicit self-reported health status, which may provide less useful information compared with objective measurement. Measurements of obesity based on self-reported height and weight, for example, are underestimates, because people tend to understate their weight and overstate their height. The other issue in using survey data is that the sample sizes for many relatively low-prevalence conditions do not allow for meaningful estimates by age and sex if non-Victorians are excluded. Often, therefore, we made the assumption that national rates apply to Victoria.

2.11.3 Specific epidemiological studies

In some instances, without information from disease registers or health surveys, we relied on information from population-based epidemiological studies. This information typically comes in two forms in the published literature: reports on individual studies and reviews or 'meta-analyses' of a number of comparable studies. In some instances, we had the privilege of being given access to unpublished results by the relevant researchers. While we would have preferred to use only Victorian studies, this was possible for a relatively small number of diseases, and we instead had to rely on Australian or international studies for many conditions.

Regardless of a study's geographic focus, the primary consideration in using this type of information is to determine the representativeness of the results in terms of the Victorian experience at a population level. Often, studies focus on only subsections of the population; in these instances, we had to use the results from a number of studies or make extrapolations to complete the picture. While the volume of literature reviewed is too large for us to provide an exhaustive bibliography, this report cites most of the important studies from which we drew information. Some of the larger Australian studies we considered include the Melbourne Visual Impairment Project (Wensor *et al*., 1998, Wensor, McCarty & Taylor, 1999, Weih *et al*., 2000), the Busselton Study (Woolcock *et al*., 1987) and the Australian Longitudinal Study on Women's Health (Brown *et al*., 1999), the Australian Diabetes, Obesity and Lifestyle Study (Dunstan *et al*., 2002a,b) and Population Oral Health studies (Slade & Spencer, 1994, Spencer *et al*., 1994, Slade, Spencer & Roberts-Thomson, 1996, Davies, Spencer & Slade, 1997, Brennan, Spencer & Slade, 2001, DSRU/AIHW, 2002, Adams *et al.*, 2002, Brennan & Spencer, 2004, Sanders *et al*., 2004).

2.11.4 Health service utilisation data

Health service use databases provide a wealth of information on activity in the health system, but have limited application in burden of disease estimation because they provide inadequate measures of prevalence or incidence at the population level. The primary reason is that people do not access health services for many of the conditions for which we make YLD estimations. For a limited number of conditions, however, it is reasonable to assume that the majority of people seek treatment, particularly given Australia's universal system of access to general practitioner and hospital services, and the fact that Victoria has fewer geographically remote areas than have most other states. The conditions for which these comments are particularly relevant include acute diseases such as stroke or acute myocardial infarction (AMI), and injuries requiring immediate intervention. The sources we relied on include a national study of general practice activity (known as the 'Bettering the Evaluation and Care of Health' (BEACH) study (Britt *et al*., 1999)), the Victorian Admitted Episode Dataset (VAED) and the Victorian Emergency Minimum Dataset (VEMD). Of these, the VAED has the widest application because it records episodes of care in all hospitals across the State.

Because the VAED is widely used in Victorian Government health circles, often for 'health status' reporting purposes, it is worth making a few general comments on our use of this dataset. Throughout this report, we use the term 'hospital data' (unless otherwise specified) as shorthand to mean people who are admitted to a hospital for a particular condition or procedure at least once in 2001. The VAED does not include patient identifiers across hospitals, and previous reports on this dataset have tended to simply present enumerations of episodes of care (or 'separations') without attempting to attribute these records of hospital activity to individuals. This type of information says little about the incidence or prevalence of a condition in the community, or about health status.

To make the dataset more useful, colleagues in the Metropolitan Health and Aged Care Services Division decided to link individual records on common attributes–for example, universal health insurance number, date of birth, postcode of residence (allowing for the fact that it may change over time), sex and hospital level unique patient identifier–using probabilistic matching techniques. This enabled us to focus on people with a specific condition and their movements throughout the hospital system, rather than on separations only, which are influenced by factors such as rates of re-admission and transfers within and between hospitals. Seven years of VAED data linked in this way allowed us to follow up people over time and to use the resulting analyses in some of our epidemiological modelling (for example, the incidence and duration of stomas).

2.12 Burden attributable to twelve major risk factors

For strategies and policies to improve population health and allocation of resources, it is important to know not only the disease and injury burden for specific conditions (such as lung cancer, diarrhoeal diseases or motor vehicle accidents), but also the burden associated with various underlying *risk factors* that cause disease and injuries (such as smoking, unsafe sex and diet). Comparative risk assessment (CRA) is a systematic evaluation of changes in population health that result from altering the distribution of exposure to a risk factor (or a group of risk factors) relative to other risk factors. It is different from intervention analysis, which is the evaluation of the health benefits of a defined intervention, although the two may use similar methods.

The approach used in the Victorian Burden of Disease Study 1996 (DHS, 1999a, b) for estimating the health effects of a risk factor was to calculate the attributable fraction of a disease or injury due to the risk factor as a function of the prevalence of exposure (P) and the relative risk (RR) compared to the non-exposed group. The basic statistic in such an 'exposure-based' assessment is the attributable fraction (AF), defined as the percentage reduction in disease or death that would occur if exposure to the risk factor were reduced to zero. The attributable fraction is calculated as follows:

$$AF = \frac{P(RR-1)}{P(RR-1)+1}$$

This method applies only if risk factors are defined as a categorical variable–that is, exposed yes/no or, at best, three or four different levels of exposure.

In the CRA methods used in this report, the burden of disease due to the observed exposure distribution in a population is compared with the burden from a theoretical minimum distribution, or *counterfactual distribution*, rather than a single reference level such as the non-exposed population. The attributable fraction (AF) of a disease due to exposure to the risk factor is then defined by the following equation:

$$AF = \frac{\sum_{i=1}^{n} P_i RR_i - \sum_{i=1}^{n} P'_i RR_i}{\sum_{i=1}^{n} P_i RR_i}$$

where AF is the attributable fraction of disease burden, n the number of exposure categories or levels, P_i is the fraction of population in exposure category i, RR_i is the relative risk for exposure category i, and P'_i is the fraction of population in exposure category i in the counterfactual distribution.

Once the *fraction* of a disease (or injury) that is attributed to a risk factor (AF) has been established, the *attributable burden* (AB) is simply the multiplication of the total DALY estimates for the disease and the attributable fraction. For most diseases, the same attributable fraction was applied to fatal (YLL) and non-fatal (YLD) burden estimates. Where we estimated the risk of death differently from the risk of incident disease, this is clearly documented.

Analysis using counterfactual exposure distribution requires that the current distributions of exposure to risk factors be compared with some alternative distribution. Many different counterfactuals are potentially of interest, including four types described by Murray and Lopez: theoretical, plausible, feasible and cost-effective minima (Murray & Lopez, 1999). We used the theoretical minimum risk distribution in analyses for this report. This is the distribution of exposure that would yield the lowest population risk (for example, zero tobacco use). This risk distribution is more complicated for risk factors for which zero is not possible (such as cholesterol), in which case a distribution or level has to be estimated that has lowest overall risk using empirical evidence (Ezzati *et al*., 2003).

The new CRA methods are particularly relevant to risk factors for which the theoretical minimum is non-zero, such as body weight, blood pressure and cholesterol. In the previous report, these risk factors had to be categorised into hypertension and 'normal' blood pressure/cholesterol or obese, overweight and normal weight. This led to considerable underestimation of the true risk of disease increases over a larger part of the distribution. Even if the elevation of risk at modest exposure levels is small, the large proportion of the population with blood pressure or cholesterol, for example, below the traditional cut-off points for hypertension and hypercholesterolaemia may represent a substantial proportion of total population risk. In the words of Rose, 'a large number of people at a small risk may give rise to more cases of disease than the small number who are at a high risk' (Rose, 1992).

Diseases can also act as a risk factor for other conditions. In our efforts to present the burden of disease for mutually exclusive disease categories, we had to make decisions on how to classify closely linked conditions, largely following International Classification of Diseases rules. We present more 'inclusive' calculations of the burden due to intellectual disability, diabetes and renal failure. Intellectual disability broadly defined includes attributable fractions for Down syndrome, central nervous system (CNS) defects, birth trauma, low birth weight, infection, injury, brain tumours, chromosomal causes, epilepsy, autism and cerebral palsy. Diabetes, broadly defined, includes attributable fractions of IHD and stroke. Renal failure can be attributed to diabetes, some cancers, congenital conditions and injury.

2.12.1 Tobacco

Given the long lag time between exposure to tobacco smoke and the occurrence of cancers and COPD, the attributable burden cannot be estimated from the current prevalence of smoking. Even with good historical information on smoking prevalence, it is still not straightforward to determine the current amount of ill health that is due to smoking because the lag time between the relevant exposure and disease is variable. We thus use the method of Peto and Lopez, who proposed an artificial compound prevalence measure of the relevant past exposure to tobacco (Peto, *et al.*, 1992). This 'smoking impact ratio' is derived from a comparison of lung cancer mortality rates in the population of interest and lung cancer mortality rates among non-smokers and smokers observed in a large long-term follow-up study in the United States.

Our initial calculations of attributable mortality burden included only those diseases for which English and Holman report strong evidence of an association (English *et al.*, 1995). For this report, we added other conditions for which reasonable evidence of an association with tobacco exists (Ridolfo & Stevenson, 2001): cancer of the stomach, endometrium cancer, peripheral vascular disease, pneumonia, inflammatory bowel disease, injuries from fires and Parkinson's disease. (Tobacco has a small protective effect against Parkinson's disease and endometrium cancer). We omitted peptic ulcer disease, given evidence of its largely infectious aetiology. We also added the burden attributable to smoking from macular degeneration (Mitchell, Chapman & Smith, 1999).

In addition, we calculated the burden from passive smoking using attributable fractions for sudden infant death syndrome, asthma and pneumonia in children (NHMRC, 1997) and those noted for otitis media (Stenstrom, Bernard & Ben-Simhon, 1993). Compared with cancers and COPD, the mean time between exposure to tobacco and all other adverse health outcomes is considerably shorter. We thus used 2001 Victorian Population Health Survey smoking prevalence figures to estimate the attributable fractions for these diseases (DHS, 2002b).

2.12.2 Alcohol

There are a number of recent data sources on the prevalence of alcohol consumption in the Australian population, including the 1997 National Mental Health and Wellbeing Survey (ABS, 1998), the National Drug Strategy Household Survey (AIHW, 1999) and the 2001 National Health Survey (ABS, 2002). Of these, only the National Health Survey collected information on the type of alcoholic drinks consumed as well as the number. For this reason, we used the National Health Survey data to estimate the prevalence of alcohol consumption.

We categorised the prevalence of alcohol consumption into the four levels (described in table 6) used in English and colleagues' analysis of the risks of alcohol consumption (English *et al.*, 1995), and with the National Health and Medical Research Council's recommendations on alcohol consumption (NHMRC, 1992). The prevalence of each level of alcohol intake was estimated by age group and sex, from the average weekly consumption of alcohol after conversion to standard drinks per day.

Table 6 Classification and prevalence of alcohol intake levels used in this report

	Average number of standard drinks (= 10 g alcohol) per day		Adult (>18 years) prevalence (%) in 2001	
Alcohol intake	**Male**	**Female**	**Male**	**Female**
Abstinence	0-0.25	0-0.25	28.5	47.6
Low	0.26-4.00	0.26-2.00	58.0	43.6
Hazardous	4.01-6.00	2.01-4.00	7.0	6.8
Harmful	>6	>4	6.4	1.9

Source: (English *et al.*, 1995, ABS, 2002)

We used relative risks and population attributable fractions estimated for 20 conditions (cancers of the mouth, pharynx, oesophagus, liver and breast, along with hypertension, ischaemic heart disease, ischaemic stroke, haemorrhagic stroke, cirrhosis, cholelithiasis, pancreatitis, suicides, road traffic accidents, falls, fires, drowning, violence and occupational diseases/injuries) (Ridolfo & Stevenson, 2001) for which there is evidence of causation by alcohol consumption, as before (DHS, 1999a).

2.12.3 Illicit drugs

In addition to being a direct cause of death, illicit drugs are also risk factors for conditions such as HIV/AIDS, hepatitis, low birth weight, inflammatory heart disease, poisoning, suicide and self-inflicted injuries. We used the attributable fractions for illicit drugs developed by English and colleagues, as before (DHS, 1999a).

2.12.4 Obesity and overweight

We derived data on body weight and height in the Australian population from the AusDiab Study (Dunstan *et al*., 2002a). Table 7 presents our estimates of relative risk, which we obtained from the 'Overweight and obesity' chapter in *Comparative quantification of health risks* (James *et al*., 2004). We used the theoretical minimum distribution of body mass index (mean = 21; standard deviation = 1 kg/m^2) as the counterfactual in our analysis.

Table 7 The relative risks per unit increase in body mass index by age and specific conditions

Condition	Age group (years)				
	30-44	45-59	60-69	70-79	80+
Ischaemic heart disease	1.13	1.07	1.05	1.03	1.03
Diabetes mellitus	1.36	1.24	1.18	1.27	1.27
Stroke deaths	1.01	1.00	1.02	1.03	1.00
Stroke	1.06	1.08	1.06	1.04	1.01
Hypertensive heart disease	1.09	1.16	1.16	1.12	1.06
Osteoarthritis	1.04	1.04	1.04	1.04	1.04
Breast cancer	1.09	1.16	1.16	1.12	1.06
Bowel cancer	1.03	1.03	1.03	1.03	1.03
Endometrial cancer	1.10	1.10	1.10	1.10	1.10

2.12.5 High blood pressure

We used the prevalence of hypertension from the AusDiab study (Dunstan *et al*., 2002a). Relative risks come from the chapter 'High blood pressure' in *Comparative quantification of health risks* (Lawes *et a*l., 2004a). We used the theoretical minimum distribution of blood pressure (systolic blood pressure: mean = 115, standard deviation = 6 mmHg) as the counterfactual in our analysis.

2.12.6 High blood cholesterol

The survey data on the prevalence of high blood cholesterol comes from the AusDiab Study (Dunstan *et al*., 2002a). Relative risks come from the chapter 'High cholesterol' in *Comparative quantification of health risks* (Lawes *et a*l., 2004b). We used the theoretical minimum distribution of serum cholesterol mean = 3.8, standard deviation = 0.5 mmol/L) as the counterfactual in our analysis.

2.12.7 Insufficient intake of fruit and vegetables

We used the relative risks from the chapter 'Low fruit and vegetable consumption' in *Comparative quantification of health risks* (Locke *et al*., 2004) (table 8), together with prevalence estimates of inadequate fruit and vegetable consumption based on the 2002 Victorian Population Health Survey (DHS, 2003) and the theoretical minimum risk distribution of fruit and vegetable consumption mean = 600, standard deviation = 50g/day) as the counterfactual, to derive attributable fractions for these conditions.

Table 8 Relative risks associated with every 80 gram decrease in fruit and vegetable consumption

Condition	Age group (years)								
	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Ischaemic heart disease	1	1	1.111	1.111	1.111	1.111	1.111	1.093	1.057
Stroke	1	1	1.064	1.064	1.064	1.064	1.064	1.058	1.035
Lung cancer	1	1	1.042	1.042	1.042	1.042	1.042	1.036	1.022
Gastric cancer	1	1	1.064	1.064	1.064	1.064	1.064	1.058	1.035
Bowel cancer	1	1	1.010	1.010	1.010	1.010	1.010	1.010	1.002
Oesophageal cancer	1	1	1.064	1.064	1.064	1.064	1.064	1.058	1.035

2.12.8 Physical inactivity

Bull and colleagues reported relative risks for coronary heart disease, stroke, adult-onset diabetes, hypertension, bowel cancer, breast cancer, depression and falls (Bull *et al*., 2004). We used these relative risks, together with prevalence data on levels of physical activity among Victorians (DHS, 2002b), to estimate the attributable burden of physical inactivity. In addition, muscular weakness has been estimated as a contributing cause in as much as 80 per cent of low back pain (DASETT, 1988). Without firm epidemiological evidence, we attributed 50 per cent of the burden of chronic back pain to physical inactivity.

2.12.9 Unsafe sex

We attributed all sexually transmitted diseases to unsafe sex, as well as 77 per cent of the male burden (versus 9 per cent transmitted by other routes) and 6 per cent of the female burden for HIV/AIDS (versus 8 per cent transmitted by other routes), and 24 per cent of the hepatitis B burden that is attributed to sexual transmission. We derived this data from the 2001 *Surveillance of notifiable infectious diseases in Victoria report* (DHS, 2002a). We used the estimate by Munoz and colleagues that 90 per cent of cervix cancer is attributable to sexual transmission of the human papilloma virus (Munoz *et al*., 2003).

2.12.10 Occupational exposures and hazards

The burden of disease and injury attributable to occupational exposures and hazards in Victoria is based on three principal sources, from which population attributable fractions for relevant conditions are estimated as in the Burden of Disease Study 1996 (DHS, 1999a).

The proportions of injury deaths for each age–sex–external cause group attributable to occupational exposures were derived from a recent Australian study of work-related fatalities (NOHSC, 1998). The data for this study were obtained primarily from coroner's files. The study included all people who died as a result of work-related trauma in Australia in the four-year period 1989 to 1992.

It includes people who were injured while working, where the death would not have occurred in the absence of the occupational factors, and people who were not working but killed directly as a result of someone else's work activity. It excludes persons who committed suicide and persons who died from diseases, even if there appeared to be some connection to work.

Without more reliable information, we derived the attributable fractions for non-fatal injuries from an analysis of the VAED. For each age–sex–external cause group, the attributable fraction for occupational injuries was estimated as the ratio of (1) hospital episodes where 'workplace' was specified as the place where the injury occurred to (2) the total hospital episodes where a place of occurrence was specified.

For each cancer category in the Victorian Burden of Disease Study, we derived attributable fractions for exposure to hazards from a study carried out for the National Institute of Occupational Health and Safety (Kerr *et al*., 1996). This study also provided attributable fractions for a number of other chronic diseases, including neurological disorders, cardiovascular disease, chronic respiratory diseases and renal disease. We derived approximate attributable fractions for osteoarthritis and back problems separately from the research literature.

2.12.11 Intimate partner violence

The national Women's Safety Survey (ABS, 1996c) constitutes the most recent comprehensive measurement of the prevalence of intimate partner violence in Australia. We use two categories of exposure to intimate partner violence: physical or sexual violence by a partner in the past 12 months and physical or sexual violence by a partner more than 12 months ago.

We based most of our estimates of the risk of adverse health outcomes due to intimate partner violence on our analyses of the Australian Longitudinal Study on Women's Health (ALSWH) (Brown *et al*., 1999). Three representative cohorts of Australian women aged 18–23, 45–50 and 70–75 years from the first survey in 1996 are being resurveyed at three-year intervals. Data for the first two surveys, in the young and middle-aged cohort, were provided by the study custodians for analysis. In the young cohort, we were able to define exposure to intimate partner violence by combining separate questions on 'being pushed, grabbed, shoved, kicked, or hit' or 'being forced to take part in unwanted sexual activity' and 'ever having been in a violent relationship with a partner/spouse'. For the middle-aged cohort, the latter question was not asked, so we could not distinguish intimate partner violence from violence perpetrated by others.

The self-reported health outcomes in the ALSWH include psychological disorders (such as depression, postnatal depression, anxiety disorders, suicidal thoughts and actions), reproductive health conditions, sexually transmitted diseases, eating disorders and harmful health behaviours, including smoking, drinking and illicit drug use. We used multinomial logistic regression to compute the relative risk ratio (RRR) of reporting such health outcomes, comparing women exposed to previous or current intimate partner violence with those reporting no such violence. All statistical analyses were systematically controlled for socioeconomic variables (level of education, employment status, occupation, marital status, language spoken, indigenous status, place of residence), as well as smoking and drinking status.

We chose the combined response to the questions on 'vaginal discharge' or 'herpes' as a proxy for all sexually transmitted diseases (STDs); the question on 'abnormal PAP smear' as a proxy for cancer of the cervix; the question on 'self harm/suicidal action' as a proxy for suicide; and the combined response to questions 'eating unusual amounts in last month' and 'lost control over eating' as a proxy for eating disorders. We found no significant association between violence and premature birth, so we decided not to include low birth weight in our list of health outcomes affected by violence.

Examining the coronial database, the Australian Institute of Criminology found that 57.6 per cent of femicide was perpetrated by a partner, and we applied this proportion to the total number of femicides recorded in Victoria in 2001 (Mouzos, 1999). For physical injuries, we took the average (95 per cent confidence interval (CI)) of the relative risks reported for having sustained bruises (2.86; 1.20–6.97 CI), lacerations (2.03; 0.92–4.55 CI) and fractures (2.62; 0.98–7.25 CI) in the previous five years reported from a Brisbane emergency department study (Roberts *et al*., 1996).

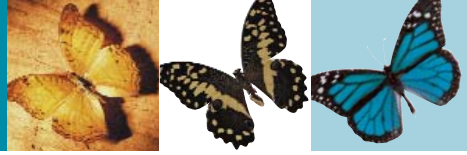
2.12.12 Air pollution

Air pollution created by humans is a complex mixture with many toxic components. We chose to index this mixture in terms of particulate matter (PM), which is a component that has been linked consistently with serious health effects and, importantly, for which levels can be estimated worldwide. Exposure to particulate matter has been associated with a wide range of effects on health, but effects on mortality are arguably the most important and also most amenable to assessment. Our estimates, therefore, consider only mortality. To allow the most appropriate epidemiological studies to be used for estimating the burden of disease, we converted the monthly mean measurement for PM_{10} to estimates of fine particles (particulate matter with an aerodynamic diameter of less than 2.5 millimetres, $PM_{2.5}$) using a 1:2 ratio of $PM_{2.5}$ to PM_{10} (Cohen *et al*., 2004).

Our estimates of the burden of disease were based on the contributions of two health outcomes: mortality from cardiopulmonary disease in adults and children, and mortality from lung cancer. Numbers of attributable deaths and the YLL for adults and children (aged 0–4 years) were estimated using risk coefficients from a large cohort study of adults in the United States (Pope *et al*., 2002) and from a meta-analytical summary of five time-series studies of mortality in children respectively. Estimates were calculated assuming that the risk of death increases over a threshold monthly average concentration of $PM_{2.5}$ of 7.5 mg/m^3.

2.12.13 Joint effects correction

A number of these risk factors commonly occur together and may interact to produce higher or lower levels of risk. While we tried as much as possible to use studies that examined each risk factor independently of other risk factors, we are unlikely to have fully captured the complexity of the interaction among risk factors. Caution is thus warranted in the interpretation of these results. One cannot simply add up the presented attributable fractions and state that almost half of ill health in Victoria is caused by these risk factors. Some overlap is inevitable–for example, overlap among the dietary risk factors, physical inactivity, high blood pressure and obesity. Moreover, some of these risk factors share the same causal pathway. Physical inactivity can lead to obesity, which causes raised blood pressure or high blood cholesterol. Further, one cannot expect interventions that address multiple risk factors or behaviours to remove the sum of the attributable burden for each of the risk factors. We, therefore, performed a 'joint effects' analysis whereby we reduced the relative risk for certain conditions (Ezzati *et al*., 2003), to account for the overlap between risk factors. This method constrains the total disease burden for conditions such as ischaemic heart disease (IHD) and stroke, accounted for by various risk factors to less than the total of the observed burden. The first assumption is that half of the excess risk (i.e. relative risk-1) due to inadequate fruit and vegetable consumption, physical inactivity and obesity, is due to the fact that these risk factors share a causal pathway with each other and other risk factors. Secondly, 10 and 30 per cent of the excess risk due to blood pressure and cholesterol for the development of IHD and stroke respectively is shared between these two risk factors (Ezzati *et al*., 2003) (webtable 2). Lastly, we used a multiplicative model to calculate population attributable fractions (PAFs) corrected for the joint effects of all these selected risk factors and smoking to constrain the attributable burden to less than 100 per cent of the observed burden of stroke and IHD.



3. Overview Of Disease And Injury Models

This section provides a brief overview of the methods of calculating the equivalent 'healthy' years of life lost as a result of disability (YLD) for each of the major disease and injury groups covered in this study. For further explanation, we encourage readers to look at the spreadsheets for each condition and the morbidity report of the Victorian Burden of Disease Study 1996 (DHS, 1999a). Due to the paucity of even basic epidemiological information on some of the conditions within the large number of categories analysed, there is scope for refinement of the models we present, and we anticipate that this will occur over time through input from relevant disease experts. Notwithstanding this caveat, the methods described below make what we consider to be the most extensive and critical use of health information in Victoria to date. We anticipate that the data gaps and deficiencies identified by these analyses will contribute to setting priorities for improving health information in this state.

3.1 Infectious diseases

Information on notifiable infectious diseases in Victoria is captured by the Infectious Diseases Epidemiology And Surveillance (IDEAS) system held by the Department of Human Services, Victoria (DHS, 2002a). We used this database as the starting point for determining incident cases of tuberculosis, sexually transmitted diseases (STDs) (that is, syphilis, chlamydia and gonorrhoea, but not HIV/AIDS), the vaccine-preventable cluster of diseases (that is, diphtheria, whooping cough, tetanus, polio, measles, rubella and *Haemophilus influenzae* type b), meningitis, arbovirus infection and hepatitis. Other sources of data included hospital admissions and the 1995 and 2001 National Health Surveys (ABS, 1996a, 2002).

3.1.1 Tuberculosis

The department's Communicable Diseases Section captures active new or relapsed cases of tuberculosis but excludes inactive cases identified through screening. We assumed these are a reasonable approximation of all active cases in the state. We used the same assumptions for incidence, duration and disability weight as used in the 1996 study (DHS, 1999a).

3.1.2 Vaccine preventable cluster

Incidence estimates for diphtheria, whooping cough, tetanus, polio, measles, rubella and *Haemophilus influenzae* type b are also based on notifications data. We adjusted measles notifications down by 70 per cent to account for the majority of notified cases of measles proving to be wrongly diagnosed after laboratory confirmation tests, as in the 1996 study, and we used the same assumptions for duration and disability weight as used previously (DHS, 1999a).

3.1.3 Arbovirus infection

The YLD calculations for arbovirus infection are based on notifications to the Notifiable Infectious Diseases Surveillance System (NIDSS) of Ross River virus (RRV) and Barmah Forest virus (BFV). Although the relationship between actual incidence of RRV and BFV infections and rates of diagnosis, testing and notification is unclear, it is generally accepted that there is significant under-reporting of infection in endemic areas. Following advice from infectious disease experts at the Australian Institute of Health and Welfare, we adjusted notifications upwards by a factor of 2 to account for this under-reporting. We used the same disability weight as used in the 1996 study (DHS, 1999a).

3.1.4 Sexually transmitted diseases (excluding HIV/AIDS)

Incidence figures for syphilis, chlamydia and gonorrhoea were also taken directly from notifications data. We used figures for syphilis and gonorrhoea without adjustment, while we adjusted those for chlamydia upwards to account for under-reporting due to asymptomatic infections and the reluctance of some patients to consult medical practitioners about STDs. We based incidence estimates of pelvic inflammatory disease (PID, which is a complication of both chlamydia and gonorrhoea in women), on hospital admissions, which we adjusted upwards following advice from local clinicians that one quarter of cases do not present to hospital. Common sequelae of both chlamydia- and gonorrhoea-related PID include ectopic pregnancy, chronic pelvic pain, infertility and tubo-ovarian abscess.

3.1.5 HIV/AIDS

We derived incident estimates for HIV/AIDS from the NIDSS for 2001. Notifications in a given year include all new diagnoses for that year, some of which refer to infections that occurred in previous years of notifications. About one third of notifications are flagged as being new infections. On expert advice, we doubled this number to approximate the true new infections among notified cases. We used the same modelling assumptions as used in the 1996 study (DHS, 1999a).

3.1.6 Diarrhoeal diseases

Diarrhoeal diseases include a number of notifiable diseases (that is, cholera, typhoid, shigellosis, campylobacteriosis, salmonellosis and listeriosis) as well as non-notifiable diseases (that is, cryptosporidiosis). Given that notifications are generally considered a gross underestimate of the incidence for notifiable diarrhoeal diseases, and that there is often even less reliable information on the incidence of non-notifiable diarrhoeal diseases, we made no attempt to present YLD estimates by specific causes of diarrhoea from these sources. Instead, we used annualised self-reported incidence of diarrhoea from the 1995 National Health Survey to estimate the number of uncomplicated cases (ABS, 1996a). An average duration of three days was assumed. We used hospital data to estimate the incidence of complications and assumed one week of severe disability and a further week with disability equivalent to that of uncomplicated cases.

3.1.7 Meningitis and Septicaemia

Incident cases of meningitis and septicaemia were taken directly from hospital data for 2001. We attributed complications associated with septicaemia (that is, deafness, seizure disorder, motor deficit and mental retardation) under other disease categories and, without a weight for this condition in its uncomplicated state, used the Dutch weight for meningitis (Stouthard *et al*., 1997). An average duration of one month was assumed. We grouped all meningococcal infections under meningitis even if septicaemia was indicated.

Based on a seven-year follow-up study of meningitis in Melbourne children (Grimwood *et al*., 1995), we made minor modifications to the Dutch study's assumptions about the proportions of meningitis cases progressing to sequelae and their weights. Nine of 109 children showed the following complication rates in the seven years following meningitis (Grimwood *et al*., 1995) (additional information supplied by the researchers): one had an IQ less than 70, two had an IQ less than 70 plus spasticity (plus blindness in one child); one had an IQ less than 70 plus epilepsy; three had severe/profound deafness; one had epilepsy; and one had a ventriculoperitoneal (VP) shunt. The high disability weight for mental retardation and motor problems (0.76) is considered to cover the additional disability of blindness. We have no disability weight for a VP shunt and assumed it is

similar to that of a child with motor impairment. Another 18 per cent of children had minor problems: marginal IQ of 70–80 in 5 per cent; mild/moderate hearing loss in 3 per cent; inability to read in 8 per cent; and behavioural problems in 9 per cent. (Comparisons were made with control children, so the researchers were able to present the prevalence of such problems over and above what would be expected, and those are the figures presented here). Dutch disability weights are available for the first two of these (0.09 and 0.11 respectively) and for mild behavioural problems (0.02) and moderate to severe behavioural problems (0.15). We gave 18 per cent of children a disability weight of 0.10 to capture the mix of these problems.

3.1.8 Hepatitis

Incidence estimates for uncomplicated **hepatitis A** are based on the number of notifications in 2001 with an upward adjustment by a factor of 5 to account for under-reporting (Amin, Heath & Morrell, 1999). We used Global Burden of Disease (GBD) Study weights for an average duration of three weeks (Amin, Heath & Morrell, 1999). We took complication rates directly from hospital admissions, assuming an average duration of four and six weeks for children and adults respectively (Melnick, 1995), with half this time at a derived weight of 0.747 and half at the same weight as used for uncomplicated cases. For prolonged and relapsing hepatitis A, we assumed 10 per cent of cases experience prolonged depression or fatigue for six months, with a provisional weight equivalent to the Dutch weight for mild depression.

YLD estimates for **hepatitis B** are based on notification data and estimations of perinatally acquired infections and casual transmission in early childhood. Disability occurs during the acute infection if symptomatic. Periodic symptomatic episodes occur in a small proportion of cases, and also during the long term sequelae of cirrhosis and liver cancer, resulting from the carrier state. We based the number of symptomatic acute infections on notifications data from 2000 with an upward adjustment by a factor of 2 to account for under-reporting. The number of estimated incident cases becoming chronic carriers we derived from age-specific probabilities (Kaldor *et al*., 1996).

Notification data do not capture the proportion of infants infected in the perinatal period by hepatitis B surface antigen positive mothers, so we derived the number of incident infections from birth data and the probabilities of transmission for specified ethnic and other 'at risk' groups reported by Kaldor and colleagues (Kaldor *et al*., 1996). We assumed a similar number of infections by casual contact in childhood (S. Locarnini, personal communication, 1999) and that the probability of symptomatic infection in both groups is 5 per cent (Kaldor *et al*., 1996). Current vaccination efforts prevent an estimated 60 per cent of children at risk from becoming infected, so we reduced the number of carriers from perinatal and childhood transmission derived using these methods. The average duration for an acute episode was assumed to be four weeks (Lee, 1997), with 15 per cent of chronic cases having a symptomatic bout for two weeks each year (W. Sievert, personal communication, 1999). We adopted the Dutch disability weights for acute hepatitis infection and chronic hepatitis B infection with active viral replication (0.21 and 0.36).

Due to the chronic, often asymptomatic, nature of **hepatitis C** infection, notifications are more indicative of rates of testing than of incidence of infection. Our estimates for this condition, therefore, are based on the work of the Hepatitis C Virus Projections Working Group (ANCAHRD, 1998, Law *et al*., 2003). The working group has modelled estimates of incidence for Australia based on published Australian hepatitis C virus prevalence studies, as well as extrapolations using the Delphi technique to determine numbers of injecting drug users (IDU) and rates of new and stopping IDUs each year. Using gross Australian Bureau of Statistics population figures, we

assumed approximately one quarter of estimated incident cases are Victorian residents, of whom 85 per cent go on to develop chronic infection with an age–sex distribution following that of notified cases. We assumed an average duration of four weeks for one third of the acute symptomatic cases (Hoofnagle, 1997) at a weight equivalent to the Dutch weight for acute hepatitis B (0.21), with 1 per cent of chronic cases having a two-week symptomatic period each year, on average, at a weight equivalent to the Dutch weight for chronic hepatitis B with viral replication (0.36). Based on advice from clinicians, we did not use the Dutch weight for hepatitis without viral replication, because these cases are asymptomatic by definition.

Following the work of the Hepatitis C Virus Projections Working Group, we assumed conversion rates for hepatitis B of 2 per cent, 8 per cent, 14 per cent and 20 per cent at 10, 20, 30 and 40 years respectively, with an additional 6 per cent for each extra 10-year period. For hepatitis C, we are advised that the working group's estimates of progression are based on the more virulent infection resulting from blood transfusions, and progression is slower in IDU-related hepatitis C infection, at around 7 per cent after 25 years (N. Crofts, personal communication, 1999). We thus assumed conversion rates of 3 per cent and 7 per cent at 15 and 25 years respectively, with an additional 4 per cent for each extra 10-year period.

We estimated 25 per cent of the hepatitis C-related cirrhosis prevalent in Australia in 2001 (n = 6,500) (Law *et al*., 2003) to occur in Victoria (n = 1,625). From the Victorian Admitted Episodes Database (VAED), we determined that 38 per cent of those hospitalised for cirrhosis have an alcohol-related diagnosis mentioned, and 62 per cent were assumed to not be alcohol-related. Of the non-alcoholic cirrhosis, we assumed that 5 per cent is due to causes other than vital hepatitis. Of the remainder, VAED analyses indicated that about 70 per cent is related to hepatitis C (40 per cent of all cirrhosis), while 30 per cent is related to hepatitis B (17 per cent of all cirrhosis). We estimated the prevalence of cirrhosis related to hepatitis B and C by age and sex by using the total numbers of cirrhosis attributed to hepatitis B and C above and then applying the age and sex distribution of non-alcoholic cirrhosis observed in the VAED data. For both hepatitis B and C-related cirrhosis, an average survival of 15 years was assumed, with most people remaining asymptomatic for a long period. We thus applied the Dutch weight for 'compensated' liver cirrhosis (0.31) for the last three years lived with decompensated cirrhosis, and used the Dutch weight for 'decompensated' cirrhosis (0.84) for the last two months when encephalopathy occurs.

3.1.9 Acute respiratory infections

Our incidence estimates for lower respiratory tract infections (that is, episodes of influenza, acute bronchitis and pneumonia) and upper respiratory tract infections (that is, episodes of acute nasopharyngitis or common cold, acute sinusitis and pharyngitis/tonsillitis) are extrapolations of national age–sex specific rates from the 1995 National Health Survey (ABS, 1996b) and from Bettering the Evaluation And Care of Health (BEACH) data for these conditions. We modelled influenza on incident cases captured by the National Influenza Surveillance System to which age–sex distributions from the BEACH general practitioner registration data have been applied. We modelled acute bronchitis (including bronchiolitis), pneumonia and tonsillitis/laryngitis using BEACH data (Britt *et al*., 1999) with adjustments to reflect annual incidence extrapolated from the proportion of hospitalisations occurring in the months covered by BEACH. For acute nasopharyngitis and sinusitis, we relied on 1995 National Health Survey self-reported data (ABS, 1996a), with the excess self-reported influenza not already attributed to lower respiratory tract infections being added to acute nasopharyngitis, on the assumption that many people inappropriately report a common cold or the 'flu' as influenza.

Unfortunately, in the 2001 National Health Survey, the Australian Bureau of Statistics dropped questions on acute conditions, so we had to rely on the older 1995 data. We used derived weights and assumed GBD durations, with minor adjustments where considered appropriate.

The disabling sequelae for otitis media include acute infection, chronic infection and lifelong deafness. Our estimates for acute episodes are extrapolations of national age–sex specific incidence rates from the BEACH data (Britt *et al*., 1999). Numbers of chronic infections and infections resulting in deafness are based on GBD assumptions for established market economies (Murray & Lopez, 1996). We used a derived weight for acute infections, assuming a one-week duration (0.090), and the Dutch weight for early acquired mild to moderate hearing loss (0.110). A duration of one year was used for chronic infections. For the small number of cases that experience lifelong deafness, we used the Dutch weight for early acquired severe hearing loss (0.233).

3.2 Maternal disorders

Maternal conditions for which we provide YLD estimates include maternal haemorrhage, sepsis, hypertension in pregnancy, obstructed labour, abortion and a residual category, to capture the disability from caesarean sections due to causes not specified in this list. We based our incidence estimates for these conditions directly on hospital data and adopted GBD methods with the same exceptions as used in the 1996 study (DHS, 1999a).

3.3 Neonatal disorders

Neonatal conditions include birth trauma and asphyxia, neonatal infections and low birth weight. Our incidence estimates for these conditions are taken directly from hospital and perinatal data, with the probability of disability coming from Shibuya and Murray (Shibuya & Murray, 1998).

We revised our YLD estimates for intellectual disability. Leonard and colleagues estimated the prevalence of intellectual disability to be 14.3 in every 1,000 children aged 6–15 years, from the Disability Services Commission and three educational organisations (one government and two non-government organisations) in Western Australia (Leonard *et al*., 2003). These estimates are quite a bit higher than those from previous studies, mostly because many more mild cases were identified by the educational organisations than by disability services. Two other studies in Australia reported on the distribution of intellectual disability by four levels of severity in Western Australia (Wellesley *et al*.,1992) and New South Wales (Einfeld & Tonge, 1996a, b). Averaging across the two sources of data, the following split for mild:moderate:severe:profound disability was derived: 37:37:19:7.

We extrapolated the life expectancy by level of severity of intellectual disability from figures published by Patja and colleagues reporting on 35-year follow-up in Finland with almost no loss to follow-up (Patja *et al*., 2000). We used the proportional difference in life expectancy between those with the four levels of intellectual disability and the general population in Finland. The figures are presented for four age groupings. We took a weighted average of these proportions by age and sex and applied the pooled percentage difference to the 2001 Australian life expectancy at birth estimates. We decided to average the male and female life expectancy figures, assuming that the usual sex difference in life expectancy disappears for intellectual disability.

There are two reports on the same cohort of 429 people with intellectual disability aged 10–24 years from the longitudinal study of behavioural and emotional disturbance in children and adolescents with intellectual disability (ACAD study) in New South Wales. An unpublished report by Mowat and colleagues describes, for 423 children and adolescents, the underlying cause of intellectual disability separately for the mild disability group and the combined more severe group (Mowat *et al*., unpublished). Partington and colleagues reported on 429 children/adolescents and gave a breakdown by sex but reported on the level of IQ only for the whole sample.

They also used slightly different aetiological categories (Partington *et al*., 2000). This clearly is a much more severely disabled sample (and the authors acknowledged that) than the sample studied by Leonard, which had many more mild cases–69 per cent (Leonard *et al*., 2003) compared with 29 per cent (Partington *et al*., 2000). It is thus important to maintain the reported split by aetiology by severity from Mowat (Mowat *et al*., unpublished). We assumed the distribution by cause for moderate/severe and profound disability together in Mowat applies equally across the three severity categories (Mowat *et al*., unpublished). Combining the two sets of figures, we derived a distribution by severity for males and females. There are some differences in the aetiology reported between the two studies; we assumed the published, more recent, study was more correct.

We dealt with the YLD calculated for each condition resulting in intellectual disability in the following manner: the YLDs for Down syndrome and other chromosomal are reported under the 'Congenital conditions' category; the YLDs for central nervous system defects and other congenital conditions go into the 'Other congenital' category; birth trauma and asphyxia YLDs are reported under the 'Birth trauma and asphyxia' category; low birth weight YLDs are reported under the 'Low birth weight' category; epilepsy YLDs are added to other YLDs for epilepsy; autism YLDs are added to the 'Autism' category; the YLDs for the other perinatal category are added to the 'Other conditions arising in the perinatal period' category; the YLDs due to infection are already captured in the 'Meningitis' category; and the YLDs for brain tumour are already captured in the 'Brain tumours' category.

3.4 Nutritional disorders

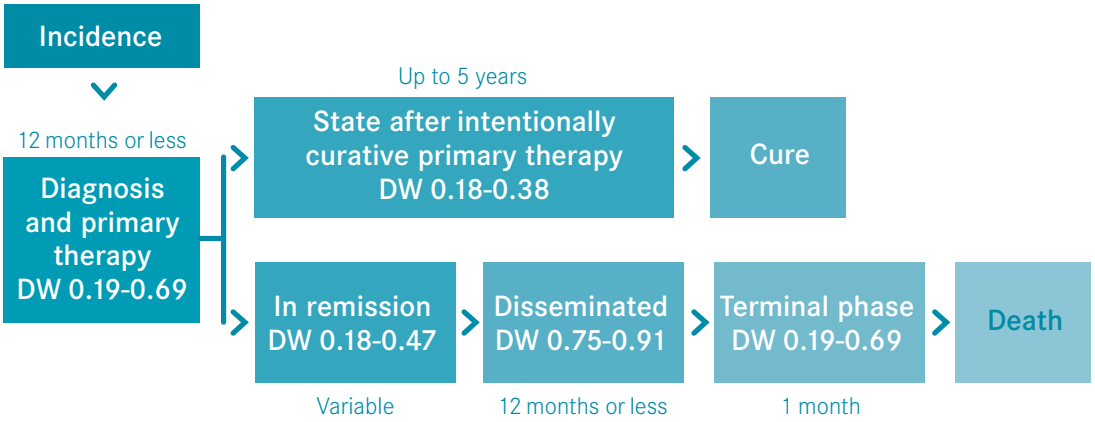
The nutritional disorders included in this study are anaemia and non-anaemic iron deficiency, which are the most common forms of nutritional deficiency in Victoria. The YLDs for these conditions were calculated as in the 1996 study (DHS, 1999a).

3.5 Cancers

To determine the YLDs for cancer, we relied on contributions from a variety of sources. The Dutch burden of disease study team developed models of disease progression for each of the cancers for which they determined disability weights. Our assumptions regarding disease progression are based largely on this work, but were shaped by input from local clinicians so as to reflect local treatment practices.

We used 2001 data from the Victorian Cancer Registry to determine incidence. The basis of YLD estimation for cancer was the calculation of the age–sex specific cure rate and the age–sex specific average time to death for those not cured. Those who survive the cancer for at least five years were assumed to have disability for five years. For some cancers, we accounted for longer-term disability resulting from treatment such as radical mastectomy or incontinence following prostate surgery. For those who die, the survival time to death was assumed to follow a Weibull distribution, so we estimated the mean survival time by fitting this distribution to available survival data. We developed a model for each cancer based on the cancer stages and sequelae for which the Dutch study estimated disability weights (Stouthard *et al*., 1997). The general form of the model for sites apart from non-melanoma skin cancers is shown in figure 2.

Figure 2 General model for cancer YLD estimation, including disability weight (DW) and duration ranges



Non-melanoma skin cancer is not included in Australian cancer registry data. We thus based our incidence estimates on survey data collected for Australia (Staples, Marks & Giles, 1998). This cancer comprises basal cell carcinoma and squamous cell carcinoma. It is the most common cancer in humans in many countries and particularly in Australia (Marks, 1995a, b). The large number of cases in Australia, the low case fatality and the fact that many cases are diagnosed and treated by general practitioners without referral for histological diagnosis or specialist treatment makes it difficult to establish a central collection of epidemiological information (Kaldor *et al*., 1993). Modelling thus draws on results in published studies.

3.6 Other Neoplasms

The Victorian Cancer Registry does not record uterine myoma, benign brain tumours or other benign neoplasms. Our incidence estimates for the first two of these categories are thus based on hospital data. For the residual 'other' category, we applied the YLD:YLL ratio (with YLL being the years of life lost due to premature mortality) for leukaemia to observed mortality because most deaths in this category are from causes (such as polycythemia vera, idiopathic thrombocythemia and chronic lymphoproliferative disease) with a disease progression we assume to be similar to that of leukaemia.

For uterine myoma, we used numbers of myomectomies or hysterectomies for fibroids, on the assumption that treatment by surgery is undertaken for all cases of rapidly growing or large tumours and myoma-related symptoms. We assumed a six-month pre-operative state equivalent to the GBD weight for chronic pelvic pain, and an additional three-week post-operative state equivalent to laparotomy, as used in the 1996 study (DHS, 1999a). We assumed the additional burden associated with menorrhagia in undiagnosed women is included in our YLD estimates for this condition under the 'Other genitorurinary' category.

Our model for benign brain tumour is based on the model for malignant brain tumours, as in the 1996 study (DHS, 1999a). We extrapolated incidence estimates from hospital-diagnosed cases on the assumption that 20 per cent are re-admissions (Jaaskelainen, 1986, Simoca *et al*., 1994). We based our estimates of survival on observed mortality and assumed successfully treated cases recover normal efficiency (Steiner *et al*., 1998) with a period of 'worry' after treatment of two years. Without specific weights for this neoplasm, we used those for malignant brain tumours.

3.7 Diabetes

We derived incidence estimates for insulin-dependent diabetes mellitus (IDDM, or type 1) from the National Diabetes Register (AIHW, 2003). The estimates for non-insulin dependent diabetes mellitus (NIDDM, or type 2) are based on prevalence data from the AusDiab Study (Dunstan et al., 2002b). We assumed that all cases aged 0–24 years are type 1, and that no type 1 cases are undiagnosed. The prevalence at older ages, therefore, can be calculated by subtracting IDDM prevalence from the AusDiab prevalenced. We used the Dutch disability weight for an uncomplicated diabetes case (0.070) and derived durations from DisMod 2, assuming no remission and a relative risk of dying from the modelling of 10 studies by the New Zealand Ministry of Health (Tobias & Bonne, 2002).

Complications arising from diabetes for which we calculate the YLD include retinopathy, cataract, glaucoma, nephropathy, neuropathy, diabetic foot and amputations. Unless otherwise specified, Dutch weights are used. Colagiuri and colleagues reviewed information on the prevalence, incidence and severity of retinopathy in diabetes (Colagiuri, Colagiuri & Ward, 1998). The estimated YLDs for cataract and glaucoma are based on relative risk estimates from the Blue Mountain Eye Study (Mitchell *et al*., 1997) and severity distributions from the Melbourne Visual Impirment Project (Weih et al., 2000).

Our estimates of diabetes-related renal failure incidence are based on the ANZDATA register of dialysis and renal transplants, with extrapolations for untreated renal failure (with short duration of disability) in those aged over 75 years, who rarely qualify for these procedures and are not captured in the database (McDonald & Russ, 2002). We used DisMod 2 to estimate the average duration for people on dialysis, assuming a case fatality rate reflecting observed deaths from the register, and an observed ~67 per cent annual remission through transplant in type 1 and type 2 cases aged less than 45 years, and only around 5 per cent remission in type 2 cases older than 45 years.

Tapp and colleagues provided estimates of diabetic neuropathy incidence and prevalence (Tapp *et al*., 2003). Harris and colleagues estimated that about one third of neuropathy cases remit, one third remain about the same and one third get progressively worse (Harris, Eastman & Cowie, 1993). Given that our prevalence of neuropathy by duration of diabetes calculations are from a cross-sectional survey (with duration of diabetes being self-reported), we assumed that the measured prevalence reflects symptomatic neuropathy. The true number of people with neuropathy is likely to be higher (Harris, Eastman & Cowie, 1993), but for our calculations we assumed the calculated incidence times the average duration, for all those with neuropathy who are symptomatic.

Our incidence estimates for diabetes-related toe and leg or foot amputation are taken directly from hospital admissions. We used GBD weights for toe and foot or leg amputations. Based on an American study, we assumed 10 cases of diabetic 'foot' for every amputee (Moss, Klein & Klein, 1992), which we attributed to incident cases of type 1 and type 2, assuming the same delay as estimated for amputations from the onset of diabetes. We applied the GBD weights to episodes of diabetic 'foot' (of which 80 per cent are assumed to be treated), with an average duration of two months.

We derived the proportion of the YLD from ischaemic heart disease (IHD) attributable to type 1 and type 2 diabetes by applying the YLD:YLL ratio for IHD in the whole population to the diabetes attributable IHD YLL, which we calculated using the relative risk of dying from IHD among diabetics (Gu, Cowie & Harris, 1998). We used a similar method for stroke but assumed the relative risk relevant to stroke. IHD and stroke sequelae are not included in diabetes as part of our main burden of disease categories, but are reported separately.

The disease categories used in this study do not entirely capture the contribution of diabetes to the total burden. This occurs because diabetes, in addition to its direct sequelae, presents an increased risk of other diseases, such as ischaemic heart disease, stroke and peripheral vascular disease. The 'attributable' burden was estimated using similar methods to those used for estimating the burden attributable to risk factors (that is, by applying attributable fractions).

3.8 Mental disorders

Our YLD estimates for mental disorders are based on methods that depart significantly from those used in the GBD studies. First, we used Dutch weights for these conditions, which generally provide much greater detail than specified by the GBD weights in terms of both numbers of conditions and levels of severity. Second, we determined the severity distribution of the majority of mental conditions by referring to individual survey responses on the mental component score of the SF12, for people with a single mental diagnosis (one month prevalence). Third, we estimated the YLD for a larger number of mental health disorders. Fourth, our estimates of duration (of anxiety and bipolar disorders, for example) are much longer than those used in the GBD study and more accurately reflect the conditions' chronic nature with periods of exacerbation and remission over many years. Fifth, our calculations used adjusted disability weights that reflect the presence of comorbidities within the 15 conditions that were estimated on the basis of two-week prevalence captured in the National Mental Health and Wellbeing Survey 1997 (ABS, 1998). Table 9 summarises the mental disorders for which we calculated the YLD, along with the sources of data on which our incidence estimates are based.

Table 9 Sources of data for mental disorders

Data source	Mental disorder
National Mental Health and Wellbeing Survey 1997 (ABS, 1998).	Anxiety disorders (panic disorder, agoraphobia, social phobia, generalised anxiety disorder, obsessive compulsive disorder and post-traumatic stress disorder)
	Affective disorders (major depression, bipolar disorder and dysthymia)
	Most substance abuse (alcohol, sedative, stimulant and cannabis drug dependence or abuse)
	Borderline personality disorder
Low Prevalence Disorders Study (Jablensky *et al*., 1999)	Psychotic disorders
Child and Adolescent Component of the National Mental Health and Wellbeing Survey 1997 (Sawyer *et al*., 2000)	Childhood disorders (separation anxiety disorder, attention-deficit hyperactivity disorder, autism and Asperger's syndrome)
Epidemiological Study - National Drug and Alcohol Research Centre Technical Report Number 198 (Degenhardt *et al*., 2004)	Heroin use and dependence
Reviews of epidemiological studies	Eating disorders (anorexia nervosa and bulimia nervosa)

3.8.1 Anxiety disorders, depression, substance abuse (excluding heroin abuse), borderline personality disorder and bipolar disorder

Our general model for these conditions derived incidence figures from Mental Health and Wellbeing Survey prevalence figures, using DisMod 2 and assuming appropriate remission rates and relative risks of mortality from a meta-analysis (Harris & Barraclough, 1998). For episodic conditions (for example, anxiety disorders and harmful alcohol use), we used the proportion of one-year prevalence cases reporting symptoms in the previous two weeks as an approximation of the proportion of time symptomatic. To determine severity, we differentiated those reporting symptoms in the previous month into asymptomatic, mild, moderate and severe cases based on the Mental Component Score of the SF-12 as described in the section on comorbidity. Following expert advice, we assumed the ICD-10 criteria for post-traumatic stress disorder are too 'loose' and used the *Diagnostic and statistical manual of mental disorders–fourth edition* (DSM-IV) diagnosis instead (Peters, Slade & Andrews, 1999).

For separation anxiety disorder, we assumed a peak in prevalence at around 4 per cent between 5–6 and 12–13 years of age, corresponding to the ages at which children typically start a new type of schooling, with a duration of two to three years. Without further information on this condition, we assumed the proportion with severe symptoms is the same as in adults with agoraphobia, and a similar symptomatic period as for panic disorder.

Major depressive disorder (MDD) is a chronic illness; 80 per cent of people with an initial major depressive episode (MDE) will have at least one more in their life time (Judd, 1997). The median number of MDEs reported from long-term follow-up studies is 4 per life time, and 25 per cent have six or more MDEs (Angst & Preisig, 1995). We modelled major depressive disorder and dysthymia as separate entities, although we recognise there is a debate about whether dysthymia is distinct from depression or simply part of a continuum. In the Mental Health and Wellbeing Survey (ABS, 1998), 50 per cent of people with dysthymia also qualify for the diagnosis of MDE, which supports the latter proposition. We modelled depression as an episodic illness and added the estimates for dysthymia when reporting on total depression.

Our estimates of the average duration of major depressive episodes (30 weeks in men and women) (Vos *et al*., 2004) are longer than the 20-week median duration reported in the literature, reflecting the fact that shorter durations are more common while a smaller proportion of people have very long durations (Angst & Preisig, 1995, Solomon *et al*., 1997). For children aged 5–14 years, we derived incidence estimates for depression in the same way as for adults, from one-month prevalence on the Child and Adolescent Component of the National Mental Health and Wellbeing Survey 1997 (Sawyer *et al*., 2000). We assumed the proportion in adults with two-week prevalence applies similarly to children because the child survey did not report two-week prevalence. No depression was assumed in children under 5 years. Incidence in adolescents aged 15–19 years was apportioned (60 per cent) from the one-month prevalence figures from the survey's Child and Adolescent Component and (40 per cent) from the two-week prevalence figures from the survey's age group 18–24 years. Duration of 30 weeks was assumed at the same severity level as for adults. Annual remission was modelled at 1.74, since it is possible to remit from more than one episode, and increased relative risk of mortality of 1.35 in males and 1.33 in females (Harris & Barraclough, 1998).

For dysthymia, we took durations from DisMod 2, assuming a remission rate of 12.4 per cent calculated from a 58 per cent risk of remission over seven years (Keller, 1994) and no increased risk of dying (Harris & Barraclough, 1998). Lower mortality from other causes compensated for a 12-fold increased risk of suicide.

For alcohol dependence, we assumed the mild and severe health states to be equivalent to the Dutch weights for 'problem drinking' and 'manifest alcoholism' (0.11 and 0.55). We extrapolated a weight of 0.33 for moderate severity based on the assumption that it is half way between these health states. For harmful alcohol use, we used a weight equal to 'problem drinking' (0.11). For sedative, cannabis and stimulant dependence, we assumed an average severity to which we apply extrapolated weights (0.184, 0.113 and 0.113 respectively) on the advice of local drug and alcohol experts.

The remission rate and case fatality rate for the use of cannabis, stimulants, sedatives and alcohol were found in the literature (Harris & Barraclough, 1998, Bland, Newman & Orn, 1997, Nelson & Wittchen, 1998, Walter *et al*., 2002).

3.8.2 Heroin dependence and harmful use

We derived our estimates of the incidence of heroin dependence and harmful use in DisMod 2 using 2001 prevalence data for Victoria from the National Drug and Alcohol Research Centre for Victoria (Degenhardt *et al*., 2004) assuming 70 per cent of users are male. We used a remission rate of 5 per cent, which is consistent with the back projection methods used by Law (Law *et al*., 2001). There is a strong cohort effect in the prevalence of heroin users, indicating that most prevalent cases started as teenagers or young adults from the 1960s. Therefore, there are few prevalent users aged over 55 years. For our incident YLD, we based our DisMod 2 calculations on current prevalence up to age 55 years, but allowed the model to estimate higher prevalence in older age groups that is consistent with the assumptions of remission and mortality. This led to longer durations than previously estimated when we assumed a large proportion of users stop around age 50. We used a disability weight of 0.27, which we determined in consultation with local alcohol and drug experts for the Burden of Disease Study 1996. This weight is compatible with the GBD weight of 0.252.

3.8.3 Psychotic disorders

Estimates for psychotic disorders are based on prevalence from the Low Prevalence (Psychotic) Disorders Study conducted in Australia in 1997 as part of the National Mental Health and Wellbeing Survey (ABS, 1998). This survey measured an overall estimate of 4.7 per 1,000 population and confirms our assumption that almost all psychotic disorders have their beginning in late adolescence or early adulthood, with a small second peak in post-menopausal women (Jablensky *et al*., 1999). The Low Prevalence (Psychotic) Disorders Study suffered from a low response rate and under-represented the people with psychotic disorders who are solely managed by their general practitioner (Lewin & Carr, 1998). Before conducting further analysis, we adjusted upwards to one in three the number of people in the survey who are wholly general practitioner treated. Annual remission is based on a number of longer term studies and is set at the median of the reported rates (1.5 per cent) (Ciompi, 1980, Huber *et al*., 1980, Harding *et al*., 1987, Helgason, 1990, Harrison *et al*., 2001). We derived incidence and duration figures from DisMod 2 using a 54 per cent increased risk of mortality overall for people with schizophrenia (Harris & Barraclough, 1998), with an age pattern imposed by the relative frequency by age that schizophrenia is mentioned in death records. We assumed the average time spent in psychosis is 30 per cent (Leff *et al*., 1992). Since we do not have any information that fits the health states described by the Dutch weights for schizophrenia, we used a composite weight based on 30 per cent of the GBD weight for psychosis corresponding to the estimated time spent in this state and 70 per cent of the treated weight (0.3 x 0.627 + 0.7 x 0.351 = 0.434). The Low Prevalence (Psychotic) Disorders Study reported a higher proportion (61 per cent) of people with a psychotic disorder having current delusions or hallucinations. It also stated that 86 per cent are taking prescribed

medication and that 83 per cent reported that their psychotic symptoms respond to pharmacological treatment. The first finding would indicate that our composite disability weight is too low but the second finding would support a lower weight. We thus decided to continue to use the composite disability weight of 0.434.

3.8.4 Bipolar affective disorder

Bipolar disorder was inadequately measured in the 1997 National Mental Health and Wellbeing Survey (ABS, 1998) –as a result of the nature of the disorder and the time periods covered by the survey–but Mitchell and colleagues reported 12-month prevalence data of 0.5 per cent for the DSM-IV definition (Mitchell, Slade & Andrews, 2004). We replicated their work, using ICD–10 to calculate prevalence from 12-month prevalence estimates from the National Mental Health and Wellbeing Survey 1997 for the whole of Australia (Mitchell, Slade & Andrews, 2004). Incidence and duration were derived using DisMod 2 incorporating a remission rate of 3.5 per cent (Angst & Preisig, 1995).

Bipolar disorder is associated with high suicide risk, higher than in people with depression or anxiety (Bijl *et al*., 2002). The standardised mortality ratio (SMR) for all-cause mortality reported in the meta-analysis of Harris and Barraclough is 1.96 in men and 1.76 in women (Harris & Barraclough, 1998) and the SMR for suicide is 5.7 and 5.8 respectively. In DisMod 2, we applied an overall relative risk of this magnitude but we assumed much higher relative risk in the young where suicide is most prominent, based on the age patterns found for secondary causes on death certificates. Angst and Sellaro analysed a five-year prospective follow-up of people with the disorder and reported a median duration of episodes of four months (with 50 per cent having durations of two to seven months) and a mean of 0.4 episodes per year (Angst & Sellaro, 2000, Angst *et al*., 2005). The number of manic and depressive episodes is about equal (Angst & Sellaro, 2000, Angst *et al*., 2005). If, on average, there are 0.4 episodes per year and the average cycle length is one year, this means the average duration of an episode is 0.4 year (that is, 4.8 months).

We do not have new disability weight assumptions, but on all indicators of disability in the Dutch NEMESIS study bipolar was far more severe than depression/anxiety or alcohol dependence (ten Have *et al*., 2002). In the Burden of Disease Study 1996, we assumed a disability weight of 0.5 for manic episodes (based on valuation by mental health experts), and depressive episodes at a level of moderate depression (0.35) and at the level of mild depression (0.14) between episodes. Assuming manic episodes are equally common but shorter (0.3 year or 3.6 months for mania and six months for depression), a composite disability weight was derived (0.3 * 0.5 + 0.5 * 0.35 + 1.2 * 0.14)/2. The resulting DW of 0.247 is higher than the 0.177 estimated previously based on older follow-up data (Bebbington & Ramana, 1995).

3.8.5 Eating disorders.

Estimates for bulimia are based on a prevalence rate of 0.7 per cent among Swiss 14–17 year old females (Steinhausen, Winkler & Meier, 1997) and on remission rates reported by Keel and colleagues' review of two follow-up studies (Keel *et al*., 1999). We derived incidence and duration estimates for females from these figures using DisMod 2, assuming the age at onset is between 14 and 29 years with no increased risk of mortality. Estimates for anorexia are based on 0.5 per cent prevalence among females older than 15 years (Kell *et al*., 1999, Gilchrist *et al*., 1998) and an 11 per cent remission rate (Strober, Freeman & Morrell, 1997). We used DisMod 2 to derive incidence and duration estimates for females from these figures, assuming the age at onset is between 14 and 29 years with an increased annual risk of mortality of 0.59 per cent (Sullivan, 1995). We assumed the incidence in males is ten per cent of the rate in females. We used the Dutch weight of 0.28 for both types of eating disorder.

3.8.6 Childhood disorders

Australian prevalence data for childhood attention-deficit with hyperactivity disorder (ADHD) come from the Child and Adolescent Component of the National Mental Health and Wellbeing Survey 1997. We defined ADHD to include children with a diagnosis on the survey and whose parents report the child having more emotional or behavioural problems than have other children of the same age. The estimates of burden of ADHD were derived from prevalence rates of 6 per cent in male children, 3 per cent in female children, 2 per cent in male adolescents and 1 per cent in female adolescents. Our incidence figures were derived from DisMod 2, assuming an age at onset of 3–6 years and an age-specific remission rate (Hill & Schoener, 1996). Remission rates of 0.15 were applied in children under 10 years, 0.25 in adolescents aged 10–19 years and 0.3 thereafter. We assumed no increased risk of mortality. We used the Dutch weights for both mild and moderate to severe ADHD (0.02 and 0.15), and weighted these by the severity distribution found in the 1997 survey to derive a composite disability weight.

Autism is part of pervasive developmental disorders; the other important condition in that category is Asperger syndrome, which was described at about the same time as autism. Autism is characterised by the triad of (1) language/communication impairment; (2) social impairment and (3) behavioural impairment (obsessions, rituals). However, Asperger syndrome has only the latter two components and is not associated with intellectual disability as is the case with 80 per cent of autistic children. Behavioural problems are a predominant feature in children with Asperger syndrome.

We separately estimated the incidence of intellectual disability due to autism, as part of all intellectual disability, based on incidence data by underlying cause in the literature (Partington *et al*., 2000). We assumed an additional 25 per cent of children have autism without intellectual disability. We modelled prevalence using DisMod 2, assuming a relative risk of mortality of 1.15 in both males and females, with no remission. We used the average duration of mild intellectual disability and the Dutch disability weight of 0.55 for autism. For Asperger syndrome, we used the same incidence and male:female ratio as for autism (9:1) and the Dutch disability weight for mild intellectual disability (0.29).

3.9 Nervous system and sense organ disorders

3.9.1 Dementia

The Burden of Disease Study 1996 used prevalence data from Jorm and colleagues' meta-analysis (which reviewed 47 studies of the prevalence of dementia published between 1945 and 1985) to estimate the prevalence of dementia (Jorm, Korten & Henderson, 1987). Hofman and colleagues pooled data from 12 European studies carried out between 1980 and 1990 (Hofman *et al.*, 1991). The latter meta-analysis differed from the earlier one in that it excluded non-European and older studies (Jorm, Korten & Henderson, 1987). Nevertheless, the estimated prevalence rates are strikingly similar in both. A third meta-analysis, by Ritchie and colleagues, used data from the 13 studies that had been carried out since 1980 and that used DSM-III diagnostic criteria for dementia (Ritchie, Kildea & Robine, 1992). By restricting the studies to those that used the same diagnostic criteria, the authors found much less variability in the prevalence rates in the upper age ranges than found by the other two meta-analyses. However, the number of studies included were small. Most recently Corrada and colleagues reviewed Alzheimer's disease prevalence surveys published between 1984 and 1993, with a very similar pattern of findings (Corrada, Brookmeyer & Kawas, 1995).

Our estimates for dementia are based on a meta-analysis of European prevalence studies for ages 60–90 years (Jorm, Korten & Henderson, 1987), on a study by Hy and Keller for ages 95+ years (Hy & Keller, 2000) and on a study by Harvey and colleagues for younger ages of 30–60 years (Harvey, Skelton-Robinson & Rossor, 2003). Rather than using case fatality rates that match observed deaths attributable to dementia, we used a relative risk of 1.6 up to age 75 years and then 1.8 thereafter, based on a review of a number of studies with mortality data (Aguero-Torres *et al*., 1999, Fitzpatrick *et al*., 2004). Using data derived in this manner, we computed incidence rates and durations using DisMod 2. We based our severity distributions on figures from a community-based prospective study of degenerative diseases in the Netherlands (Barendregt & Bonneux, 1998) and applied the Dutch weights for mild, moderate and severe dementia accordingly (0.270, 0.630 and 0.940).

3.9.2 Parkinson's disease

We modelled Parkinson's disease as a progressive condition, with affected people passing through three stages as described by the Dutch weights (initial stage–able to function independently; intermediate stage–dependent but able to move without help; end stage–wheelchair and bed bound with severe handicap). Without more accurate data on disease progression, we assumed the figures reported by Tandberg and colleagues of the proportion of cases able to live at home with help and those still capable of living independently (27 per cent and 52 per cent respectively) represent the overall proportion of time spent in the initial stage (Tandberg *et al*., 1995). Thereafter, we assumed that two thirds of the time as being the intermediate stage and the rest as being the very severe end stage. We used DisMod 2 to derive incidence estimates for this condition from overseas prevalence rates reported in the literature between 1995 and 2004 (de Rijk *et al*., 1995, Sutcliffe & Meara, 1995, Tandberg *et al*., 1995, Morens *et al*., 1996, Wermuth *et al*., 1997, Errer *et al*., 1999, Kuopio *et al*., 1999, Wermuth, von Weitzel-Mundersbach & Jeune, 2000, Claveria *et al*., 2002, Kis *et al*., 2002, Taba & Asser, 2002, Benito-Leon *et al*., 2003, Strickland & Burtoni, 2004).

A weighted average prevalence rate was obtained from the papers cited above. An estimate of prevalent cases in Victoria was calculated from age- and sex-specific population data for Victoria in 2001 and from the weighted average prevalence rates from the cited literature. The case fatality rate was obtained from 2001 Victorian mortality data (all individuals whose death records mentioned Parkinson's disease as the primary or additional cause of death) multiplied by the estimated number of prevalent cases, by age and sex. The excess mortality due to Parkinson's disease was obtained by subtracting the background mortality rate from the case fatality rate. Incidence and duration were then computed using DisMod 2, assuming a remission rate of zero and using the estimated prevalence and the excess mortality rate.

3.9.3 Other nervous system disorders

Our estimates for epilepsy are based on incidences reported for Rochester, United States, over a period of 50 years to 1970 (Hauser, Annegers & Rocca, 1996). These data are consistent with findings from recent studies on primary epilepsy and relapse and remission rates (Franklin & Nelson, 1998).

We modelled estimates for multiple sclerosis from incident figures for the city of Hobart (Hammond *et al*., 1988), which we adjusted downwards to account for the increasing incidence with southern latitudes. We applied remission rates from onset to death as reported in the literature (McLeod, Hammond & Hallpike, 1994).

For motor neuron disease, we used mortality figures from Victoria and assumed a 1.5-year duration in those aged less than 65 years and a one-year duration in those aged over 65 years, based on the literature (Chancellor *et al.*, 1993). We assumed disease progression is rapid, and applied the Dutch weight for multiple sclerosis (progressive phase), not having a specific weight for this condition.

For muscular dystrophy in males, we use incidence rates reported for Europe (Tangsrud & Halvorsen, 1989, Merlini *et al.*, 1992, Hauser *et al.*, 1993). Without specific weights for this condition, we assumed the initial symptomatic phase is similar to the initial stage of Parkinson's disease, that the phase in which walking becomes impossible is similar to that of paraplegia, and that the final stage is equivalent to quadriplegia.

We modelled Huntington's disease using prevalence data from the literature (McCusker *et al.*, 2000), assuming no remission and adjusting the case fatality rate to obtain an overall duration similar to that observed in a Tasmanian study (Pridmore, 1990). Due to similarities in the progressive nature of Parkinson's disease, we adopted the weights for the three stages of this disease for Huntington's disease.

3.9.4 Sense organ disorders

We modelled hearing loss as a progressive condition with mild (25–34 dB and 35–44 dB), moderate and severe stages. That is, prevalent cases with moderate or severe impairment at a given age are regarded as incident cases of mild impairment at an earlier age. We used survey prevalence data from South Australia (Wilson, Sanchez & Read, 1998, Wilson *et al.*, 1999), initially modelling the prevalence of severe hearing loss, no remission and a relative risk of mortality of 1.0 in DisMod 2. We used the incidence of severe hearing loss from the DisMod 2 output as 'mortality' in the moderate hearing loss from the DisMod 2 model: this takes these cases out of the pool of those susceptible for further incidence and thus gives more accurate average durations than if we had used remission as remitted cases in the DisMod 2 modelling, because the cases continue to be subject to the hazard of incidence. We used incidence of moderate hearing loss as 'mortality' in mild hearing loss (35–44 dB) and we used incidence of mild hearing loss (35–44 dB) as 'mortality' in mild hearing loss (25–34 dB). Given the prevalence data by level of severity and age, and assuming that all cases progress from the mildest to the most severe category, it seems reasonable to assume that progression to the next severity level occurs, on average, at five-year intervals between mild (25–34 dB) and mild (35–44 dB), and at 10-year intervals from mild (35–44 dB) to moderate and from moderate to severe.

From the cross-sectional data on prevalence, it is not possible to estimate these progression times exactly. However, to be consistent with other disease models where subsequent severity levels for the same health state are discounted back to first incidence, we applied a 25-year lag for severe hearing loss, a 15-year lag for moderate loss and a five-year lag for mild loss (35–44 dB) categories. We subtracted the proportion of prevalent cases attributable to congenital and other hearing loss in children, because these other conditions account for this disability.

Our incidence estimates for vision loss are based on the results of the Melbourne Visual Impairment Project (MVIP), which assessed visual acuity and prevalence by cause of visual impairment in a sample representative of Victoria (Weih *et al.*, 2000). We derived incident cases using DisMod 2 and apportioned these to uncorrected refractive errors, glaucoma, cataract, macular degeneration and a 'rest' category. We then determined the proportion of glaucoma- and cataract-related vision loss attributable to diabetes from relative risks from the Blue Mountain Eye Study (Mitchell *et al.*, 1997), and only non-diabetes related vision loss is included in the YLD

estimates for these categories. We used Dutch disability weights for all categories, except the mildest, for which we used half the Dutch value to be consistent with the weight for mild vision loss.

For vision loss, the age distribution of incidence rates for the moderate and severe categories allow for only relatively short progression times, possibly because some forms of uncorrectable vision loss progress fairly rapidly (for example, cataracts). The total YLD is not significantly altered by the absence of these progression times, so we omitted them from our model.

For both hearing and vision loss, we used Dutch weights for each stage, but the weight for mild hearing loss was halved to 0.02 to be consistent with the weight for mild vision loss.

3.10 Cardiovascular disease

This group includes all diseases classified in the ICD-10 as circulatory diseases except hypertensive renal disease (which we classified as part of the genitourinary disease group) and chronic pulmonary heart disease (which we included in the chronic respiratory diseases group). In general, the models for ischaemic heart disease, stroke and peripheral vascular disease rely on hospital data, with incidence and duration derived from DisMod 2 using relevant data from the literature. The other cardiovascular diseases are mainly characterised by heart failure, for which we used UK incidence data in the absence of Australian data.

3.10.1 Ischaemic heart disease

Our model for ischaemic heart disease (IHD) assumed the starting point for this condition is either hospitalised angina pectoris (AP) or an acute myocardial infarction (AMI). We modelled AP as recurring symptoms over the rest of the person's life, with possible remission due to surgical treatment. We assumed AMI results in death, heart failure, new or continuing AP, or recovery with no residual disability. We modelled AP pre- and post-myocardial infarct together. We derived the incidence of non-fatal AMI from hospital data.

Our estimates for AP are based on modelling in DisMod 2, with the incidence estimated from the linked VAED and remission estimated from the number of revascularisation procedures (percutaneous transluminal coronary angioplasty (PTCA) and coronary artery bypass grafting (CABG)) by June 2002 in those with AP between July and December 2000, who had no history of IHD in the previous four years, assuming a relative risk of mortality similar to that for all IHD cases. The incidence of AMI was obtained from DisMod 2 using AMI data from the VAED in 2001. Mortality is particularly elevated in the first four weeks following AMI, so we modelled 28-day survivors in DisMod 2. The average case fatality rate (CFR) from the MONICA studies in Perth and Newcastle was 35 per cent in the first seven days and 40 per cent in 28 days (Hobbs *et al*., 1991). Given that the average length of hospital stay for an AMI is about a week, we adjusted the VAED incidence figures for AMI (not angina) by $(1 - 0.4)/(1 - 0.35)$, to account for those who die between one and four weeks following AMI.

For the relative risk of mortality, we used information from the Danish MONICA study (Bronnum-Hansen *et al*., 2001), which reported mortality by cause following the first ever AMI. The SMRs calculated over the period 1990 to October 1997 are specified by 30–59 and 60–74 age groups at the time of the first ever AMI, and in each of the two age groups by 0–1, 1–5, 5–10 and 10–15 years after AMI. From Kirchhoff and colleagues, we could calculate the mean age at the start of follow-up in the two age categories (Kirchhoff *et al.*, 1999). Recruitment of cases was from 1982 to 1991. Next, we applied half of the trends observed over the period 1979–2000 in Victoria to the excess proportion of the relative risk (that is, RR – 1) for the estimated six-year lag between the MONICA observation and our baseline year (2001), because the other half of the declining

trend reflects change in the CFR rather than incidence (Unal, Critchley & Capewell, 2004). The relative risks were then entered into a DisMod 2 model with other inputs: the population incidence of first ever AMI; no remission; and an assumption of 2 per cent trend on the CFR and 2 per cent trend on incidence. (DisMod 2 does not allow age-specific trends). The critical output from DisMod 2 is post-28 day CFR.

3.10.2 Heart diseases resulting in heart failure

We employed DisMod 2 to determine the incidence of heart failure by adjusting the incidence of heart failure as reported in the literature (Cowie *et al*., 1999), to obtain a prevalence that is consistent with that reported by Davies and colleagues from the same study population (Davies *et al*., 2001). We assumed a remission of zero and a case fatality rate of 0.07, derived from trends in the CFR between 1981 and 1991 (Senni *et al.*, 1999) . We then identified the underlying causes for all heart failure cases–rheumatic heart disease, hypertensive heart disease, IHD, pulmonary heart disease, inflammatory heart disease, non-rheumatic valvular heart disease–in the VAED linked dataset between 1996 and 2002, if any of these conditions were mentioned as a cause in the six years of hospital admission data. A significant number of heart failure cases appeared to have no, or only an ill-defined, underlying cause. We then adjusted the proportions, by age and sex, of all underlying causes downwards so they added up to 100 per cent to account for cases with more than one underlying cause identified. We used the duration, together with incidence and prevalence estimates initially obtained from the heart failure DisMod 2 model, multiplied by the proportion of heart failure cases for each of the above six underlying causes, to calculate the YLD for each of these conditions (except pulmonary heart disease).

3.10.3 Stroke

We modelled stroke in terms of the following health states: a short period of disability for those who die in the first 28 days; survival beyond 28 days with no permanent impairment at one year after onset; and survival beyond 28 days with permanent impairment.

We obtained the incidence of first ever non-fatal stroke from the NEMESIS study (Thrift *et al*., 2000) and adjusted the incidence rate downwards, based on the assumption that half the decline in the annual Victorian stroke mortality rate between 1997 and 2000 is due to a decline in incidence rate. Next, we subtracted a proportion of cases that die, using a 28-day case fatality rate from NEMESIS (Thrift *et al*., 2000).

Bronnum-Hansen and colleagues reported mortality by cause following first ever stroke from the Danish MONICA study (Bronnum-Hansen, Davidsen & Thorvaldsen, 2001). The SMRs calculated over the period 1982 to October 1997 are specified by the age groups 25–69 years and 70+ years at the time of the first ever stroke, and in each of the two age groups by 1–5, 5–10 and 10–15 years after stroke. From Thorvaldsen and colleagues, we could calculate the mean age at the start of follow-up in the two age categories (Thorvaldsen *et al*., 1999). Recruitment of cases was from 1982 to 1991. Next, we applied half of the trends observed over the period 1979–2000 in Victoria to the excess proportion of the relative risk (that is, RR – 1) for the six-year lag between the MONICA observation and our baseline year (2001). We used these data in DisMod 2, assuming no remission, to estimate the duration of disability with permanent impairment.

Men are more likely to make a complete recovery from stroke (50 per cent) than are women (37 per cent) (Bonita, Solomon & Broad, 1997). Among stroke survivors, more women are dependent (27 per cent) than men (16 per cent) on others for self-care. We used the age- and sex-specific figures from Bonita and colleagues for those with no or incomplete recovery, to estimate the proportion of 28-day survivors who go on to have permanent disability (Bonita, Solomon & Broad, 1997). We gave the remainder disability for half a year on average. We calculated an average disability weight for the permanently impaired survivors as the prevalence-weighted sum of the three disability weights for mild, moderate and severe impairments.

3.10.4 Other cardiovascular diseases

For aortic aneurysm, we assumed the hospitalisation rate reflects incidence. For peripheral vascular disease, we assumed the hospitalisation rate reflects prevalence among those aged 65 years and over but, to be consistent with findings from the Survey of Disability, Ageing and Carers (ABS, 1999a), only half the prevalence rate at younger ages. We derived incidence from DisMod 2, assuming a relative risk of 2.0 and a remission rate of 0.1, which approximates the number of surgical interventions as a proportion of total prevalent cases.

For aortic aneurysm, we assumed a one-month period of disability during treatment and no residual disability for those who survive treatment. Without a disability weight for this health state, we used the derived weight for early laparotomy (0.349 for EQ-5D+ health state 222211). For peripheral vascular disease, we used derived weights of 0.243 and 0.257 for men and women respectively, based on severity distributions from the Survey of Disability, Ageing and Carers (ABS, 1999a), with adjustments for comorbidity at older ages. Weights for amputations are from the GBD study.

3.11 Chronic respiratory diseases

3.11.1 Chronic obstructive pulmonary disease

Our estimates for chronic obstructive pulmonary disease (COPD) are derived from the Busselton Study 1994–95, which is the most recent Australian study with spirometry measurements. While this study sample comprises a selected rural population in Western Australia, we assumed the age-specific prevalence figures approximate community prevalence. We used DisMod 2 to estimate incidence from prevalent cases with FEV_1 less than 70 per cent of that predicted (excluding those with a doctor diagnosis of asthma), assuming no remission and the relative risk of dying calculated from death rates attributed to smoking (see the section on risk factors). We modelled this condition as progressive, with three categories of severity based on self-reported levels of dyspnoea (mild–present while walking up a small hill; moderate–present while walking with other people of the same age on level ground; severe–present when walking on level ground at own pace), and assumed the severity distribution of prevalent cases approximates the average time spent at each level of severity. We used the Dutch weights for mild-moderate and severe COPD (0.17 and 0.53).

3.11.2 Asthma

We define asthma as a positive airway hyper-responsiveness test (AHT) in addition to a recent wheeze (that is, in the previous 12 months), assuming that these criteria may underestimate the 'true' prevalence of asthma but that relying on self-reported wheeze only would probably give grossly overestimated figures (Toelle *et al*., 1992, Van Asperen, 1995). Our prevalence estimates are based on reports in the literature (Bauman *et al*., 1992a, Peat *et al*., 1992, Peat *et al*., 1994, Peat *et al*., 1995, Toelle *et al*., 2004). The cited studies consistently showed that self-reported asthma prevalence is two-to-three times higher than prevalence estimates based on an AHT. The estimated 2001 asthma prevalence is 12.3 per cent in boys and 8.8 per cent in girls, based on an average of three studies conducted in 1992 and 2002 (Peat *et al*., 1994, Peat *et al*., 1995, Toelle *et al*., 2004) and a male:female ratio of 1.4:1 for children (Gergen, Mullally & Evans, 1998). In children aged 1–2 years, asthma prevalence was estimated to be 5.75 per cent, based on a report of 'wheeze' in the literature (Martinez *et al*., 1995) and assuming that 42 per cent of those with a wheeze have asthma, based on studies where both wheeze and AHT were measured (Peat *et al*., 1994, Peat *et al*., 1995, Toelle *et al*., 2004). In adults, prevalence was estimated to be 5 per cent in men and 7.5 per cent in women, based on an annual increase in prevalence of 0.08 per cent observed between 1981 (Woolcock *et al*., 1987) and 1990–2001 (Bauman *et al*., 1992a, Peat *et al*., 1992, Peat *et al*., 1994, Peat *et al*., 1995); a male:female ratio of 1:1.5 (DHS, 2002b); and a 10 per cent discounting factor.

As anticipated, the estimated 2001 asthma prevalence is higher than the estimated prevalence for the Burden of Disease Study 1996 figures. We derived incidence estimates from DisMod 2, assuming remission rates from a follow-up study in the United States (Bronnimann & Burrows, 1986). The few follow-up studies conducted in Australia on remission from asthma are consistent with the US report (Bronnimann & Burrows, 1986), but the US study gives an age pattern, so we decided to continue to use these remission rates in our calculations. From findings reported by Bauman and colleagues, we calculated that asthmatics are symptomatic 12 per cent of the time on average (Bauman *et al*., 1992b).

Rather than use the Dutch weight for this health state (0.36), which we consider to be a more severe health state than average for symptomatic asthmatics in the population, we used a derived weight of 0.229 based on the severity distributions found in the 1998 Australian Bureau of Statistics Survey of Disability, Ageing and Carers (ABS, 1999a) and the multiplicative regression model of EQ-5D+ health states. The remainder of the time we assumed is spent in a state equivalent to the Dutch weight for asthma controlled by treatment (0.03). This results in a combined disability weight of 0.054. We modelled expected comorbidity between asthma and other conditions by modifying these weights using the method described in the section on adjustments for comorbidity.

3.12 Digestive system diseases

3.12.1 Peptic ulcer disease

Without population data for this condition, we used 1999–2000 BEACH data to estimate new cases of peptic ulcer disease visiting a general practitioner and assumed these data represent all incident cases. We assumed 83 per cent have *Helicobacter pylori* eradication therapy, which has a cure rate of 90 per cent (Mollison, Jamrozik & Plant, 1999). We modelled those who are cured using eradication therapy as being symptomatic for one month, with no residual disability. And we assumed that the remainder of those who are treated but not cured (including those receiving alternative treatments) receive relief from their treatment but remain with the condition for the duration that the GBD study noted for established market economies. We assumed untreated cases to be symptomatic for the same period. Given the implausibility of the annualised Dutch weight for peptic ulcer disease, we used derived weights from the Dutch study for both its symptomatic and treated states.

3.12.2 Cirrhosis of the liver

We examined VAED linked data from 1998 to 2004 and found an alcohol-related code in 38 per cent of hospital admissions for cirrhosis during the same or other hospitalisations. We also observed that in those with non-alcoholic cirrhosis and a diagnosis of chronic viral hepatitis, the proportions with mention of hepatitis C or hepatitis B during any admission were 70 per cent and 30 per cent respectively. We assumed that 5 per cent of all cirrhosis is due to causes other than alcoholism or viral hepatitis.

Australia has an estimated ~6,500 current cases of cirrhosis due to hepatitis C (Law *et al*., 2003). We assumed that 1,625 (25 per cent) of these cases are in Victoria. We then used the proportions obtained from analysis of the VAED linked dataset, together with the age and sex distribution, for the various causes of cirrhosis derived from the VAED data to estimate the prevalence of alcoholic cirrhosis, cirrhosis due to hepatitis (B and C) and cirrhosis due to causes other than viral hepatitis. Assuming a CFR of 0.06, based on survival estimates of the Australian National Council on AIDS, Hepatitis C and Related Diseases (ANCAHRD, 1998) and no remission (only 25 liver transplants were performed in 2001 in Victoria), we used DisMod 2 to derive incidence and duration for the alcoholic and 'other' causes of cirrhosis. (The YLDs due to cirrhosis associated with hepatitis B and C were added to the YLDs from hepatitis B and C respectively). We used the same disability weights as for hepatitis-related cirrhosis (see the section on hepatitis).

3.12.3 Inflammatory bowel disease

We based our incidence estimates for Crohn's disease and ulcerative colitis on selected international community studies and Australian hospital-based studies. We assumed hospital-based studies underestimate incidence and thus took the lower end of the international findings. We used DisMod 2 to derive durations, assuming no remission (Hendrikson, Kreiner & Binder, 1985) and a small (1.1) relative risk of dying (Ekborm *et al*., 1992, Persson *et al*., 1996). Dutch weights were used for inflammatory bowel disease, assuming 20 per cent of time with active exacerbation and the remainder in 'remission' (Hendrikson, Kreiner & Binder, 1985, Stonnington *et al*., 1987, Griffiths, 1995).

For inflammatory bowel disease, vascular insufficiency of the intestine, diverticulitis and intestinal obstruction, we assumed a proportion of cases have more complicated surgery involving the creation of a stoma (a surgical opening onto the skin of the abdomen for excretion of faeces) which can be either permanent or temporary. To model this health state, we followed, for four years, people who were recorded in the VAED linked dataset as having received a stoma, to determine numbers of closures and average time to closure. We assumed unclosed stomas after this period remain open indefinitely. Without a weight for this condition, we used a derived weight.

3.12.4 Other diseases of the digestive system

Our incidence estimates for appendicitis, intestinal obstruction, gall bladder and bile duct disease, pancreatitis and vascular insufficiency of the intestine are taken directly from the numbers of people with a relevant hospital procedure or diagnosis. Except for appendicitis, these conditions were not considered in either the GBD or Dutch studies. We adopted a two-week duration for appendicitis and a three-week duration for gall bladder and bile duct disease, intestinal obstruction, vascular insufficiency and pancreatitis. For each of these conditions, we assumed the GBD weight for appendicitis. For gall bladder and bile duct disease, we used cholecystectomies and/or bile duct incisions but ignored people admitted with un-operated cholelithiasis, assuming that these people are largely asymptomatic.

3.13 Genitourinary diseases

3.13.1 Nephritis and nephrosis (nephropathy)

Our incidence estimates for dialysis and transplant patients are based on the Australian and New Zealand Dialysis and Transplant Register (ANZDATA) (McDonald & Russ, 2002), from which we derived durations for both categories of patients using DisMod 2. For dialysis patients, we used case fatality rates to match observed deaths and remission through transplant, and applied the Dutch weight for diabetic nephropathy (0.290). For the first six months post transplant, we assumed a health state equivalent to the Dutch weight for diabetic nephropathy (0.290). For the remaining period with the transplant, we used a weight of 0.11, which is equivalent to both the GBD weight for treated renal failure and the Dutch weight for 'uncertain prognosis'. We derived untreated end stage renal failure from the difference between dialysis or transplant deaths and total renal deaths, to which we applied an average duration of one year before death at the GBD weight for untreated renal failure (0.104). Based on data for the whole of Australia on underlying renal disease distribution, we attributed the YLD from diabetic nephropathy, analgesic nephropathy, congenital dysplasia and polycystic kidney disease to these conditions and retained only those cases with primary renal disease under genitourinary diseases.

3.13.2 Benign prostatic hypertrophy

Our estimates of benign prostatic hypertrophy (BPH) are based on hospital data, which we adjusted upwards to account for the proportion of cases that receive medical rather than surgical treatment. Following expert local advice, we assumed half the total number of men with BPH receive surgical treatment, a proportion of whom experience complications or continuing symptoms following surgery (1 per cent with lifelong incontinence at a derived weight of 0.204, 15 per cent with lifelong impotence at the GBD weight of 0.195, and 5 per cent with urethral stricture for four weeks at the GBD weight of 0.151). Of those opting for medical treatment, we assumed 70 per cent use alpha-blocker drugs, half of whom are cured and the other half then try surgery. We assumed none of those receiving drugs other than alpha-blockers are cured. We applied the GBD weight for symptomatic BPH to each of these intervention pathways, assuming the following durations: one and a half years for surgery, one year for successful medical treatment, two years for unsuccessful medical treatment then surgery, and a life time for unsuccessful medical treatment but no surgery.

3.13.3 Incontinence

We derived age- and sex-specific incidence rates of incontinence from DisMod 2 using prevalence figures reported in a review of the Australian literature (Lea, 1993) and the results of the Australian Longitudinal Study on Women's Health. We assumed a number of diseases and injuries are associated with this condition (most of which are more prevalent at older ages) and that the underlying causes are multi-factorial and interrelated. Based on a multivariate analysis (Chiarelli, Brown & McElduff, 1999), we assumed that all disability from incontinence among younger men and younger and middle aged women belongs under this category, but that half that experienced by middle aged and older men and older women is already captured under other conditions either explicitly (for example, as a sequela for BPH among men) or implicitly as part of the overall weightings for these conditions (for example, under severe stroke). For unaccounted incontinence, we applied an average of the GBD weight for moderate incontinence and the derived weight for BPH-related severe incontinence using severity distributions from the Australian Bureau of Statistics Survey of Disability, Ageing and Carers (ANS, 1999a).

3.13.4 Infertility

Our estimates of infertility are based on a 1998 population survey of infertility, surgical sterility and associated reproductive disability in Perth, Western Australia (Webb & Holman, 1992). This survey indicated that of the 3.5 per cent of couples with current infertility (non-surgical), 68 per cent have an associated reproductive disability defined in terms of the couple being unable to achieve a desired level of reproductive function. From a review of patients at an Adelaide infertility clinic indicating that 83 per cent of couples with current reproductive disability seek assisted reproductive technologies (ART), and that 30 per cent of these couples achieve a pregnancy within two years (Weiss *et al*., 1992), we derived a net prevalence of 1.07 and 0.64 per cent for short-term reproductive disability in men and women respectively, and 0.70 and 0.42 per cent for long-term reproductive disability. For short-term cases, we assumed a duration of two years. For long-term cases, we derived incidence and duration from DisMod 2, assuming non-zero remission rates from age 30 years to account for the declining prevalence of reproductive disability (reflecting adoptions and changes in reproductive goals). For women, we subtracted from the total number of long-term incident cases the estimated incidence of infertility as a sequela to pelvic inflammatory disease (the disability of which is calculated under chlamydia, maternal sepsis and abortion). We determined the duration of long-term infertility by subtracting the age at onset estimated in DisMod 2 from 45 years. We used GBD weights for both short- and long-term reproductive disability.

3.13.5 Other genitourinary diseases

For this residual category, we assumed the application of a simple YLD:YLL ratio of 1 across the age groups is sufficient to capture the morbidity from other genitourinary diseases in males. This method, however, does not capture the significant burden experienced by females, particularly at younger ages. We thus developed separate models for menstrual disorders and hysterectomies for menorrhagia, genital prolapse and endometriosis. We based our estimates for menstrual disorders on women with self-reported menstrual problems in the two weeks prior to interview in the 1995 National Health Survey (ABS, 1996a). We assumed these women have problems for one week in four throughout the year and that the incidence of episodes is double the reported two-week prevalence. We applied an average derived weight of 0.0325, assuming that half the women have moderate pain (0.056) and the other half have no or mild pain (0.009).

We modelled disability from hysterectomies for menorrhagia, genital prolapse and endometriosis in terms of disability from both the procedure and the resulting infertility. We derived the number of procedures from hospital data, and we assumed a two-week duration at the derived weight for laparotomy of 0.349. Following the findings of a survey of surgical sterility in Perth (Webb & Holman, 1992), we assumed the majority of women who undergo a hysterectomy have completed their reproductive objectives, and that infertility leads to disability in 3.3 per cent of cases of endometriosis. We applied the relevant GBD weight to this health state.

3.14 Musculoskeletal diseases

Musculoskeletal diseases are highly prevalent in the population, especially according to self-reports. The fair to good test-retest reliability of self-reported musculoskeletal diseases and the consistent correlation with pain make self-reports a useful tool to measure musculoskeletal conditions in health surveys. These self-reports, however, cannot be used for case definition in epidemiological studies. Although the absolute prevalence of most musculoskeletal diseases differs substantially across studies, and the self-reporting surveys show the highest prevalence, the pattern of prevalence in men and women is often similar. A higher prevalence of herniated disc of the back and gout is found in men, whereas the prevalence of most other musculoskeletal diseases is higher among females than among men (Picavet & Hazes, 2003).

3.14.1 Rheumatoid arthritis

Given the small numbers in Australian studies on rheumatoid arthritis, along with problems with proper incidence and remission measurement, we based our incidence estimates for this condition on the international literature. For juvenile chronic arthritis, we used findings from a population study during 1984–88 in south-western Sweden (Gare & Fasth, 1992). For adults, we used results from a register of diagnosed patients in Oslo, Norway (Uhlig *et al.*, 1998). We derived durations from DisMod 2, assuming a relative risk of mortality of 1.6 at age 15 years and above (Pincus, Brooks & Callahan, 1994) (with no increased risk for children) and a remission rate of 0.04 (Prevoo *et al*., 1996). The latter rate indicates that drug treatment may slow the disease process, but that few patients go into lasting remission (Brooks & March, 1995). Because progression through the three stages of rheumatoid arthritis described by the Dutch weights is relatively rapid, we did not model this condition as progressive. Rather, we applied an average of the Dutch weights using severity distributions for American adults (Hakala, Nieminen & Koivisto, 1994) and Swedish children (Gare & Fasth, 1992).

3.14.2 Osteoarthritis

While there are a few Australian population-based studies on self-reported osteoarthritis (Jones *et al*., 1995, March *et al*., 1998), we chose to base our estimates for this condition on reported findings of radiographic osteoarthritis (grade 2 and above) by affected joint, age and sex from a large scale study in Massachusetts (Oliveria *et al*., 1995). We modelled hip and knee osteoarthritis only, given the high correlation between osteoarthritis of the hip, hand and fingers (Spector *et al.*, 1997). We used DisMod 2 to derive average durations, assuming a slightly increased risk of mortality (RR = 1.1) and the observed remission rate from joint replacement surgery. Because osteoarthritis is a relatively slow progressive disease, with few patients showing symptomatic progression over an 11-year period (Ahern & Smith, 1997), we applied an average of the relevant Dutch weights, assuming a severity distribution based on Kellgren-Laurence grades 2, and 3–4 from the Framingham study (Guccione, Felson & Anderson, 1990). We used the weight adjustment method to account for the likelihood of comorbidity between osteoarthritis at older ages and other high prevalence conditions.

3.14.3 Back pain

Our estimates for this condition are based on self-reported prevalence of back pain during the two weeks prior to interview in the 1995 National Health Survey (ABS, 1996a). The Dutch weight for this condition (0.06) applies to an average health state involving moderate limitations in walking about and undertaking usual activities, as well as moderate pain. Because large numbers of people reporting back problems report no limitations on the SF-36, we took only those cases reporting at least moderate pain, and moderate or greater limitations in walking about or undertaking usual activities. We assumed an average duration of four days for painful and limiting back pain. We obtained annual incidence from two-week prevalence data by subtracting the estimated cases of a slipped disc in two weeks, and multiplying by 365/17, because an incident case in the three days prior to the two-week survey period will also be reported as a recent health condition.

3.14.4 Slipped disc

Our estimates for slipped discs are based on numbers of intervertebral disc procedures occurring in hospital. We assumed only 7.5 per cent of incident cases of disc displacement receive surgery (Deyo, Loeser & Bigos, 1990), and derived total annual episodes from this proportion. We assumed an episode of discomfort lasts four weeks on average. For those who receive surgery, we took the median time of 224 days reported in the literature for the time from the onset of symptoms to recovery (Rasmussen, 1996). Without weights for both these health states, we used the Dutch weight for low back pain (0.06). Based on a five-year follow-up study (Kurth et al., 1996), we modelled 14 per cent of operated cases as going on to experience long-term chronic pain, which we assumed to have both physiological and psychological dimensions equivalent to a derived weight of 0.125 (50 per cent of time at EQ-5D+ state 111221).

3.14.5 Occupational overuse syndrome

Occupational overuse syndrome (formerly known as repetitive strain injury, or RSI) is a contentious condition with considerable disagreement within the literature about its aetiology and pathophysiology (Byrne, 1992, Cohen *et al*., 1992, Helme, LeVasseur & Gibson, 1992). Workers compensation claims data are a source of information on incidence, although the resulting estimates would clearly be influenced by access to compensation and recent changes in policy regarding compensation awards for this condition. Our model, therefore, relied on self-reported

prevalence data on 'repetitive strain injury' from the 1993 Australian Bureau of Statistics Survey of Disability, Ageing and Carers (ABS, 1993), from which we derived incidence figures using DisMod 2, assuming an average duration of three years and no mortality. Without Dutch or GBD weights for this condition, we used sex-specific derived weights to account for all males in the 1993 survey having a mild or no handicap, 26 per cent of females having a moderate handicap and 17 per cent of females having a severe/profound handicap.

3.14.6 Other musculoskeletal disorders

Given that 49 per cent of deaths from musculoskeletal disorders do not fall within the above categories, we assumed a concomitant level of the disability for those who do not die of these conditions. Without information allowing a more detailed analysis of this burden, we defined an 'other' category comprising both prevalent minor conditions and more serious diseases (for example, joint derangement and disorders, osteopathies, chondropathies and other bone disorders, connective tissue diseases such as systemic lupus erythematosus, and soft tissue problems such as rheumatism, ganglions, bunions, bursitis, cramps, tenosynovitis and tennis elbow). We based our estimates for these conditions on the prevalence of recent or chronic 'other musculoskeletal disorders' with less than good health as reported in the 1995 National Health Survey (ABS, 1996a). Based on figures from the Survey of Disability, Ageing and Carers (ABS, 1999a), we assumed a proportion of prevalent cases are reporting on musculoskeletal sequelae of other diseases or injuries, which we accounted for by adjusting overall prevalence figures downwards by 50 per cent.

For recent non-chronic cases, we assumed the same duration and weight as for low back pain. For chronic cases, we derived incidence rates and durations from DisMod 2, assuming the same mortality and remission rates as for osteoarthritis. We took the proportion reporting symptoms in the two weeks prior to interview as an approximation of the proportion of time spent symptomatic, and we assumed symptomatic chronic cases experience a health state equivalent to the weight for low back pain. We made no adjustments for comorbidity.

3.15 Congenital anomalies

We based our estimates for congenital anomalies on those reported to the Victorian Perinatal Data Collection Unit for 2001. We assumed around 25 per cent of infants with serious malformations have multiple malformations involving more than one system. To avoid double counting these infants, we calculated disability for only the most 'severe' malformation. The hierarchy we adopted, in descending order of severity, is as follows: Down syndrome or other chromosomal abnormalities; spina bifida; congenital heart disease; digestive system malformations; other urogenital system malformations; cleft lip or palate; and other digestive malformations.

3.15.1 Congenital heart disease

We modelled live-born infants with congenital heart malformations (excluding those with atrial or ventricular septal defects) as having reduced life expectancy as reported in the literature (Miyamura, Eguchi & Asano, 1993, Nollert *et al*., 1997a, Nollert *et al*., 1997b). We derived the incidence of surgically treated septal defects, Fallot's tetralogy or transposition of great arteries, and pulmonary stenosis from hospital data. For each of these conditions, we assumed lifelong underlying disability starting at birth, using the relevant Dutch weights and a one-year period prior to operation with symptoms equivalent to the Dutch weight for moderate heart failure (0.35). The YLD is discounted back to birth. We assumed non-operated cases of septal defect resolve spontaneously and have no associated disability. Following expert advice, we assumed 50 per cent of 'other' congenital heart malformations are complex but not curatively operable and reduce life expectancy to half that of those with surgically treatable conditions.

3.15.2 Digestive system malformations

Digestive system malformations for which we calculated the YLD include anorectal atresia, oesophageal atresia and an 'other' category. For live-born infants with either of the first two conditions, we assumed 26 weeks of disability from birth at the GBD weight for anorectal atresia. After this period, we assumed a proportion have lifelong problems (15 per cent and 10 per cent for anorectal atresia and oesophageal atresia respectively) and shortened life expectancy (by 10 and five years respectively), as in the Burden of Disease Study 1996. We assumed the EQ-5D+ weight for health state 111211 applies to both conditions two thirds of the time. For the 'other' category, we assumed no long-term disability, and a one-month period of disability from birth at the GBD weight for anorectal atresia.

3.15.3 Genitourinary tract malformations

For genitourinary tract malformations (including cystic kidney disease, obstructive defects of renal pelvis and ureter, and other urinary tract malformations, but excluding renal agenesis), we assumed 30 per cent of live births result in chronic lifelong problems, with a life expectancy of 50 years. For renal agenesis, we assumed the 51 per cent of live births that die in the neonatal period are bilateral cases. Those who survive the neonatal period were assumed to be unilateral cases (of whom 20 per cent have ongoing problems), with a life expectancy of 70 years. We calculated the YLD for renal dysplasia and end-stage renal failure due to cystic kidney disease (discounted back to birth) as a proportion of all renal failure, but attributed this disability to genitourinary tract malformations.

3.15.4 Other congenital anomalies

For spina bifida, we adjusted the average annual number of live births downwards by 37 per cent to account for neonatal deaths (based on mortality data from the Perinatal Data Collection Unit). Without Australian birth cohort studies, we took the life expectancy for this condition in established market economies from the GBD study. We used an average of the Dutch weights for the various levels of severity associated with this condition, using severity distributions from the National Perinatal Statistics Unit. For live births with a cleft lip or palate, we assumed all are treated (Lancaster, Hanafi & Jackson, 1999), with a residual lifelong disability at a level equivalent to the 'treated' GBD weights for these conditions. The YLD estimates for Down syndrome and other chromosomal anomalies were calculated as described in the section on intellectual disability.

3.16 Skin conditions and oral health

3.16.1 Eczema and other skin conditions

We modelled the incidence of severe eczema (that is, an episode in the previous 12 months that disrupts sleep one or more nights per week on average) on prevalence figures in childhood (Robertson *et al*., 1998) and on the prevalence in adults of self-reported eczema as a chronic problem from the 2001 National Health Survey (ABS, 2002). Our estimates for acne and other diseases of the skin are based on self-reported 'treated' prevalence figures from the National Health Survey but, given that the self-report estimates for eczema are two times higher than measured prevalence figures, we adjusted these figures downwards by 50 per cent. We derived incidence and duration estimates from DisMod 2, assuming a remission rate of 0.25 for eczema and 0.12 for other skin conditions (except for the age groups 15–24 years and 25–34 years, for which we assumed rates of 0.5 and 0.25 respectively). We used the disability weights developed for the Burden of Disease Study 1996.

3.16.2 Oral health

In Australia, as in most other industrialised countries, there has been a dramatic decline in caries in children and adolescents, with a high caries experience now affecting a minority of the younger population. This decline in caries activity has been attributed to increases in preventive measures such as the widespread use of fluoridated toothpaste, fluoridation of public water supplies (for most Australian capital cities except Brisbane), the use of fissure sealants, and changing public awareness. Although the caries experience has not declined markedly in middle-aged to older adults, management of the disease has improved in this population, with fewer teeth extracted and a greater number of teeth filled (Baultutis & Morgan, 1998).

The abbreviations DMFT and DMFS describe the prevalence of dental caries in an individual by calculating the number of decayed (D), missing (M), filled (F) teeth (T) or surfaces (S). The maximum value for DMFT is 28 (permanent) teeth. A more detailed index is DMF calculated per tooth surface: DMFS. The maximum value for DMFS comes to 128 for 28 teeth.

Given that there are no longitudinal studies of caries in children, incidence was estimated from DMFT prevalence data. Fitting a linear regression line to the prevalence data for children with deciduous teeth (children aged 4–8 years) and permanent teeth (children aged 9–15 years) showed that the slope was 0.25 and 0.23 respectively (Davies, Spencer & Slade, 1997).

The incidence of episodes of caries in adults was also derived from DMFT prevalence data. Fitting a linear regression line to the prevalence data by 10-year age groups (from 15–24 years to 55–64 years) from 1987–88 (Barnard, 1993), 1995–96 (DSRU/AIHW, 1997) and 2001–02 (DSRU/AIHW, 2002) surveys respectively yielded a slope of 0.27 for the 1987–88 general population data, and 0.25 and 0.24 for the more recent collections of health service data. The similarity in slope across the various studies can be interpreted as evidence that the incidence of carious elements for young adults and the middle aged is approximately 0.25. This is in keeping with the estimated annual increment for children.

The Adelaide Dental Study of Nursing Homes was conducted in 1997 to provide comprehensive information on the prevalence and incidence of oral diseases in those older South Australians who reside in nursing homes (DSRU/AIHW, 1999). The one-year increment of new carious surfaces developed was 2.5 for coronal surfaces and 1.0 for root surfaces (AIHW Dental Statistics and Research Unit, 2002), 3.5 times greater than estimated for the general population in the same age group. Given the significant proportion of people aged 60+ years who reside in nursing homes, and the higher caries increment rates observed for residents of nursing homes, the general population caries increment was suitably adjusted.

Brennan and Spencer reported a duration of 81 weeks for caries (Brennan & Spencer, 2004). Data were collected in 2001–02 from a random sample of South Australian dentists using mailed self-complete questionnaires. Dentists recorded the diagnosis of dental problems and provided patients with self-complete questionnaires to record the nature, severity and duration of symptoms. Data were available from 378 dentists (response rate = 60 per cent). The finding of 81 weeks is considerably longer than the duration of eight to 10 weeks used in the Burden of Disease Study 1996. We used the new estimate of 81 weeks for our calculations here. From EQ-5D+ descriptions of severity and the regression model on EQ-5D+ descriptions and Dutch disability weights developed for the Australian Burden of Disease Study (Mathers, Vos & Stevenson, 1999), an average disability weight of 0.044 was derived (Brennan & Spencer, 2004). This is significantly higher than the 0.005 used in the Burden of Disease Study 1996 (DHS, 1999a). However, in the regression model, the disability weight for caries is an outlier, with the regression model predicting a disability weight value that is 10 times higher than the value from the Dutch panels using the person trade-off method. We thus adjusted Brennan and Spencer's disability weight according to the difference between the Dutch panel estimate and the regression model. The adjusted value of 0.0044 is comparable to that used in Burden of Disease Study 1996 (DHS, 1999a).

We modelled the incidence of periodontal disease (pockets of 6 millimetres or more deep) from the prevalence reported in the 1987–88 National Oral Health Survey of Australia (Barnard, 1993), a relative risk of mortality of 1, and an average duration of 0.942 years (Brennan & Spencer, 2004), using DisMod 2. In keeping with the approach used to model caries, we adjusted the disability weight estimated from the South Australian Burden of Oral Disease Study for periodontal pockets of 6 millimetres or more deep (0.023) (Brennan & Spencer, 2004) by a factor of 10 (to account for the lack of sensitivity in the EuroQol regression model for low disability weights), thus resulting in a adjusted value of 0.0023.

The prevalence of edentulism has declined from 80 per cent to around 40 per cent for persons aged 65+ years over the past 15–20 years and is continuing to decline (Sanders *et al*., 2004). We used DisMod 2 to estimate the incidence and duration of edentulism in Victoria in 2001, from the prevalence reported in the literature (Adams *et al*., 2003), assuming no remission and a relative risk of mortality of 1. Based on published data (Slade & Spencer, 1994), we assumed that edentulism is associated with moderate discomfort or pain 25 per cent of the time in 10 per cent of cases (EQ5D+ 111211 with a disability weight of 0.056)–of whom half also have moderate anxiety or depression 25 per cent of the time (5 per cent of cases with EQ-5D+ 111221 with a disability weight of 0.249)–and with moderate discomfort, moderate anxiety or depression, combined with inability to carry out social roles, 25 per cent of the time in 0.5 per cent of cases (EQ-5D+ 113221 with a disability weight of 0.388). Using the EQ-5D+ regression model, we arrived at an average weight of 0.0043 for cases of edentulism.

3.17 Ill-defined conditions

This category includes sudden infant death syndrome (SIDS) and chronic fatigue syndrome (CFS), for which our understanding of aetiology is incomplete. By definition, SIDS is associated only with mortality, so all burden associated with this condition is captured in our YLL estimates.

Our model for CFS assumed this condition is characterised by fatigue lasting more than six months that interferes with daily life (Wessely, 1995). This is a less restrictive definition than used in the early studies on CFS. Our estimates of prevalence and severity are based on self-reported CFS as the 'main disabling condition' from the Australian Bureau of Statistics Survey of Disability, Ageing and Carers (ABS, 1999a), to which we applied an age distribution from a 1989 population study of inhabitants of the Richmond Valley, New South Wales (Lloyd *et al*., 1990). We derived incidence estimates from DisMod 2, assuming no excess mortality and remission rates that give an average duration of 30 months. Without a weight for this condition, we used derived weights of 0.760 for severe or profound handicap, 0.449 for moderate handicap and 0.137 for mild handicap or disability without handicap, in combination with reported levels of severity, as we did for the Burden of Disease Study 1996 (DHS, 1999a). The compound weights are 0.361 and 0.376 for males and females respectively.

3.18 Injuries

Our analysis of the morbidity burden from injuries used the method developed for the Burden of Disease Study 1996, which defined a non-fatal incident injury case as a person with an injury that is severe enough to warrant hospital treatment but that does not lead to death (DHS, 1999a, b). This method assumes that injuries treated outside the hospital system do not result in significant disability. We derived non-fatal incident injuries from linked hospital inpatient data and hospital emergency departments from the VEMD.

For hospitalisations, we classified incident cases according to a matrix of 14 'external cause of injury' categories (12 unintentional and two intentional) and 32 'nature of injury' categories. Excluded are admissions for the same ICD-10 code within 90 days (on the assumption that these are re-admissions) and admissions resulting in death. Given that it is not uncommon for multiple sites of the body to be damaged from a single accident, we estimated disability for only the most disabling ICD-10 code associated with each incident (using the hierarchy outlined in table 5), on the assumption that the disability for the other ICD-10 codes is captured in the weight for the more severe injury. We redistributed ill-defined and minor ICD-10 codes to other nature of injury categories before applying this hierarchy using the methods described in the GBD study. We assumed half the hospitalisations coded as 'amputated finger' are partial and accordingly adjusted our incidence estimates for this injury downwards.

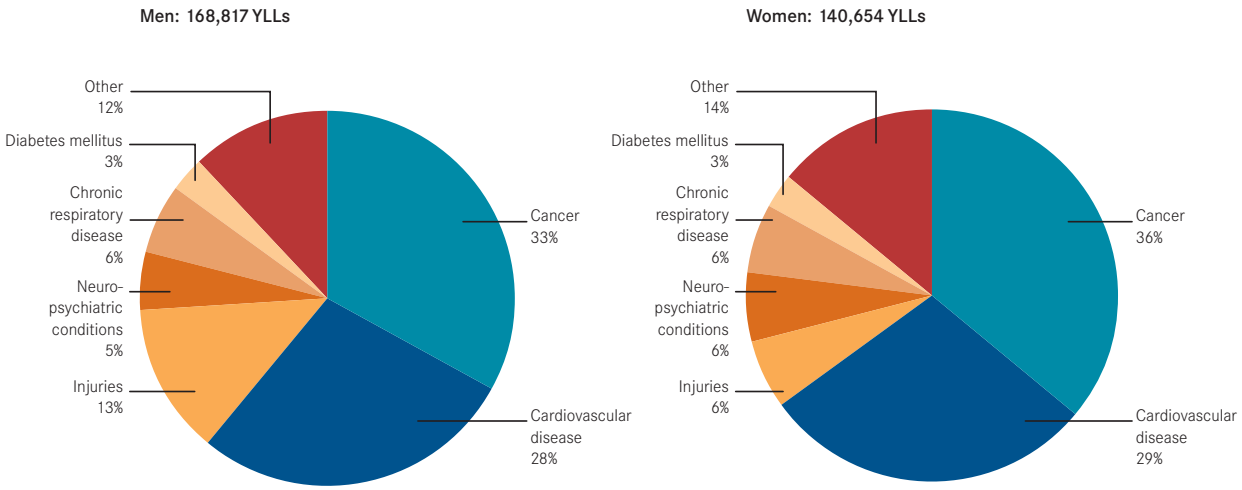
Our estimates for non-admitted emergency department presentations are based on information from the VEMD hospitals submitting data in 2001. We used the VEMD fields relevant to 'nature of injury' and 'external cause of injury'. We assumed the age- and sex-specific ratios of VEMD hospital admissions to all hospital admissions are the same for emergency department presentations, and used these to extrapolate the statewide incidence of hospital-treated injury. For each 'nature of injury' category, we assumed all incident cases are treated and, following the GBD study, that a proportion goes on to experience long-term disability. We used the GBD weights and durations for these health states with the following minor modifications. The zero weight for, other dislocations, is inconsistent with the weighting given to, shoulder dislocations, and we used the weight for dislocated shoulder instead. Without a weight for the proportion of eye injuries with short-term disability, we used the weights for open wounds. We assumed the discrepancy between the weights for an amputated arm is the result of a misprint and used the higher weight (0.308 as opposed to 0.102).

4. Results

4.1 Years of life lost

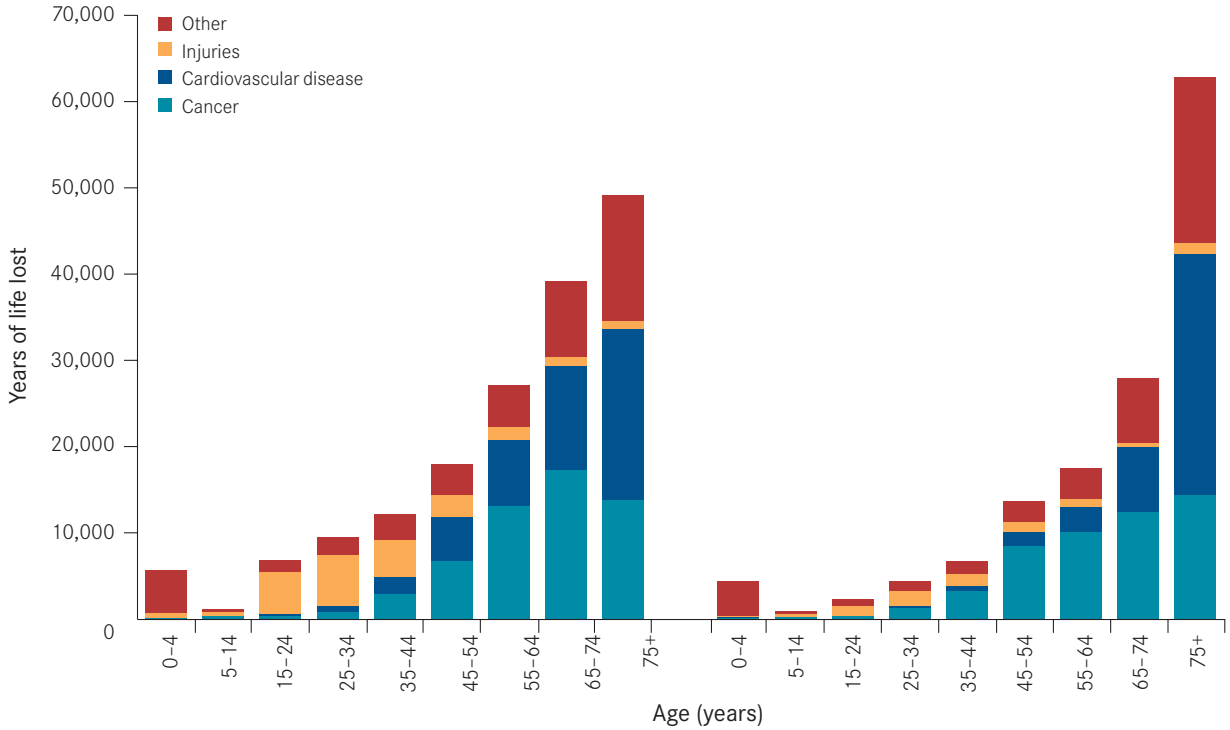
In 2001, premature mortality is responsible for 168,817 years of life lost (YLLs) in males and 140,654 in females. Cardiovascular disease, cancers and injuries are responsible for two thirds of the total mortality burden in both males and females (figure 3).

Figure 3 The mortality burden in YLLs by sex and broad disease grouping, Victoria, 2001



Cancers are a more important cause of years of life lost than is cardiovascular disease at all adult ages below 75 years. In people over 75 years, cardiovascular diseases are responsible for half the number of years lost. In young adult life, injuries are the main cause of years of life lost. Neonatal conditions dominate the mortality burden in the age group under 5 years (figure 4).

Figure 4 YLLs by age, sex and broad disease grouping, Victoria, 2001



Ischaemic heart disease is by far the largest cause of years of life lost in both men and women. Stroke is the second cause in women, followed by breast and lung cancers. In men, lung cancer ranks second, followed by suicide, stroke, and bowel cancer (table 10).

Table 10 Top 20 causes of mortality burden in YLLs by sex, Victoria, 2001

	Males	YLLs	% of total YLLs		Females	YLLs	% of total YLLs
1	Ischaemic heart disease	31,050	18.4	1	Ischaemic heart disease	21,936	15.6
2	Lung cancer	13,079	7.7	2	Stroke	11,582	8.2
3	Suicide	9,313	5.5	3	Breast cancer	9,797	7.0
4	Stroke	9,036	5.4	4	Lung cancer	8,070	5.7
5	Bowel cancer	7,636	4.5	5	Bowel cancer	6,599	4.7
6	Road traffic accidents	6,880	4.1	6	Chronic obstructive pulmonary disease	5,310	3.8
7	Chronic obstructive pulmonary disease	6,758	4.0	7	Diabetes	3,984	2.8
8	Prostate cancer	5,614	3.3	8	Alzheimer's and other dementias	3,862	2.7
9	Diabetes	4,581	2.7	9	Ovary cancer	3,172	2.3
10	Pancreas cancer	2,920	1.7	10	Suicide	3,091	2.2
11	Brain cancer	2,642	1.6	11	Pancreas cancer	2,613	1.9
12	Lymphoma	2,533	1.5	12	Lymphoma	2,430	1.7
13	Cirrhosis of the liver	2,345	1.4	13	Road traffic accidents	2,426	1.7
14	Oesophagus cancer	2,238	1.3	14	Nephritis and nephrosis	2,395	1.7
15	Stomach cancer	2,226	1.3	15	Brain cancer	2,002	1.4
16	Leukaemia	2,222	1.3	16	Lower respiratory tract infections: pneumonia	1,993	1.4
17	Alzheimer's and other dementias	2,160	1.3	17	Leukaemia	1,807	1.3
18	Nephritis and nephrosis	2,145	1.3	18	Stomach cancer	1,560	1.1
19	Liver cancer	1,881	1.1	19	Hypertensive heart disease	1,436	1.0
20	Heroin or poly-drug use and dependence	1,853	1.1	20	Inflammatory heart disease	1,230	0.9

The Health Ministers have endorsed seven national health priority areas: asthma, cancer control, cardiovascular health, diabetes mellitus, injury prevention and control, mental health, arthritis and musculoskeletal conditions. Five of these (cardiovascular disease, cancer, injuries, diabetes and mental health) account for 16 of the top 20 conditions in terms of YLLs for males and females. Appendix tables 3 and 4 present further details of deaths and YLLs by age and sex.

4.2 Years lost due to disability

4.2.1 Incident disability burden in Victoria

In 2001, non-fatal diseases and injuries are responsible for 169,593 years lost as a result of disability (YLD) in males and 174,078 in females (figure 5), or almost half the total burden of disease and injury in Victoria. Mental disorders and neurological conditions contribute most to the total non-fatal burden, accounting for 43 per cent in males and 46 per cent in females. While cardiovascular disease, cancer and injuries cause about 75 per cent of the total mortality burden, these disease categories account for only 22 per cent of the total YLDs for males and 18 per cent for females.

Figure 5 The disability burden in YLDs by sex and broad disease grouping, Victoria 2001

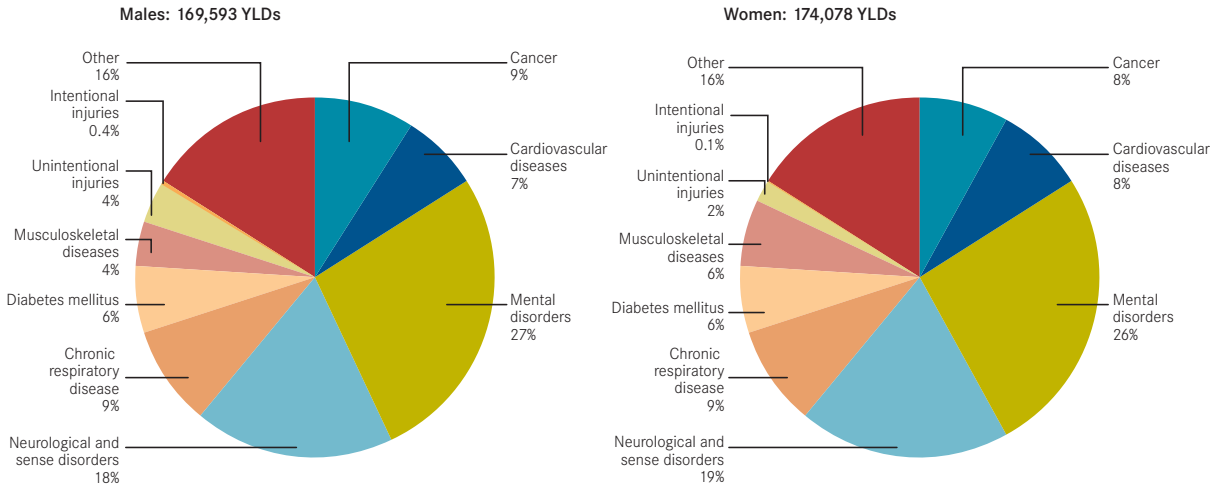
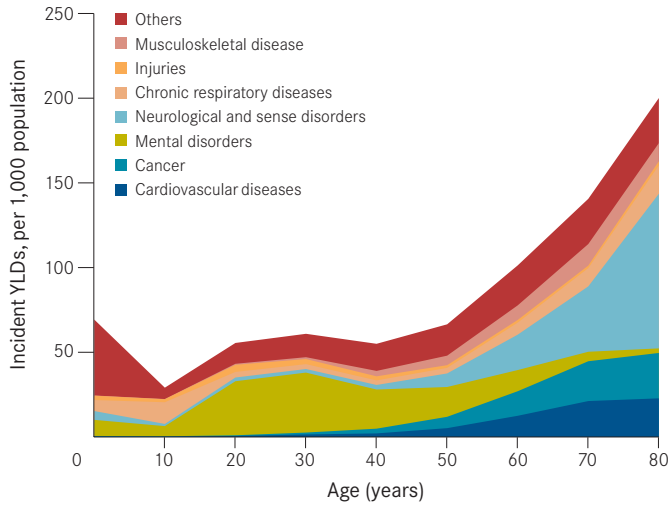


Figure 6 Incident YLD rates per 1,000 population by age and broad disease grouping, Victoria, 2001

The overall per capita burden from non-fatal disease and injury increases with age, with peaks in childhood and early adulthood (figure 6). Mental disorders are by far the most important cause of disability for 20–50 year olds and account for the majority of the non-fatal burden in early adulthood, after which the contribution of this group of conditions decreases.



This contrasts with the non-fatal burden attributable to cancer, cardiovascular diseases and vision and hearing loss, which is small in mid-adulthood but becomes progressively larger at older ages. Chronic respiratory conditions account for a small but consistent proportion of the total disability burden, with a peak in childhood due to asthma and a later peak at older ages from chronic obstructive pulmonary disease. Likewise, the contribution of injuries is small but constant, with minor increases in early adulthood due to road traffic accidents.

Depression is the largest single cause of YLDs in both males and females, although this mental disorder accounts for a greater burden in females than in males (table 11). Dementia is the second leading cause of YLDs in women, followed by diabetes and asthma. In males, diabetes ranks second, followed by hearing loss, dementia and asthma. Mental disorders account for seven of the top 20 leading causes of non-fatal burden in males and for five in females.

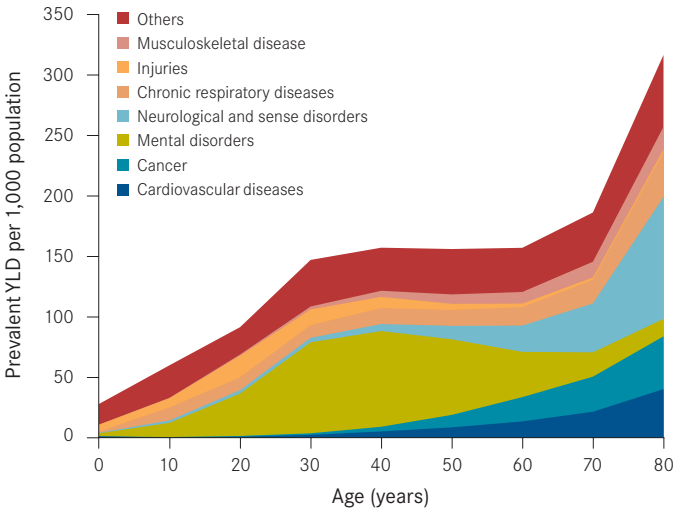
Table 11 Top 20 causes of disability burden in YLDs by sex, Victoria, 2001

	Males	YLDs	% of total YLDs		Females	YLDs	% of total YLDs
1	Depression	13,896	8.2	1	Depression	17,285	9.9
2	Diabetes	10,733	6.3	2	Alzheimer's and other dementias	13,785	7.9
3	Hearing loss	9,082	5.4	3	Diabetes	9,884	5.7
4	Alzheimer's and other dementias	8,470	5.0	4	Asthma	8,425	4.8
5	Asthma	6,990	4.1	5	Generalised anxiety disorder	8,382	4.8
6	Prostate cancer	5,748	3.4	6	Stroke	7,514	4.3
7	Stroke	5,677	3.3	7	Breast cancer	6,385	3.7
8	Chronic obstructive pulmonary disease	4,921	2.9	8	Osteoarthritis	5,961	3.4
9	Osteoarthritis	4,765	2.8	9	Hearing loss	5,288	3.0
10	Ischaemic heart disease	4,184	2.5	10	Caries	4,190	2.4
11	Caries	4,002	2.4	11	Borderline personality disorder	3,803	2.2
12	Psychoses	3,950	2.3	12	Ischaemic heart disease	3,621	2.1
13	Generalised anxiety disorder	3,943	2.3	13	Chronic obstructive pulmonary disease	3,321	1.9
14	Borderline personality disorder	3,530	2.1	14	Psychoses	3,159	1.8
15	Benign prostatic hypertrophy	3,360	2.0	15	Rheumatoid arthritis	3,093	1.8
16	Alcohol dependence and harmful use	3,045	1.8	16	Social phobia	2,970	1.7
17	Social phobia	2,460	1.5	17	Infertility	2,535	1.5
18	Bowel cancer	2,403	1.4	18	Incontinence	2,034	1.2
19	Parkinson disease	2,385	1.4	19	Refraction errors	2,025	1.2
20	Autism	2,196	1.3	20	Parkinson's disease	1,977	1.1

4.2.2 Prevalent disability burden in Victoria

Figure 7 illustrates the prevalent non-fatal burden by age in Victoria in 2001, in terms of the major disease and injury groups described in figure 6. As mentioned, the difference between the approaches is most apparent for childhood conditions and chronic mental disorders, which peak in incidence in childhood and early adulthood respectively–hence the disproportionately large number of incident YLDs at these life stages compared with prevalent YLDs. For the rest of this report and the main tabulations, we present disability-adjusted life years (DALYs) based on the incident YLD.

Figure 7 Prevalent YLD rates per 1,000 population by age and broad disease grouping, Victoria, 2001

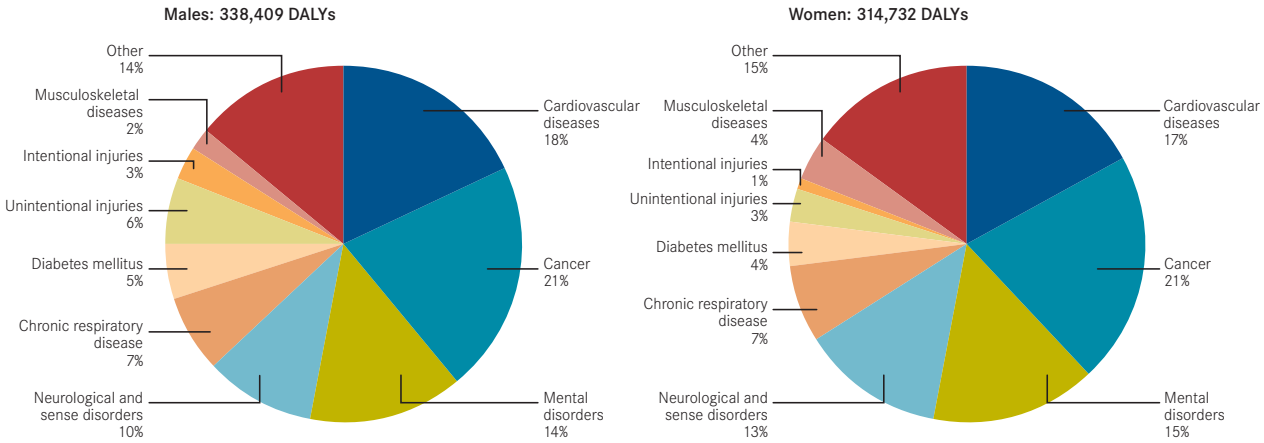


4.3 Disability-adjusted life years

4.3.1 Morbidity and mortality burden in Victoria

The overall size of the burden of disease and injury in Victoria in 2001 is 338,409 DALYs in males and 314,732 in females (figure 8). The proportions attributable to selected main causes are similar for both sexes. Cardiovascular diseases and cancer contribute equally, together accounting for 39 per cent of the total burden. Mental disorders are the next largest contributors, accounting for about 15 per cent in both sexes. In males, 9 per cent of the total burden is attributable to injuries, which is over twice that experienced by females (4 per cent).

Figure 8 The disease and injury burden by sex and broad disease grouping, Victoria, 2001



Per capita total burden from disease and injury increases exponentially with age (figure 9), with peaks in childhood and early adulthood that are similar to, but smaller than, those observed for the non-fatal burden. Mental disorders are the most important single group of causes of total disease burden for 15–34 year olds and account for the increase in total burden in early adulthood, after which the contribution from these disorders decreases at older ages. The contribution from cardiovascular disease and cancer becomes important from the age of 35 years and increases exponentially thereafter to over half the total burden in the elderly.

Ischaemic heart disease is the largest single cause of DALYs in both men and women, accounting for about 10.3 per cent and 8.1 per cent of the total burden in Victorian males and females respectively in 2001 (table 12). Stroke, dementia, depression and breast cancer are next four leading causes of DALYs in women. In men, diabetes, stroke, lung cancer and depression make up the next top four causes of DALYs.

Figure 9 DALYs (rates and numbers) by age and broad disease grouping, Victoria, 2001

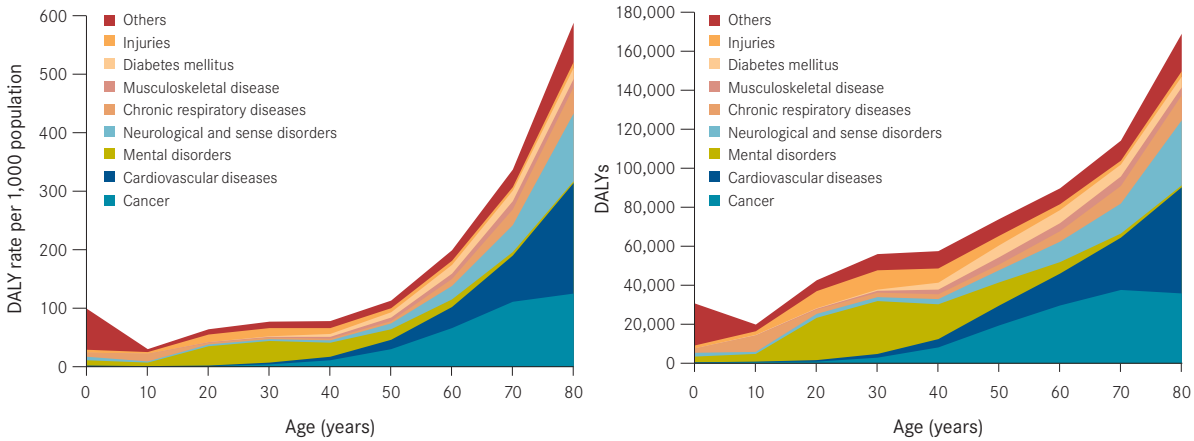


Table 12 Top 20 causes of burden of disease in DALYs by sex, Victoria, 2001

	Males	DALYs	% of total DALYs		Females	DALYs	% of total DALYs
1	Ischaemic heart disease	35,233	10.4	1	Ischaemic heart disease	25,557	8.1
2	Diabetes	15,315	4.5	2	Stroke	19,096	6.1
3	Stroke	14,713	4.3	3	Alzheimer's and other dementias	17,647	5.6
4	Lung cancer	14,240	4.2	4	Depression	17,346	5.5
5	Depression	13,927	4.1	5	Breast cancer	16,182	5.1
6	Chronic obstructive pulmonary disease	11,680	3.5	6	Diabetes	13,868	4.4
7	Prostate cancer	11,362	3.4	7	Asthma	9,106	2.9
8	Alzheimer's and other dementias	10,629	3.1	8	Lung cancer	8,824	2.8
9	Bowel cancer	10,039	3.0	9	Chronic obstructive pulmonary disease	8,631	2.7
10	Suicide	9,346	2.8	10	Bowel cancer	8,489	2.7
11	Hearing loss	9,082	2.7	11	Generalised anxiety disorder	8,382	2.7
12	Road traffic accidents	8,329	2.5	12	Osteoarthritis	6,036	1.9
13	Asthma	7,748	2.3	13	Hearing loss	5,288	1.7
14	Osteoarthritis	4,847	1.4	14	Caries	4,190	1.3
15	Psychoses	4,040	1.2	15	Borderline personality disorder	3,803	1.2
16	Caries	4,002	1.2	16	Ovary cancer	3,626	1.2
17	Generalised anxiety disorder	3,943	1.2	17	Rheumatoid arthritis	3,443	1.1
18	Alcohol dependence and harmful use	3,691	1.1	18	Psychoses	3,256	1.0
19	Heroin or poly-drug use and dependence	3,591	1.1	19	Road traffic accidents	3,174	1.0
20	Borderline personality disorder	3,530	1.0	20	Suicide	3,129	1.0

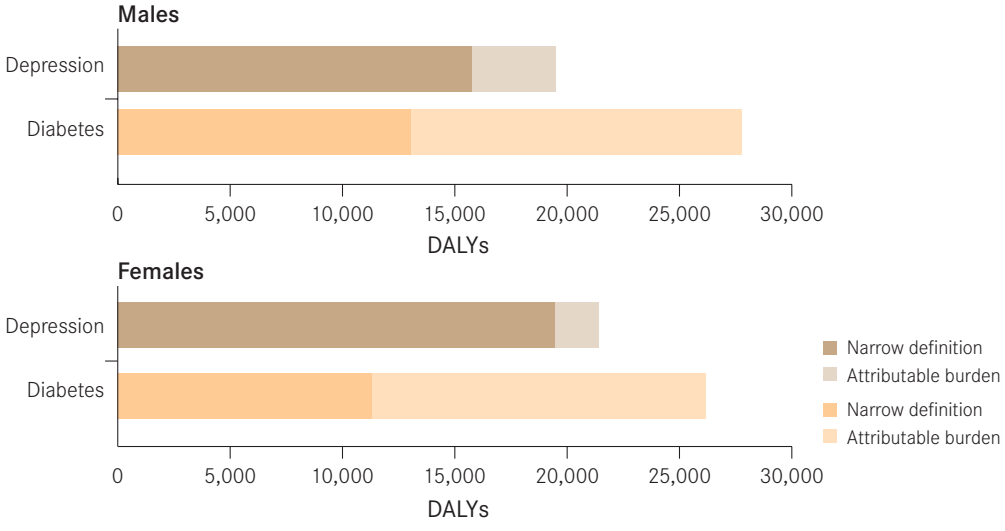
4.3.2 Attributable and aggregated disease burden for selected conditions

The disease categories used in this study do not entirely capture the contribution of diabetes and depression to the total burden. This occurs because these conditions, in addition to their direct sequelae, present an increased risk of other diseases or injuries. This 'attributable' burden can be estimated using similar methods to those used for estimating the burden attributable to risk factors (that is, by applying attributable fractions). For diabetes, the attributable burden comes from an increased risk of ischaemic heart disease, stroke and peripheral vascular disease. For depression, the attributable burden comes from an increased risk of suicide and ischaemic heart disease. In addition, we recalculated the YLD for depression without the comorbidity correction that is applied in the main results (table 13, figure 10).

Table 13 Attributable disease burden for selected conditions by sex, Victoria, 2001

	DALYs	
	Males	**Females**
Diabetes per se	13,064	11,319
Retinopathy	164	202
Cataract	34	54
Glaucoma	82	51
Diabetic foot	8	6
Amputations	51	17
Renal failure	189	116
Neuropathy	1,723	2,102
Ischaemic heart disease	10,324	7,725
Stroke	2,151	4,560
Attributable burden of diabetes	**27,790**	**26,153**
Depression per se	15,778	19,498
Suicide and self-inflicted injury	2,766	1,646
Ischaemic heart disease	947	269
Attributable burden of depression	**19,491**	**21,412**

Figure 10 Narrowly defined and attributable burden for depression and diabetes by sex, Victoria, 2001



Certain other conditions such as vision disorders, intellectual disability and renal failure have multiple underlying causes, and their 'aggregated' burden is considerable (which may not be apparent). The aggregated vision disorder burden comes from retinopathy, glaucoma, cataract, refraction errors, age-related macular degeneration and other causes of vision loss. For renal failure, the aggregated burden comes from diabetic nephropathy, analgesic nephropathy, and congenital conditions (dysplasia, polycystic kidneys). For intellectual disability, apart from congenital conditions (for example, Down syndrome), epilepsy, autism, infection, injury, brain neoplasia, and cerebral palsy also contribute YLDs (table 14).

Table 14 Aggregated disease burden for selected conditions by sex, Victoria, 2001

	DALYs	
	Males	**Females**
Retinopathy	164	202
Glaucoma	585	834
Cataract	184	335
Refraction errors	1,451	2,025
Age-related macular degeneration	1,095	1,967
Other causes of vision loss	1,326	1,718
Aggregated vision disorders	**4,805**	**7,081**
Chromosomal (excluding Down Syndrome)	961	713
Down syndrome	786	919
CNS defects	487	293
Other congenital conditions	1,351	397
Birth trauma	337	197
Low birth weight	316	186
Other perinatal conditions	13	8
Injury	72	30
Infection	144	60
Brain tumour	91	37
Other postnatal conditions	18	8
Epilepsy	250	129
Autism	721	81
Cerebral palsy	240	358
Aggregated intellectual disability	**5,787**	**3,414**
Nephritis and nephrosis per se	2,582	2,678
Nephropathy - Type 1 diabetes	47	29
Nephropathy - Type 2 diabetes	142	87
Analgesic nephropathy	31	19
Congenital dysplasia	4	4
Polycystic kidney disease	45	28
Aggregated renal failure	**2,851**	**2,846**

If the 'aggregated' burden is taken into account, vision disorders ranks 15th in males (just below osteoarthritis), and 12th in females (just above osteoarthritis). Intellectual disability also ranks in the top 20 causes of disease burden, while renal failure ranks in the top 30 causes of disease burden. In the case of vision disorders, the aggregated burden is 1.4 per cent and 2.0 per cent for males and females respectively. For intellectual disability, the figures are 1.7 per cent and 1.1 per cent, and for renal failure, the figure is just under 1.0 per cent in both males and females.

When the 'attributable' burden is taken into account, diabetes is the top ranked cause of DALYs in both males and females. It is followed by ischaemic heart disease, which has a lower burden once the burden attributable to diabetes is removed. Stoke burden is now ranked fifth in males and sixth in females for the same reason (Table 15). Diabetes now accounts for over 8 per cent of the total disease burden in both males and females. Depression accounts for 5.8 per cent and 6.8 per cent in males and females respectively.

Table 15 Top six causes of burden of disease (after accounting for attributable burden) in DALYs by sex, Victoria, 2001

	Males	DALYs	% of total DALYs		Females	DALYs	% of total DALYs
1	Diabetes	27,790	8.2	1	Diabetes	26,153	8.3
2	Ischaemic heart disease	23,962	7.1	2	Depression[a]	21,412	6.8
3	Depression[a]	19,491	5.8	3	Alzheimer's and other dementias	17,647	5.6
4	Lung cancer	14,240	4.2	4	Ischaemic heart disease	17,564	5.6
5	Stroke	12,562	3.7	5	Breast cancer	16,182	5.1
6	Chronic obstructive pulmonary disease	11,680	3.5	6	Stroke	14,537	4.6

a Not adjusted for comorbidity

4.4 Age and sex patterns of disease burden

4.4.1 Children aged 0–14 years

The overall size of the disease burden for boys in 2001 is 36 per cent greater than the burden for girls, reflecting boys' higher disease mortality and incidence for most conditions (figure 11). The overall proportion attributable to selected main causes, however, is similar for both sexes, with roughly equal proportions attributable to neonatal conditions and congenital anomalies. Asthma is the leading cause of disease burden in children in 2001, accounting for 20 per cent of the total disease burden in boys and 22 per cent in girls (table 16). It is followed by autism and low birth weight in boys; in girls, low birth weight and Down syndrome make up the next two causes of DALYs.

Figure 11 Main causes of disease burden in DALYs in children aged 0–14 years, Victoria, 2001

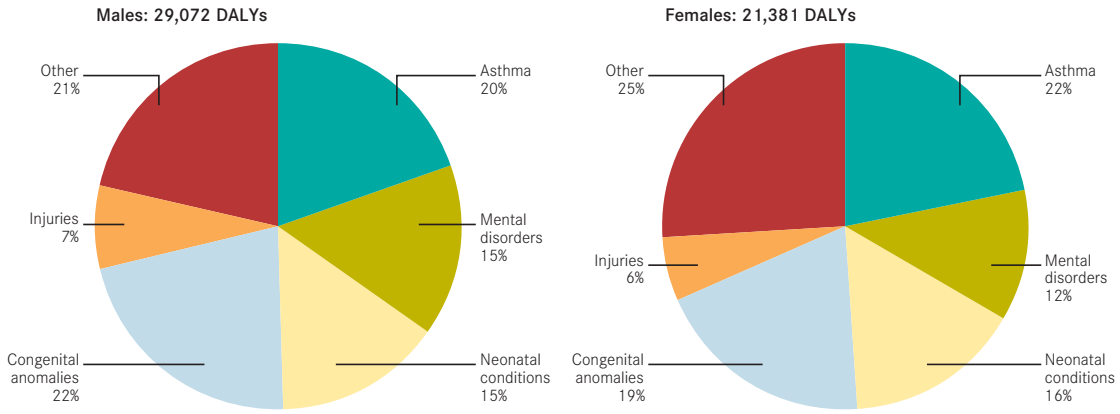


Table 16 Leading causes of DALYs in children 0–14 years by sex, Victoria, 2001

	Boys	DALYs	% of total DALYs		Girls	DALYs	% of total DALYs
1	Asthma	5,699	19.6	1	Asthma	4,662	21.8
2	Autism	2,196	7.6	2	Low birth weight	1,532	7.2
3	Low birth weight	1,635	5.6	3	Down syndrome	1,011	4.7
4	Birth trauma and asphyxia	1,211	4.2	4	Other chromosomal disorders	867	4.1
5	Other chromosomal disorders[a]	1,204	4.1	5	Birth trauma and asphyxia	805	3.8
6	Attention deficit hyperactivity disorder	1,150	4.0	6	Caries	785	3.7
7	Congenital heart disease	1,128	3.9	7	Attention deficit hyperactivity disorder	655	3.1
8	Down syndrome	908	3.1	8	Congenital heart disease	602	2.8
9	Caries	823	2.8	9	Epilepsy	500	2.3
10	Epilepsy	785	2.7	10	Social phobia	463	2.2

a Excluding Down syndrome.

Birth trauma and asphyxia and chromosomal disorders (excluding Down syndrome) occupy the fourth and fifth position in boys, while the order is reversed for girls. The top 10 causes of disease burden account for over 55 per cent of the total disease burden in this age group.

4.4.2 Young adults aged 15–34 years

The overall size of the burden in young adults in 2001 is higher in men than in women, while the proportion attributable to selected main causes is different for the sexes (figure 12). Compared with women, men have over twice the burden attributable to substance abuse disorders. Women have a greater burden of affective disorders (that is, depression and bipolar disorder) and other mental disorders; about half the total burden in women in this age group is attributable to mental disorders. For men, this proportion is just under half. The sex differences in burden attributable to injuries are even more pronounced, with men having almost three times the unintentional and intentional injury burden compared with that for women, largely due to men's greater inclination for risk taking and suicide.

Depression is the leading single cause of burden in both men and women, followed by road traffic accidents and suicide in men, and generalised personality disorder and asthma in women (table 17). For men and women in this age group, mental disorders make up eight and six respectively of the top 10 leading causes of DALYs. The top 10 ranked conditions account for over 50 per cent of the burden in this age group.

Figure 12 Main causes of disease burden in DALYs in people aged 15–34 years, Victoria, 2001

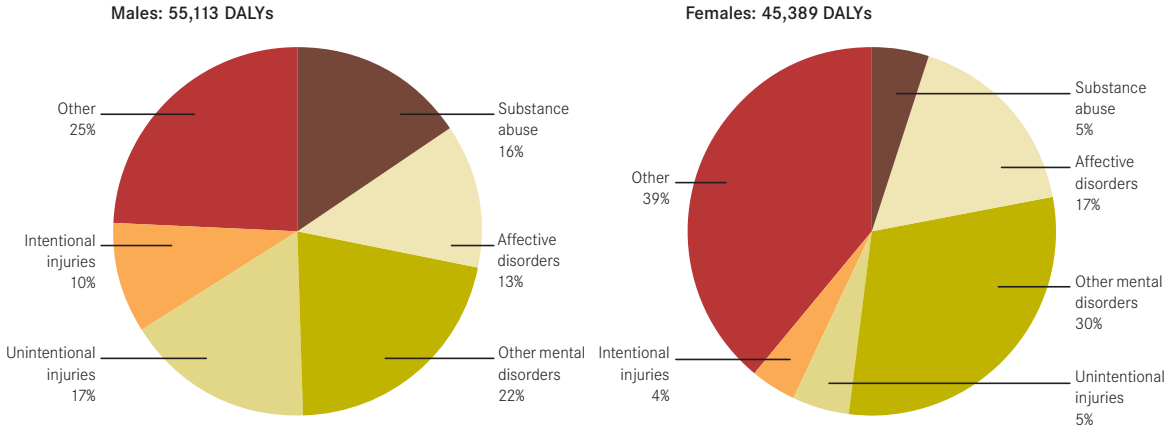


Table 17 Leading causes of DALYs in people 15–34 years by sex, Victoria, 2001

	Males	DALYs	% of total DALYs		Females	DALYs	% of total DALYs
1	Depression	5,094	9.6	1	Depression	5,962	13.1
2	Road traffic accidents	5,019	9.4	2	Generalised anxiety disorder	3,180	7.0
3	Suicide	4,612	8.7	3	Asthma	2,542	5.6
4	Psychoses	3,917	7.4	4	Borderline personality disorder	2,522	5.6
5	Heroin or poly-drug use and dependence	2,981	5.6	5	Social phobia	2,098	4.6
6	Borderline personality disorder	1,959	3.7	6	Psychoses	1,959	4.3
7	Alcohol dependence and harmful use	1,901	3.6	7	Infertility	1,638	3.6
8	Generalised anxiety disorder	1,861	3.5	8	Bipolar affective disorder	1,546	3.4
9	Bipolar affective disorder	1,703	3.2	9	Road traffic accidents	1,450	3.2
10	Cannabis dependence and harmful use	1,683	3.2	10	Suicide	1,428	3.1

4.4.3 Adults aged 35–64 years

The overall size of the burden in adults aged 35–64 years in 2001 is almost 20 per cent higher in men than in women (figure 13). The proportion attributable to selected main causes is also very different. Compared with women, men have up to twice the burden from cardiovascular diseases and injuries, but under three quarters the burden from mental disorders. More than half the total burden in men and women in this age group is attributable to cardiovascular diseases, cancer and mental disorders. Ischaemic heart disease is the leading cause of burden in men aged 35–64 years, followed by diabetes and depression (table 18). In women, the top three causes are breast cancer, depression and diabetes. Again, the top 10 ranked conditions account for over 50 per cent of the burden in both men and women in this age group.

Figure 13 Main causes of disease burden in DALYs in people aged 35–64 years, Victoria, 2001

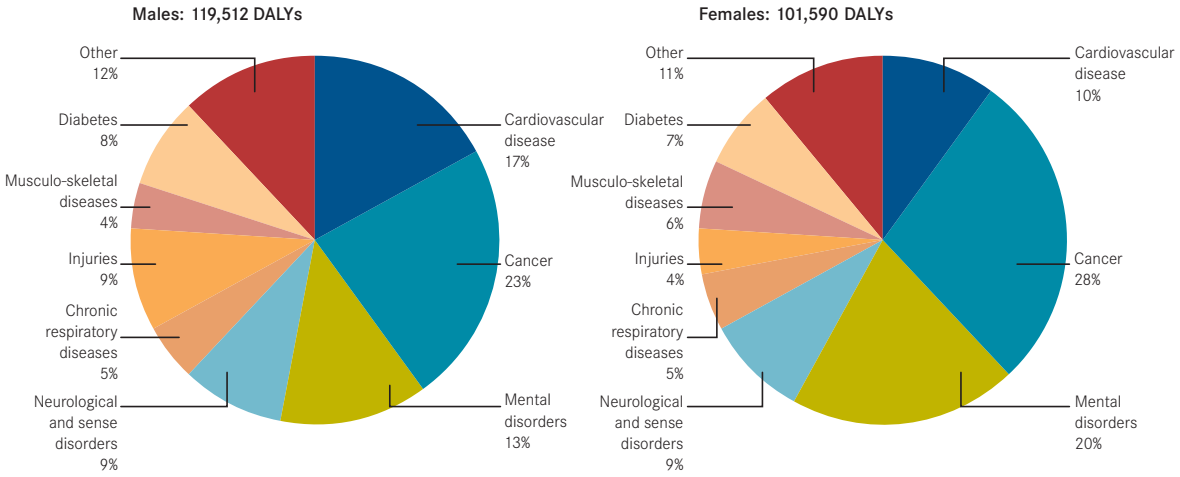


Table 18 Leading causes of DALYs in people 35–64 years by sex, Victoria, 2001

	Males	DALYs	% of total DALYs		Females	DALYs	% of total DALYs
1	Ischaemic heart disease	11,962	10.0	1	Breast cancer	10,163	10.0
2	Diabetes	9,610	8.0	2	Depression	10,011	9.9
3	Depression	7,887	6.6	3	Diabetes	6,736	6.6
4	Lung cancer	5,566	4.7	4	Stroke	4,946	4.9
5	Hearing loss	5,273	4.4	5	Generalised anxiety disorder	4,605	4.5
6	Stroke	5,191	4.3	6	Lung cancer	3,324	3.3
7	Suicide	4,197	3.5	7	Ischaemic heart disease	3,145	3.1
8	Bowel cancer	4,159	3.5	8	Bowel cancer	3,108	3.1
9	Chronic obstructive pulmonary disease	3,678	3.1	9	Hearing loss	3,009	3.0
10	Prostate cancer	2,738	2.3	10	Chronic obstructive pulmonary disease	2,633	2.6

4.4.4 Older Victorians

The overall size of the burden in older Victorians in 2001 is greater in women than in men, while the proportion attributable to selected main causes is roughly similar in both sexes (figure 14), with the exceptions of cancer and musculoskeletal diseases. About 29 per cent of the total burden is due to cardiovascular diseases and 26 per cent to cancer. The addition of neurological and sense disorders completes the picture for just over 70 per cent of the total burden. Ischaemic heart disease, dementias and stroke are the leading causes of disease burden in older Victorians in 2001, together accounting for just over 30 per cent of the disease burden in men and 35 per cent in women (table 19). Prostate and lung cancer rank fourth and fifth in men respectively, while diabetes and breast cancer occupy these rankings for women. The top 10 conditions account for about 60 per cent of the disease burden in this age group.

Figure 14 Main causes of disease burden in DALYs in people 65 years and older, Victoria, 2001

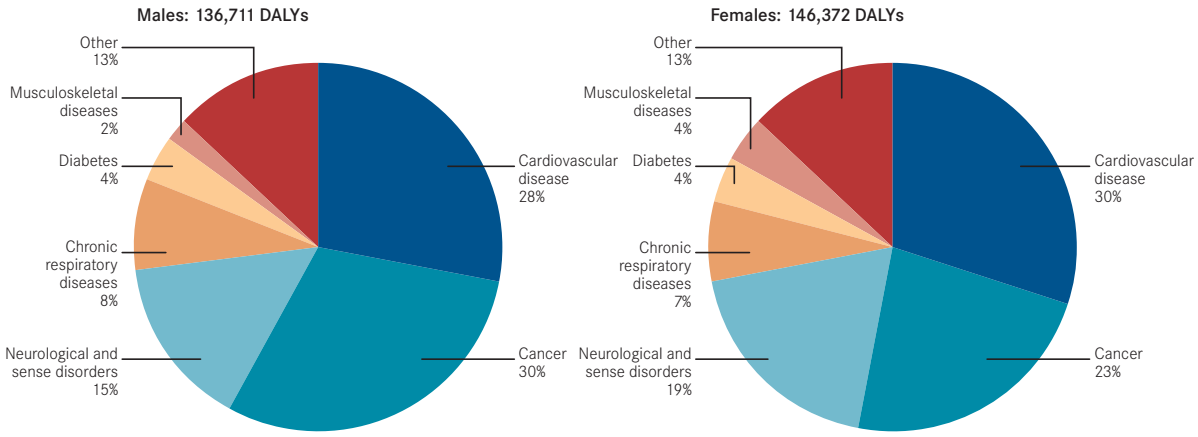


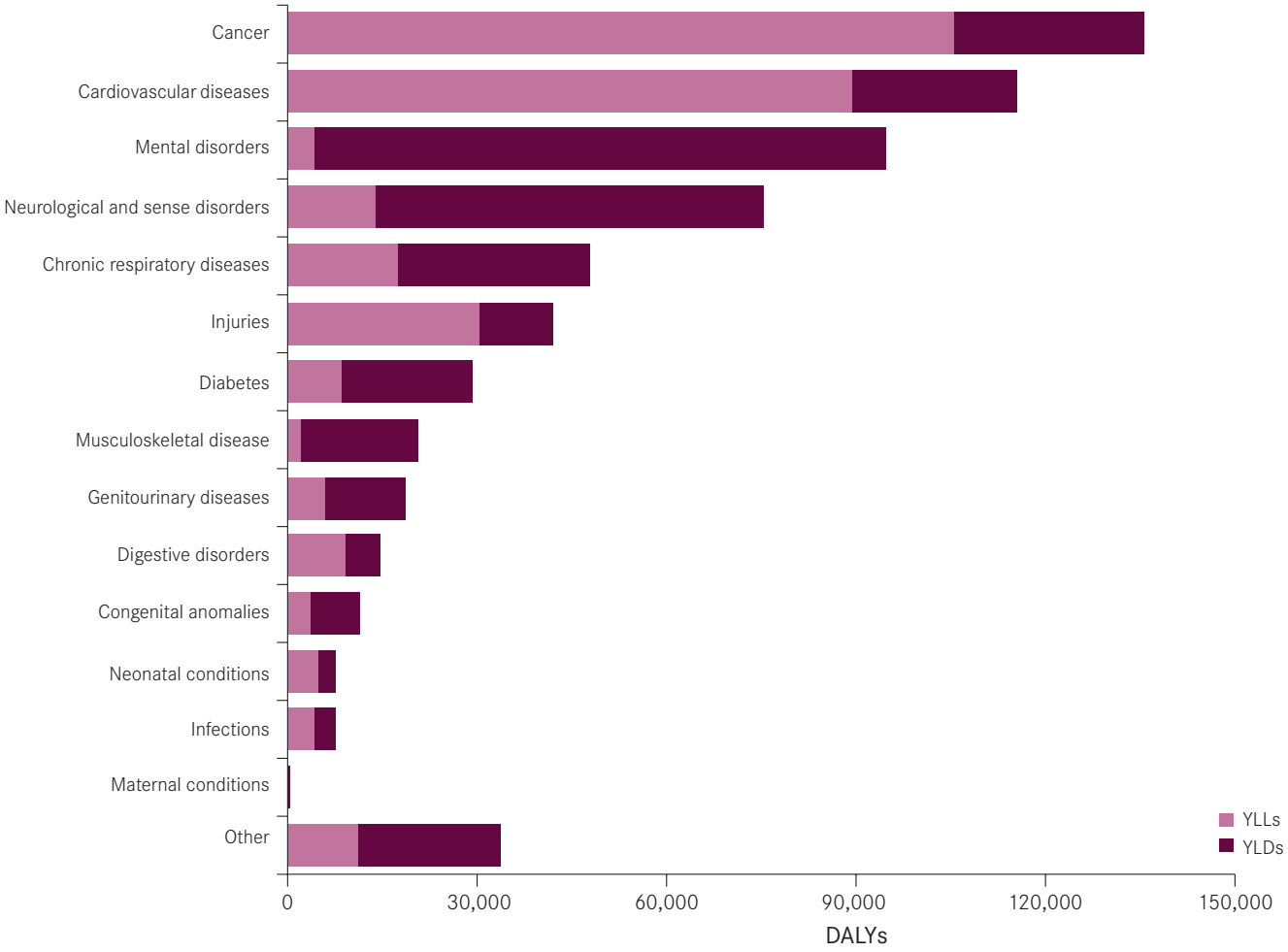
Table 19 Leading causes of DALYs in people 65 years and older by sex, Victoria, 2001

	Males	DALYs	% of total DALYs		Females	DALYs	% of total DALYs
1	Ischaemic heart disease	22,924	16.8	1	Ischaemic heart disease	22,369	15.3
2	Alzheimer and other dementias	9,387	6.9	2	Alzheimer and other dementias	16,491	11.3
3	Stroke	8,944	6.5	3	Stroke	13,302	9.1
4	Prostate cancer	8,624	6.3	4	Diabetes	6,583	4.5
5	Lung cancer	8,615	6.3	5	Breast cancer	5,589	3.8
6	Chronic obstructive pulmonary disease	7,335	5.4	6	Chronic obstructive pulmonary disease	5,529	3.8
7	Bowel cancer	5,829	4.3	7	Lung cancer	5,500	3.8
8	Diabetes	5,034	3.7	8	Bowel cancer	5,195	3.5
9	Hearing loss	3,412	2.5	9	Osteoarthritis	3,822	2.6
10	Parkinson's disease	2,842	2.1	10	Parkinson's disease	2,260	1.5

4.5 Specific disease and injury categories

The inclusion of non-fatal health outcomes provides a substantially different picture from that provided by traditional mortality statistics (figure 15). Mental disorders become the third leading cause of ill health in Victoria after cancer and cardiovascular diseases. Neurological and sense disorders and chronic respiratory diseases make a larger overall contribution than injuries. Diabetes, musculoskeletal diseases, and genitourinary conditions all have a significant morbidity component.

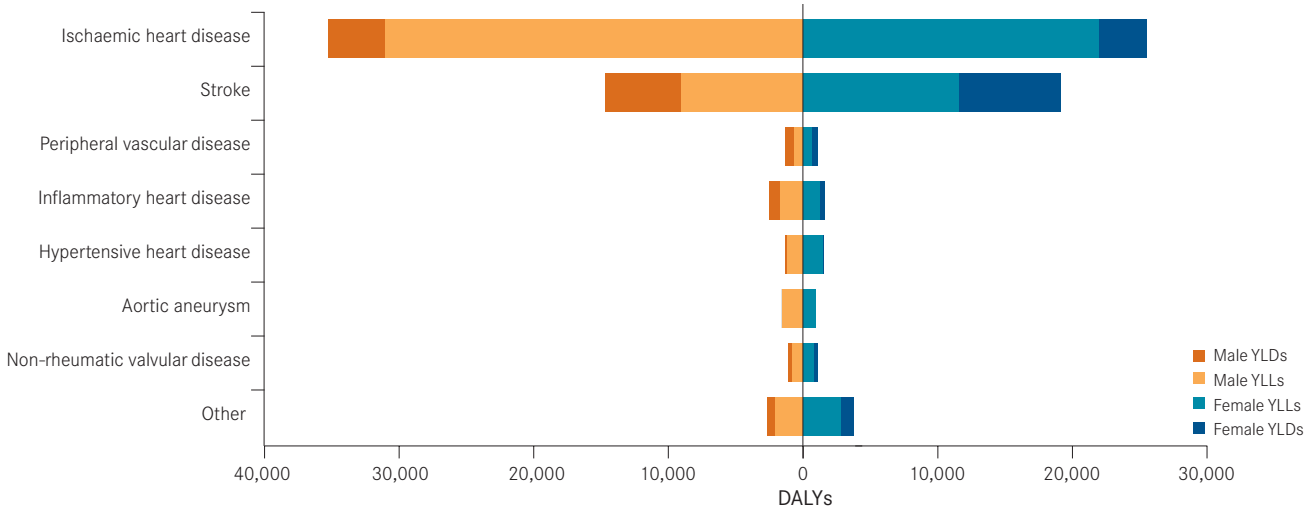
Figure 15 Burden of disease (YLL, YLD and DALYs) for major disease groups, Victoria, 2001



4.5.1 Cardiovascular disease

Cardiovascular disease is responsible for 17 per cent of the total disease burden in Victoria in 2001 (figure 16), or 60,389 DALYs in males and 54,664 in females. Over three quarters of this burden is due to mortality. Ischaemic heart disease and stroke are the major contributors (figure 16) and also the top two leading causes of overall DALYs (table 12). The contribution from ischaemic heart disease is greater in males than in females, while the burden from stroke is greater in females than in males. Per capita mortality (figure 4) and morbidity (figure 6) from cardiovascular diseases increase exponentially with age, from insignificant proportions in young adulthood to over 25 per cent of the total burden in the elderly.

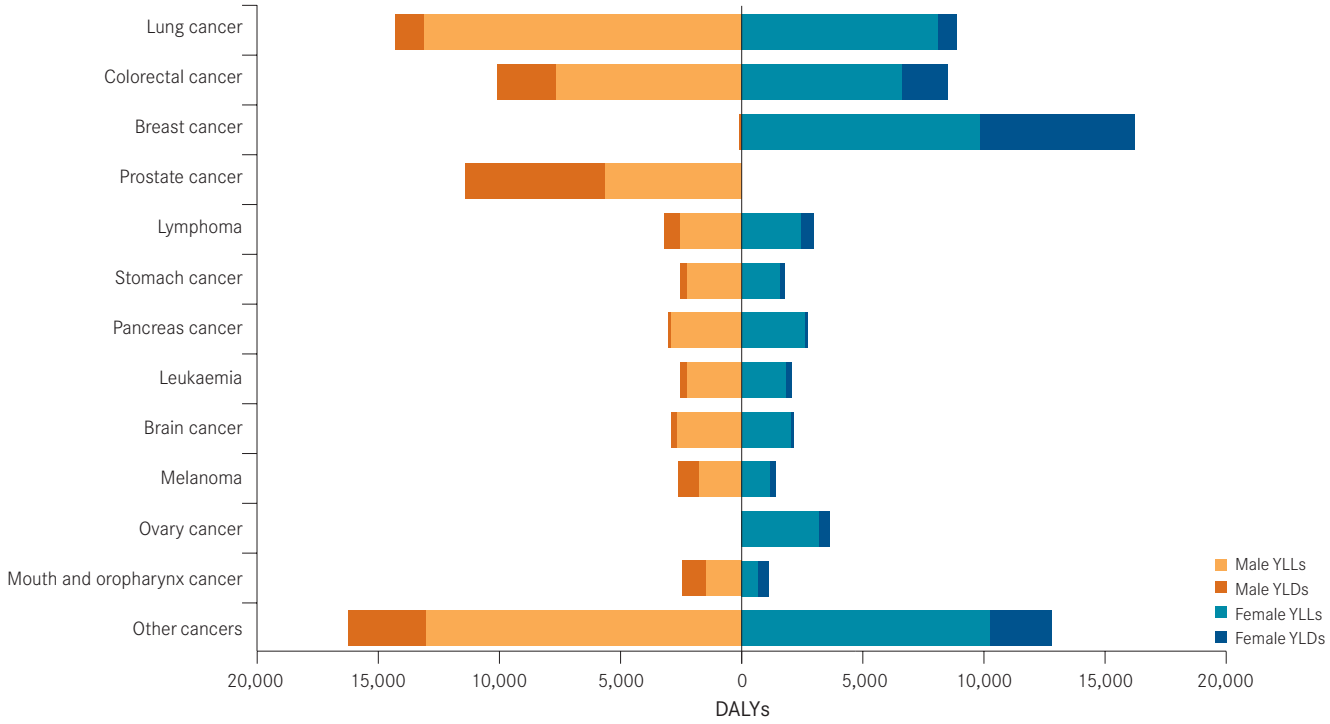
Figure 16 Burden of cardiovascular disease (YLLs, YLDs and DALYs) by disease and sex, Victoria, 2001



4.5.2 Cancer

Cancer is responsible for about 20 per cent of the total disease burden in Victoria in 2001 (figure 8), or 71,141 DALYs in males and 64,011 in females. Almost 80 per cent of this attributable burden is due to mortality. In males, the picture is dominated by lung, prostate and bowel cancers, which together account for over half the overall burden attributable to cancer (figure 17).

Figure 17 Burden of cancer (YLL, YLD and DALYs) for top twelve sites by sex, Victoria 2001

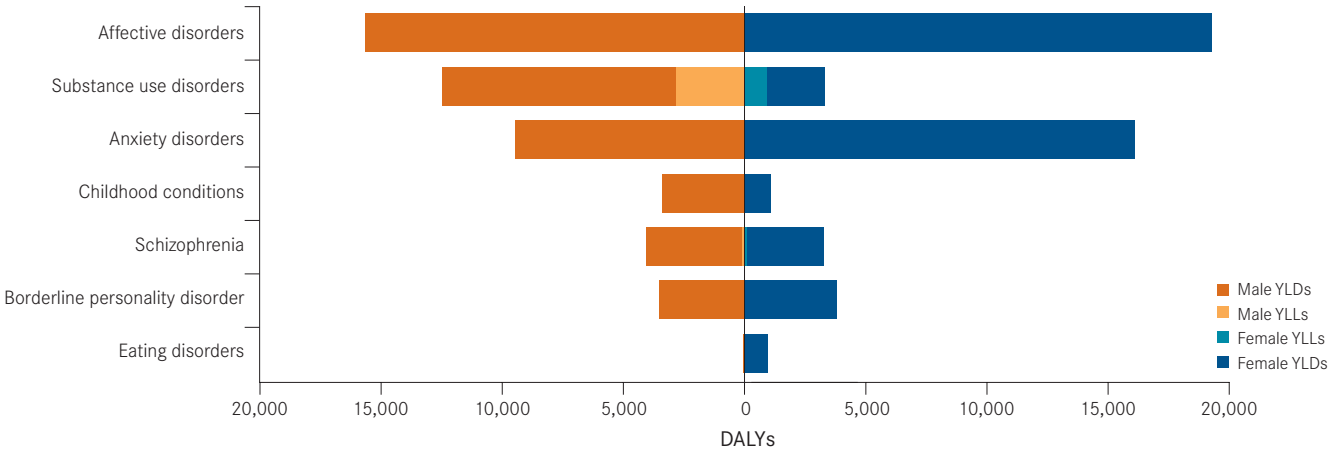


Lung cancer is also the fourth leading cause of overall burden in males, while prostate and bowel cancers are the seventh and ninth respectively (table 12). The picture in females is dominated by breast, lung and bowel cancers. These three together account for over half the overall cancer burden (figure 17). Breast cancer is also the fifth leading cause of overall burden in females, while lung cancer and bowel cancer are eighth and 10th, respectively (table 12). The contribution from lung cancer is almost twice as large in males than in females, while the burden from mouth and oropharynx cancer is more than twice that in females (figure 17). These differences are largely due to the higher prevalence of smoking in males compared to females two or more decades ago. Per capita burden from cancer increases exponentially with age, from insignificant proportions in young adulthood to almost one fifth the total burden in the elderly (figure 9). Cancer of the cervix (a cancer priority area) ranks only 13th in burden attributable to cancer in females. It is one of few cancers where pre-cancerous lesions can be cost-effectively detected and treated, and illustrates that the size of the burden is an inadequate measure on its own to determine health service priorities.

4.5.3 Mental disorders

Mental illness is responsible for about 12 per cent of the total disease burden in Victoria in 2001 (figure 8), or 46,390 DALYs in males and 48,027 in females. Less than 5 per cent of this burden is due to mortality, most of which can be attributed to fatal outcomes associated with substance use disorders. The picture is dominated by substance use and affective and anxiety disorders, which together account for over three-quarters of the overall burden attributable to mental illness (figure 18). In males, depression is the fifth leading cause of overall burden, while alcohol and drug use disorders are the 18th and 19th respectively (table 12). In females, depression is the fourth leading cause of overall burden, while generalised anxiety disorder and psychoses are 11th and 18th respectively (table 12). There are marked sex differentials in the distribution of the mental illness burden to particular disorders (figure 18).

Figure 18 Burden of mental illness (YLL, YLD and DALYs) by disorder and sex, Victoria, 2001

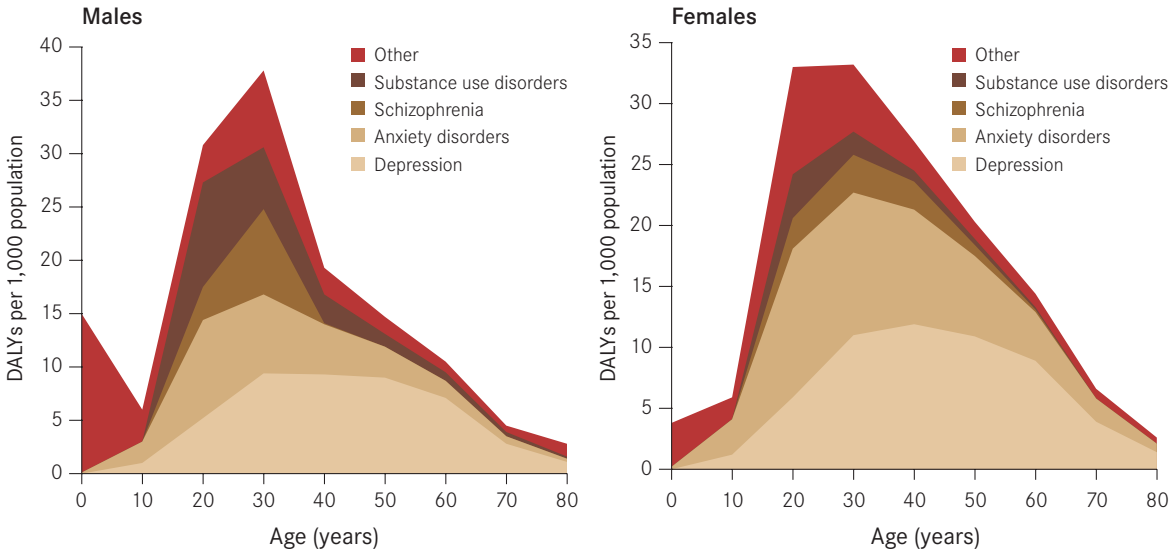


The contribution from affective disorders and anxiety disorders is higher in females than in males. Eating disorders also occur mainly in females. Conversely, the male burden from substance abuse is more than three times as high as that for females. Childhood conditions are also much more common in boys, with girls having less than 25 per cent of the burden of boys.

The per capita incident non-fatal burden attributable to mental illness is far greater in early adulthood than at any other age (figure 19). This is largely due to the peak in new cases of chronic mental illnesses at this life stage, of which the disability is experienced for many years into the future. Using an incidence approach, this disability is attributed back to the age at onset.

Boys experience incident non-fatal burden from childhood disorders at twice the rate experienced by girls. Sex differences in the age distribution of incident burden rates, however, are the most pronounced for depression. In males, this burden steadily increases to half the male mental illness burden at middle age, after which it decreases rapidly. In females, the burden from depression increases to early adulthood, after which it declines slowly. At retirement age, depression constitutes over 60 per cent of the males and female mental illness burden.

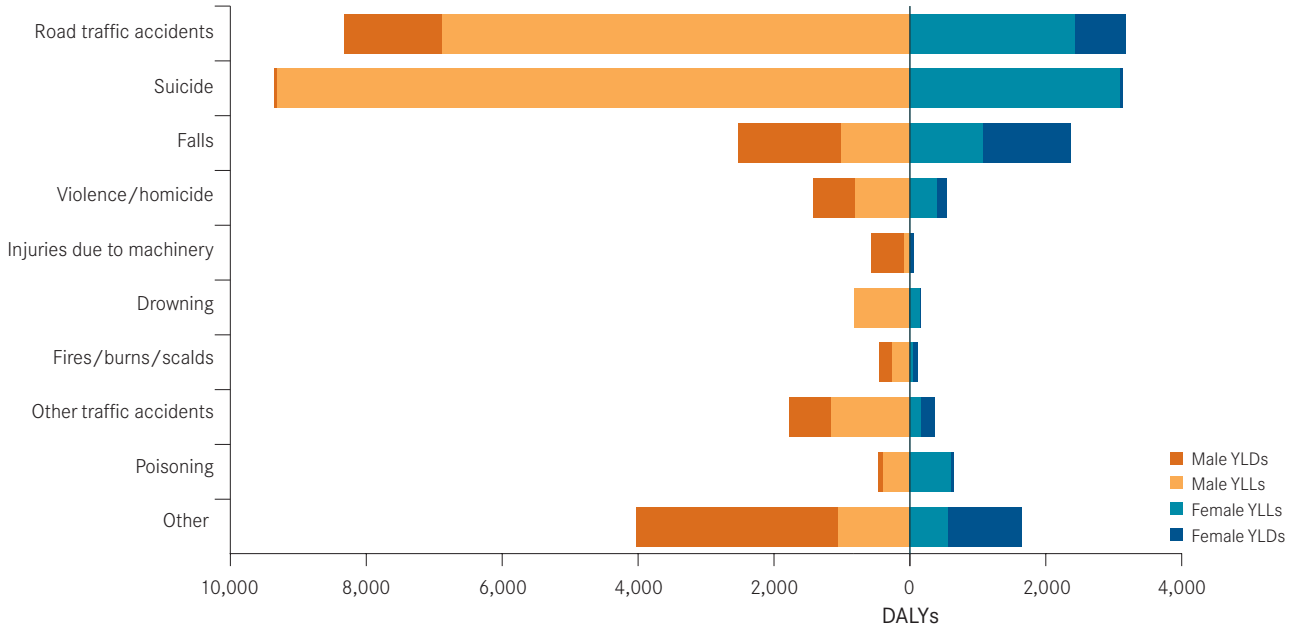
Figure 19 Incident YLD rates per 1,000 population by mental disorder, age and sex, Victoria, 2001



4.5.4 Injuries

Injuries are responsible for 8.7 per cent of the total Victorian disease burden in males in 2001 (figure 8), or 29,707 DALYs. The female burden is less than half this, at 12,203 DALYs. About 72 per cent of the injury burden is due to mortality. In males, the picture is dominated in equal proportions by suicide and road traffic accidents, which together account for over half the overall male burden attributable to injuries (figure 20). These are also the 10th and 12th leading causes of overall male burden (table 12). In females, the picture is dominated in almost equal proportions by traffic accidents, suicide and falls, which together account for over two thirds of the overall female burden due to injuries (figure 20). Of these, road traffic accidents are ranked 19th and suicide is ranked 20th in the leading causes of overall female burden (table 12).

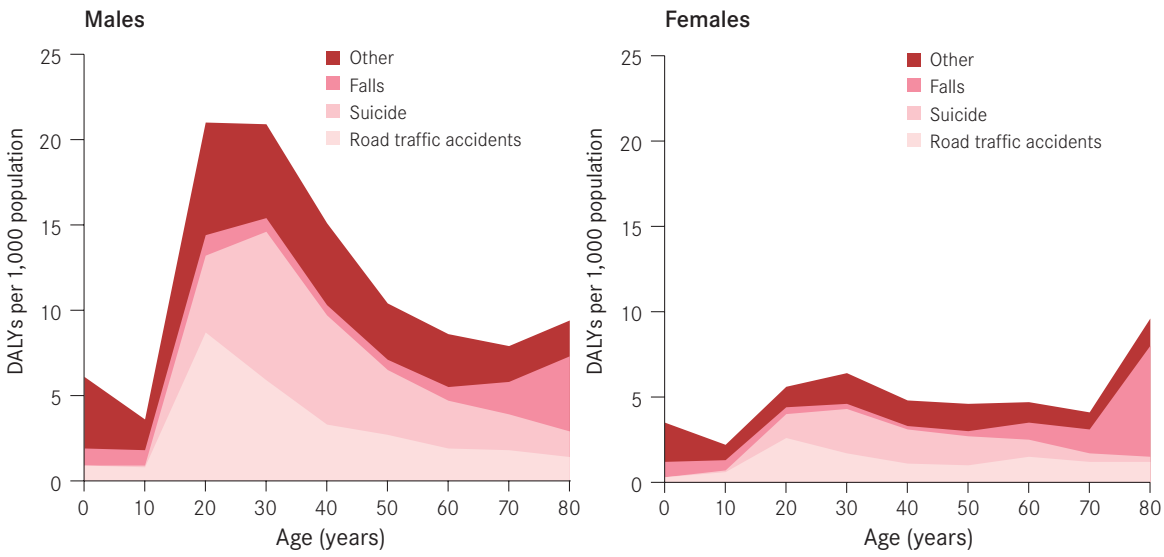
Figure 20 Burden of injuries, by cause and sex, Victoria, 2001



The burden in females is lower than that in males for all causes of injury. The contribution from road traffic accidents in females is just under 40 per cent of the burden in males, and the contribution from suicide is about one third that for males (figure 20). The burden from falls, the other main contributor to the injury burden in females, is 94 per cent that for males. The DALYs due to the remaining causes of injury are much greater in males.

The per capita male burden attributable to injuries is far greater in early adulthood than at any other age (figure 21). This is predominantly a result of the high mortality from road traffic accidents and suicide at this life stage. The female per capita burden from road traffic accidents is also higher in early adulthood than at other ages, but is less than one third of the male rate. The burden from suicide, which is largely a male phenomenon, occurs throughout adult life, but is greatest in middle age when mortality is highest. The burden from falls increases with age to three quarters of the total injury burden in elderly females and half the total injury burden in males.

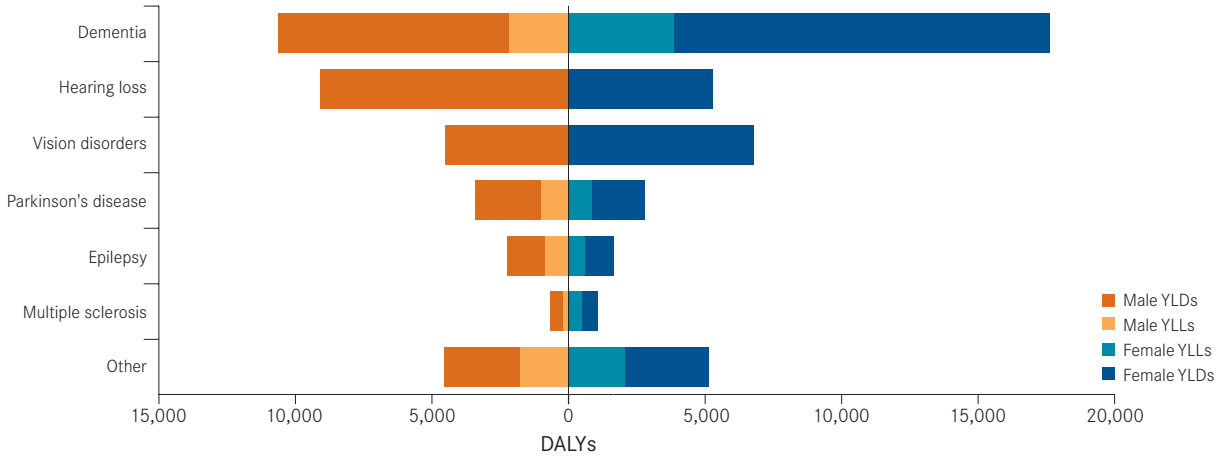
Figure 21 DALY rates per 1,000 population by cause of injury, age and sex, Victoria, 2001



4.5.5 Neurological and sense disorders

Neurological and sense disorders are responsible for 13 per cent of the total Victorian disease burden in females in 2001 (figure 8), or 40,363 DALYs. The male burden is 10 per cent, or 34,790 DALYs. Only about 18 per cent of this burden is due to mortality. In males, the picture is dominated in equal proportions by dementia and hearing loss, which together account for 57 per cent of the overall male burden due to neurological and sense disorders (figure 22). These are also the 8th and 11th leading causes of overall male burden (table 12).

Figure 22 Burden of neurological and sense disorders by condition and sex, Victoria, 2001

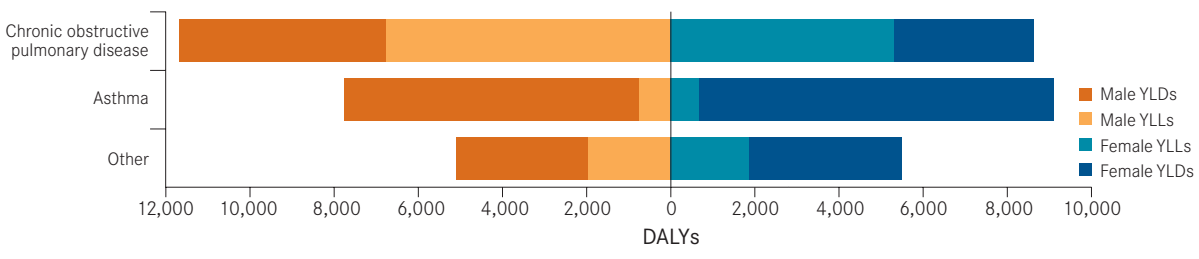


In females, dementia is by far the most important single contributor, accounting for almost 44 per cent of the overall female neurological and sense disorder burden, with smaller contributions from vision disorders, hearing loss and Parkinson's disease (figure 22). Dementia is ranked third in the top 20 leading causes of overall female burden, with hearing loss ranked 13th (table 12). The large sex difference in burden from dementia and vision disorders is due to the higher life expectancy in females, rather than from different incidence assumptions between sexes.

4.5.6 Chronic respiratory disease

Chronic respiratory disease is responsible for 7 per cent of the total disease burden in Victoria in 2001 (figure 8), or 24,516 DALYs in males and 23,233 in females. About 36 per cent of this burden is due to mortality. In males, chronic obstructive pulmonary disease (COPD) is by far the single most important contributor, accounting for 48 per cent of the overall male burden from chronic respiratory disease (figure 23).

Figure 23 Burden of chronic respiratory disease by condition and sex, Victoria, 2001

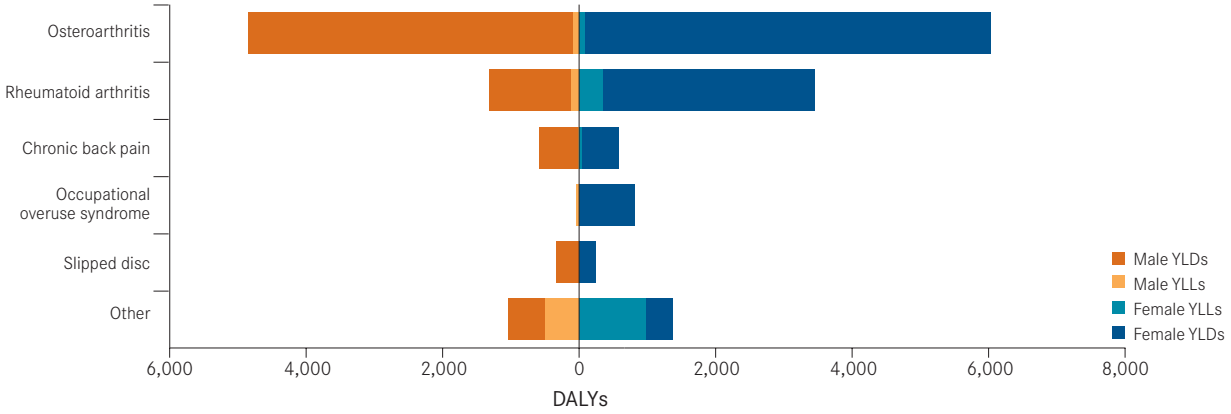


COPD is also the sixth leading cause of overall male burden, with asthma at 13th (table 12). In females, these conditions contribute in roughly equal proportions and account for over 75 per cent of the overall female burden attributable to chronic respiratory disease (figure 23). Asthma and COPD are ranked seventh and ninth respectively in the top 20 leading causes of overall female burden (table 12). The sex difference in burden from COPD is due to the higher prevalence of smoking in males two or more decades ago.

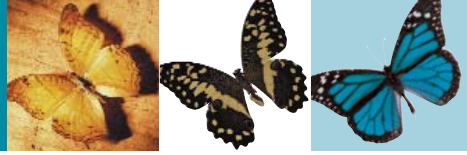
4.5.7 Musculoskeletal disease

Musculoskeletal diseases are responsible for 4 per cent of the total Victorian disease burden in females in 2001 (figure 8), or 12,494 DALYs. The proportion is 2 per cent of the total male disease burden, at 8,154 DALYs. Only 10 per cent of the musculoskeletal burden is due to mortality. Osteoarthritis is by far the single most important contributor, accounting for 53 per cent the overall burden of musculoskeletal disease (figure 24).

Figure 24 Burden of musculoskeletal disease by condition and sex, Victoria, 2001



Osteoarthritis is also the 12th leading cause of overall female burden and the 14th in males (table 12). The large sex difference in burden from osteoarthritis is mainly due to higher female life expectancy. For rheumatoid arthritis, the sex difference in burden is also due to the higher incidence of this condition in females. The lack of a plausible physiological or occupational explanation for the large sex difference in burden from occupational overuse syndrome provides support to those who believe this syndrome is not a single entity.



5. The burden attributable to risk factors

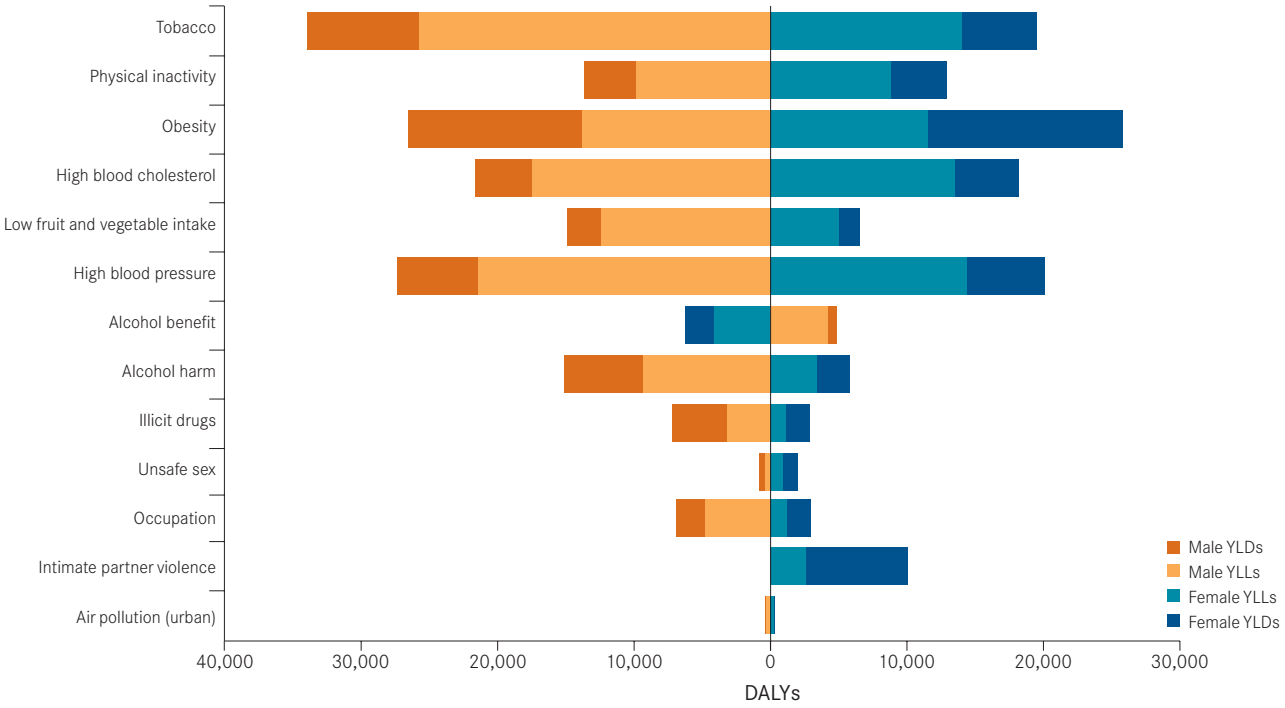
So far, we have presented the burden of disease in Victoria by individual disease and injuries. Another way of presenting results is to examine the burden of disease by risk factors. This requires an understanding of (1) the prevalence of a risk factor in a population and (2) the relative risk of dying or falling ill in the presence of the risk factor. We present attributable fractions of the disease burden for the following major risk factors: tobacco, alcohol, high blood pressure, high blood cholesterol, physical inactivity, obesity, illegal drug use, insufficient intake of fruits and vegetables, unsafe sex, occupational exposures and hazards, intimate partner violence and air pollution. The criteria used to select risk factors for analysis include:

- the availability of good evidence of a causal association between the risk factor and health outcomes
- the availability of estimates of the relative risk from recent high-quality epidemiological studies and
- the availability of representative estimates of the prevalence of the risk factor in the Victorian population.

Figure 25 summarises the total burden associated with the risk factors analysed to date. Tobacco smoking (8.2 per cent of the overall burden, 10.0 per cent of the total burden in males and 6.2 per cent in females) and obesity (8.0 per cent of the overall burden, 7.8 per cent of the total burden in males and 8.2 per cent in females) are the risk factors responsible for the greatest amount of ill health in Victoria. Next overall are hypertension (7.3 per cent of the overall burden, 8.1 per cent of the total burden in males and 6.4 per cent in females), high blood cholesterol (6.1 per cent of the overall burden, 6.4 per cent of the total burden in males and 5.8 per cent in females), physical inactivity (4.1 per cent of the overall burden, 4.0 per cent of the total burden in males and 4.1 per cent in females) and insufficient intake of fruits and vegetables (3.3 per cent of the overall burden, 4.4 per cent of the total burden in males and 2.1 per cent in females). For females, intimate partner violence accounts for 3.2 per cent of the total burden. The net harm associated with alcohol consumption in males is 3.0 per cent of the total burden, while in females it is –0.1 per cent, because the amount of ill health associated with harmful and hazardous drinking is offset by benefits from alcohol in the prevention of cardiovascular disease. Overall, illicit drugs and occupation each cause about 1.5 per cent of the overall burden, but the burden in males (2.1 per cent) is more than double that of females (0.9 per cent). More males use illicit drugs and are also more likely to adopt drug habits that put them at risk of dying. Most of the exposures to occupational hazards occur in industries dominated by male employment (2.0 per cent of the total burden in males and 0.9 per cent in females, 1.5 per cent of the overall burden). Urban air pollution accounts for only 0.1 per cent of the overall disease burden.

Mortality is the main contributor to the burden from smoking, inactivity and nutritional risk factors, because the diseases they cause are characterised by high mortality. Disability is a greater proportion of the burden due to obesity, alcohol, illicit drugs and occupation. In the case of obesity, this is due to a large amount of disability from diabetes and osteoarthritis. The disability associated with alcoholism is largely responsible for the years lost as a result of disability (YLDs) from alcohol harm. The following sections contain overviews of the major findings for each risk factor, together with more detailed summary results.

Figure 25 Disease burden attributed to selected risk factors by sex, Victoria, 2001



5.1 Tobacco

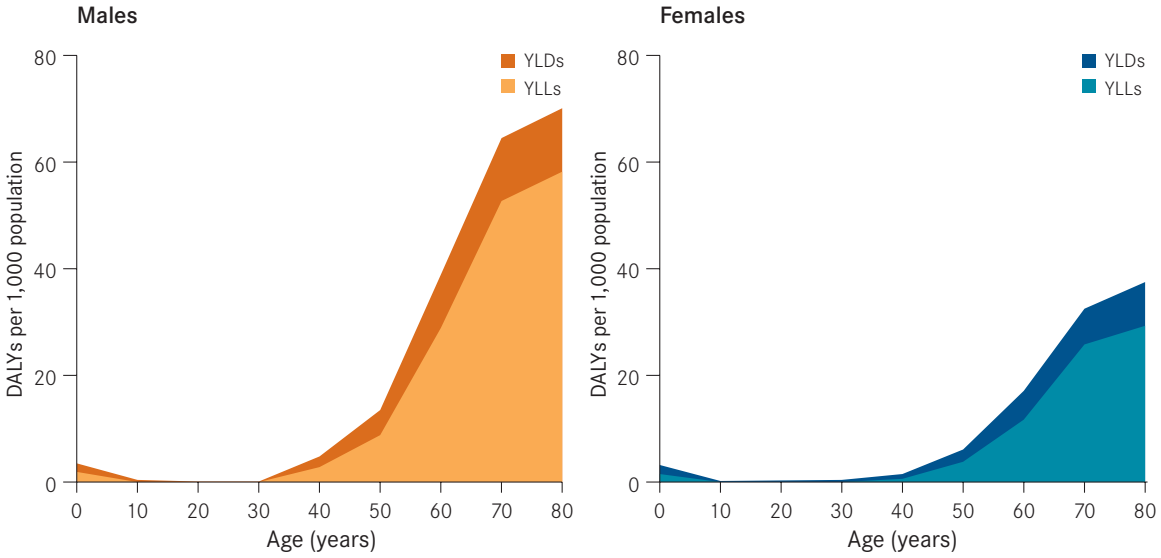
Of the risk factors examined, tobacco is associated with the greatest disease burden. It is responsible for more than 53,417 disability-adjusted life years (DALYs). The 3,968 deaths caused by tobacco smoking account for about 74 per cent of these lost years. Lung and other cancers cause almost half of the tobacco burden, and chronic airway disease is the cause of a further one-quarter. Passive smoking largely affects children, where childhood asthma and low birth weight are the most important-causes of ill health (table 20).

Table 20 Disease burden attributable to tobacco by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Direct harm from smoking	**3,951**	**39,393**	**12,963**	**52,356**	**8.0**
Lung cancer	1,614	17,366	1,586	18,952	2.9
COPD	1,092	8,780	4,554	13,333	2.0
Ischaemic heart disease	399	5,226	888	6,115	0.9
Stroke	142	1,713	2,528	4,241	0.6
Vision disorders	-	-	1,085	1,085	0.2
Other cancers	637	5,852	1,660	7,512	1.2
Other conditions	66	456	662	1,118	0.2
Burden from passive smoking	**18**	**374**	**687**	**1,061**	**0.2**
Asthma	-	2	216	218	0.0
Low birth weight	12	372	340	713	0.1
Other conditions	5	-	131	131	0.0
Total burden	**3,968**	**39,768**	**13,649**	**53,417**	**8.2**

Passive smoking affects children of both sexes equally. In 2001, males stand almost twice the risk of females in losing life years to tobacco. This is because males have smoked in greater number than females in the past. Most of the tobacco burden is due to premature mortality (figure 26).

Figure 26 Disease burden attributable to tobacco in DALY rates by age and sex, Victoria, 2001



Smoking rates have been declining since the early 1980s, and this trend has continued. The Cancer Council Victoria surveys show that the rate of decline in current smoking has slowed in more recent years (Hill, White & Scollo, 1998). The number of Victorians who smoke has almost halved over the past 20 years, according to research released by The Cancer Council Victoria in January 2005. Smoking rates for Victorian men are less than half of what they were 20 years ago, and smoking rates in women have also declined steadily since 1985. This has been mirrored in the smoking rates of Victorians aged 18–29 years, which have fallen by almost half in the past two decades. However, latest figures show smoking rates remain highest among Victorians under 30 years, of whom 23.4 per cent are regular smokers, compared with 19.8 per cent of Victorians aged 30–49 years and 9 per cent of Victorians aged over 50 years.

- Of Victorian adults surveyed, 16.6 per cent are regular smokers.
- Smoking rates are not significantly different between males (17.4 per cent) and females (15.8 per cent).
- Over half of Victorians surveyed (53.2 per cent) have never smoked.
- Of Victorians surveyed, 29.2 per cent are former smokers.

Given the long lag time between smoking and most of its ill-effects on health, recent trends in smoking will be reflected in changes in the disease burden only many years into the future.

5.2 Alcohol

Alcohol is a risk factor for a large number of medical conditions and injuries. Stroke, cirrhosis and road traffic accidents are the leading causes of deaths due to alcohol. Alcohol dependence and harmful use is by far the leading cause of YLDs. There is also a growing consensus that regular moderate intake of alcohol protects against cardiovascular disease (Roche, 1997). For the attributable burden of disease averted by current levels of alcohol consumption compared with all people being abstainers, we use the term 'alcohol benefit' below.

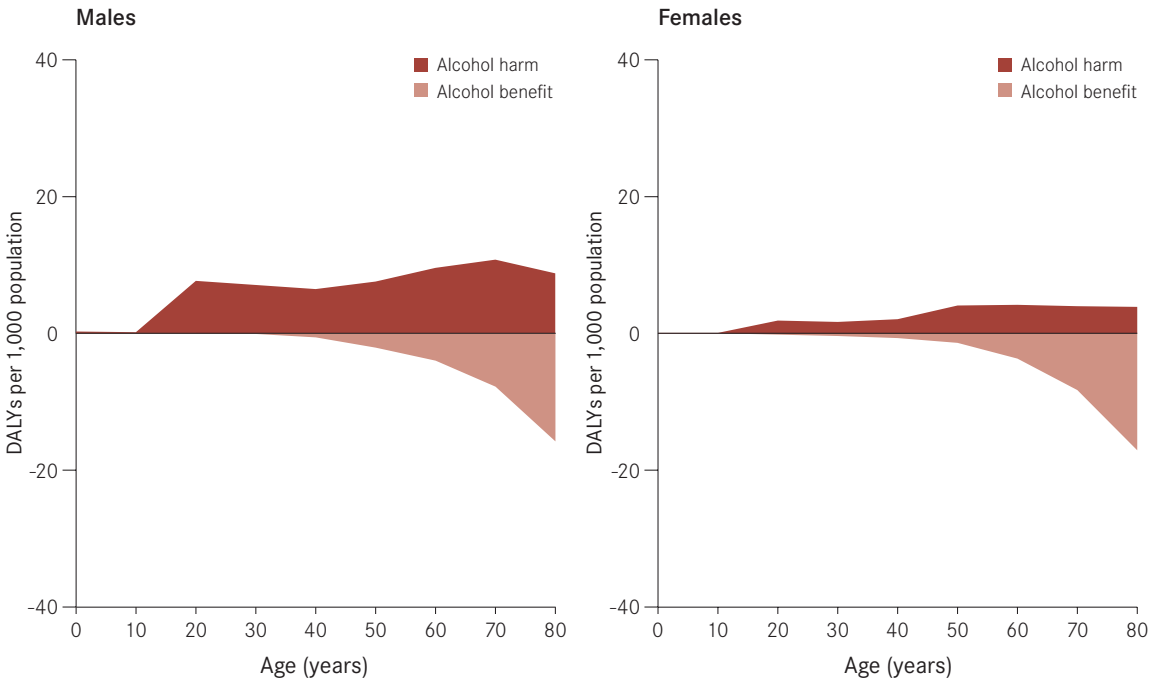
Trends in per capita alcohol consumption in Australia from 1990–91 to 1998–99 and 2000 have been reported, as has the pattern of alcohol consumption in Victoria by age and sex. In 2001, alcohol prevented more deaths than it caused. In terms of years of life lost (YLL), however, there is a net harm from alcohol because most of the deaths prevented by alcohol occur in the elderly. The net burden, including disability, amounts to 1.5 per cent of the overall disease burden (table 21). In women, the harm and benefits from alcohol are almost balanced (figure 25).

Table 21 Disease burden attributable to alcohol consumption by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Alcohol benefit	**-1,085**	**-8,355**	**-2,729**	**-11,083**	**-1.7**
Ischaemic heart disease	-682	-5,635	**-831**	-6,466	-1.0
Stroke	-385	-2,603	-1,850	-4,453	-0.7
Other	-19	-117	-48	-165	0.0
Alcohol harm	**844**	**12,729**	**7,994**	**20,723**	**3.2**
Alcohol dependence	52	845	3,787	4,632	0.7
Road traffic accidents	100	2,465	585	3,050	0.5
Cirrhosis	123	1,745	104	1,849	0.3
Stroke	103	1,120	1,311	2,431	0.4
Breast cancer	56	850	554	1,405	0.2
Suicide	46	1,037	5	1,042	0.2
Other cancers	249	3,033	727	3,760	0.6
Other injuries	87	1,423	891	2,315	0.4
Other conditions	26	210	29	239	0.0
Net burden	**-241**	**4,374**	**5,265**	**9,640**	**1.5**

The harmful effects of alcohol are distributed relatively evenly across all age groups, whereas almost all the benefits from alcohol are found in ages over 45 years and particularly in the elderly (figure 27). The public health implication of this finding is that different advice may be required for young and older adults. Our evidence suggests that health promotion messages ought to continue to stress that alcohol, when taken in excess, is harmful at all ages, while moderate intake of alcohol is beneficial to the health of people at middle and older ages only.

Figure 27 Disease and injury burden attributable to the harmful and beneficial effects of alcohol in DALY rates by age and sex, Victoria, 2001



5.3 Illicit drugs

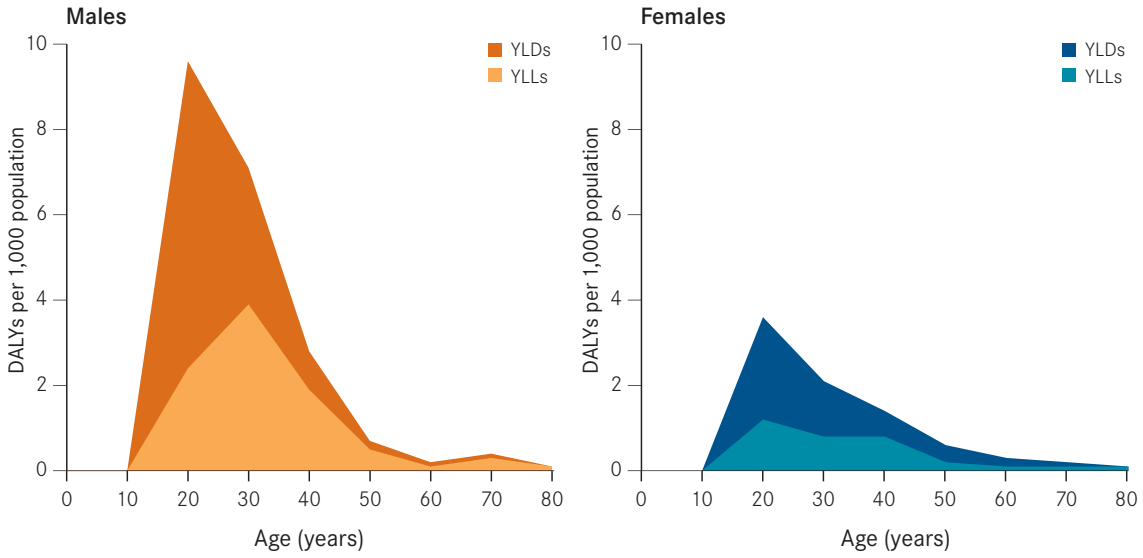
Illicit drugs are a direct cause of death as well as being risk factors for conditions such as HIV/AIDS, hepatitis, low birth weight, inflammatory heart disease, poisoning, and suicide and self-inflicted injuries. They account for around 1.5 per cent of all DALYs (table 22).

Table 22 Disease burden attributable to illicit drugs by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Heroin dependence and harmful use	92	2,341	2,342	4,683	0.7
Cannabis dependence and harmful use	1	27	2,297	2,324	0.4
Benzodiazepine dependence and harmful use	-	-	857	857	0.1
Other drug dependence and harmful use	20	515	-	515	0.1
Poisoning	14	341	11	352	0.1
Suicide and self-inflicted injuries	26	678	4	682	0.1
Hepatitis	14	212	81	293	0.0
Other conditions	9	215	100	315	0.0
Total burden	**176**	**4,328**	**5,693**	**10,021**	**1.5**

The biggest burden comes from heroin dependence and harmful use, which accounts for 47 per cent of the burden. This is not the full burden of heroin use, since it also contributes to other conditions such as HIV/AIDS, hepatitis and suicide. The adverse effect of illicit drugs on health occurs mostly for young people (figure 28). The proportion of burden due to disability is particularly large in those aged 15–24 years because we calculate incident YLD and most people start their heroin habit at a young age.

Figure 28 Disease burden attributable to illicit drugs in DALY rates by age and sex, Victoria, 2001

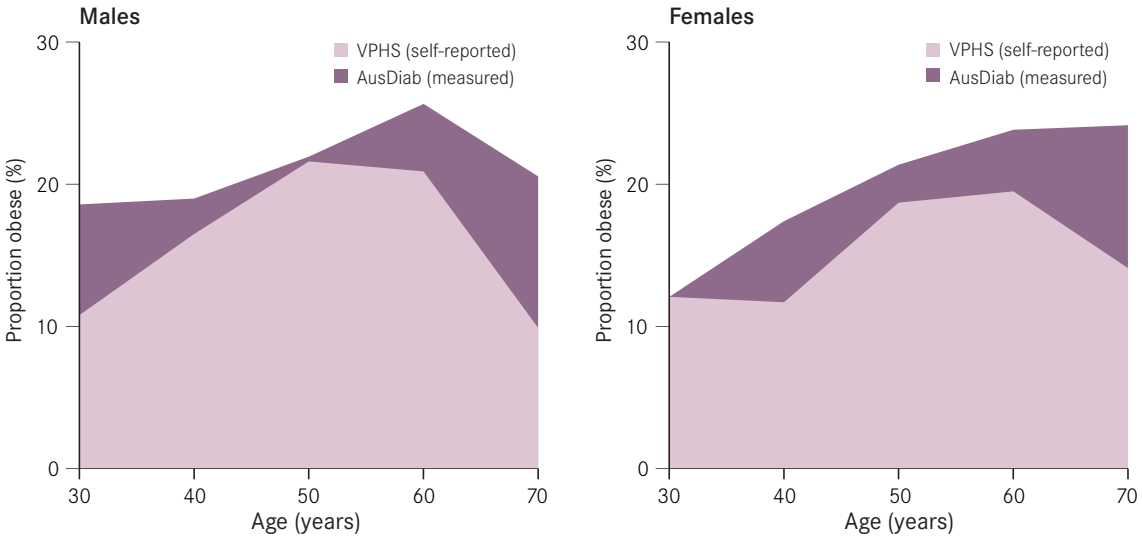


5.4 High body mass

Obese and overweight people have a higher risk of ill health, including IHD, stroke, type 2 diabetes, colon cancer, gall bladder disease and osteoarthritis. Obesity is also associated with high blood pressure and high blood cholesterol.

Individuals with a body mass index [BMI = weight (kg)/ height (m)^2] of 18.5–24.9 kg/m^2 are categorised as having a 'normal weight', while those with a BMI greater than or equal to 25 kg/m^2 but less than 30 kg/m^2 are categorised as 'overweight' and those with a BMI greater than or equal to 30 kg/m^2 are considered 'obese' (WHO, 1997). On average, people overestimate their height by a few centimetres and underestimate their weight by a few kilograms, thus underestimating their BMI. People who are obese selectively underestimate their weight and/or overestimate their height more than others do. As a result, the proportion of people who are categorised as being obese by actual measurement is higher (as in the AusDiab study) than estimates based on self-reported height and weight (DHS, 2002b). The greatest discrepancies are found in adolescent males and older people (figure 29). The poor validity of self-reported height and weight makes the use of such data problematic as a measure of the population prevalence of obesity.

Figure 29 Comparison of distribution of BMI obtained in AusDiab by measurement and in the Victorian Population Health Survey (VPHS) by self-report



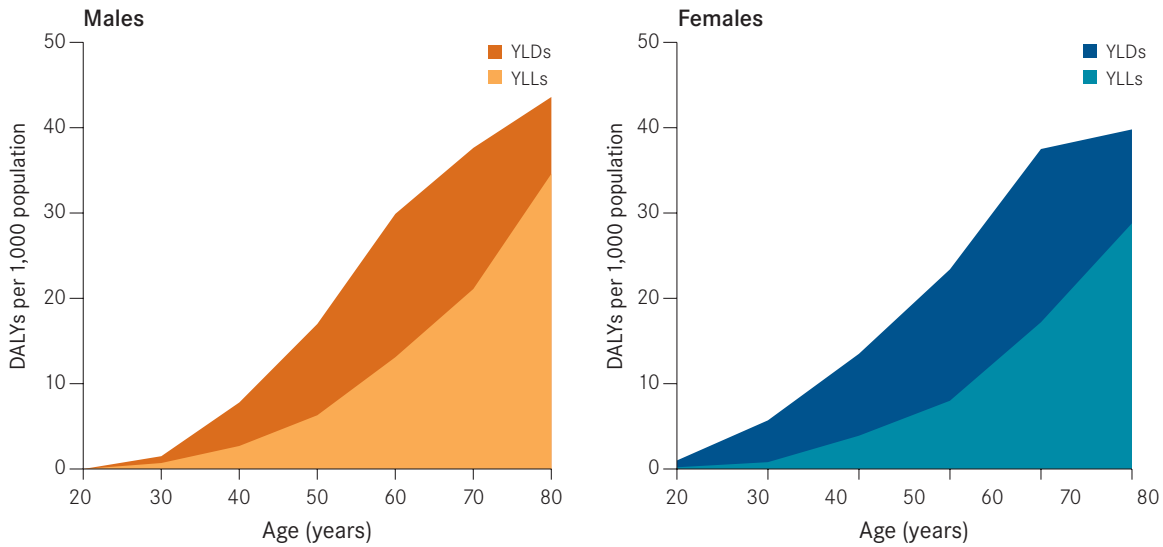
Levels of overweight and obesity increase with age until around 55 years in males and 75 years in females, and then decline. Males are more likely than females to be overweight or obese at all ages except 55–74 years. Diabetes, IHD and osteoarthritis are the main conditions contributing to the burden attributed to elevated body mass (table 23).

Table 23 Disease burden attributable to elevated body mass by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Type 2 diabetes	1,190	6,811	16,669	23,479	3.6
Ischaemic heart disease	1,255	11,710	1,869	13,579	2.1
Osteoarthritis	5	33	2,393	2,426	0.4
Bowel cancer	217	2,392	711	3,103	0.5
Hypertension	146	1,152	148	1,301	0.2
Ischaemic stroke	124	1,291	3,963	5,255	0.8
Other cancer	150	1,985	1,206	3,190	0.5
Total burden	**3,088**	**25,373**	**26,959**	**52,332**	**8.0**

The disease burden associated with a high body mass is 8.0 per cent of the overall burden. The disease burden associated with body mass increases with age (figure 30).

Figure 30 Disease burden attributable to obesity in daly rates by age and sex, Victoria, 2001



5.5 Blood pressure

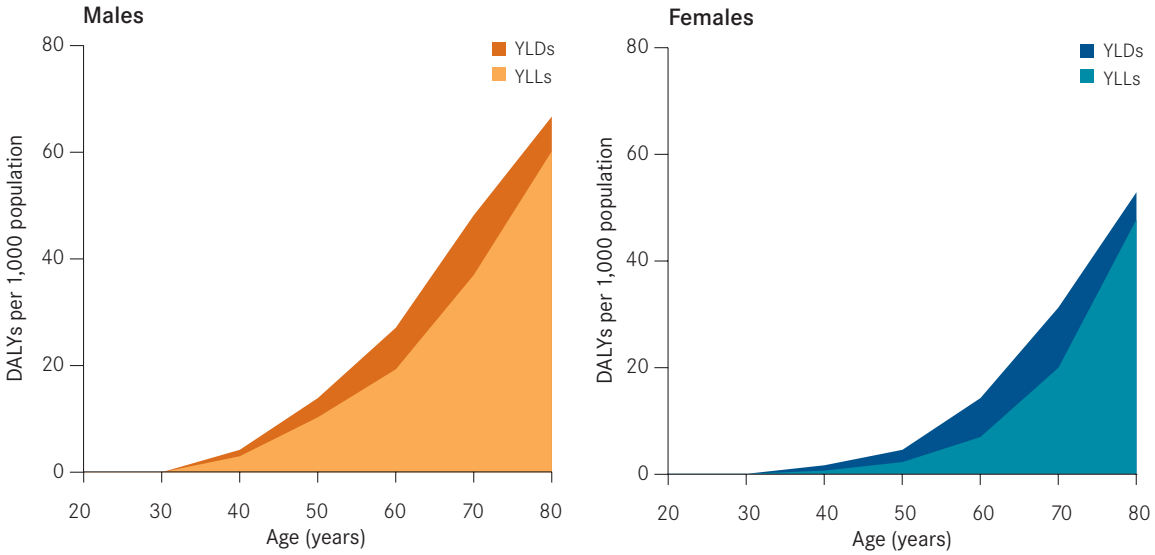
IHD, stroke, hypertensive heart disease, peripheral vascular disease and renal failure are the adverse health outcomes of elevated blood pressure, accounting for 7.3 per cent of the overall burden (table 24). IHD and stroke together are responsible for 94 per cent of the blood pressure burden.

Table 24 Disease burden attributable to elevated blood pressure by age and sex, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Ischaemic heart disease	6,948	21,457	3,187	24,644	3.8
Stroke	2,959	11,807	8,107	19,913	3.0
Hypertensive heart disease	399	2,575	245	2,820	0.4
Total burden	**10,306**	**35,838**	**11,539**	**47,377**	**7.3**

The blood pressure burden rises steeply with age and is dominated by mortality (table 24). It is higher in males than females (figure 31).

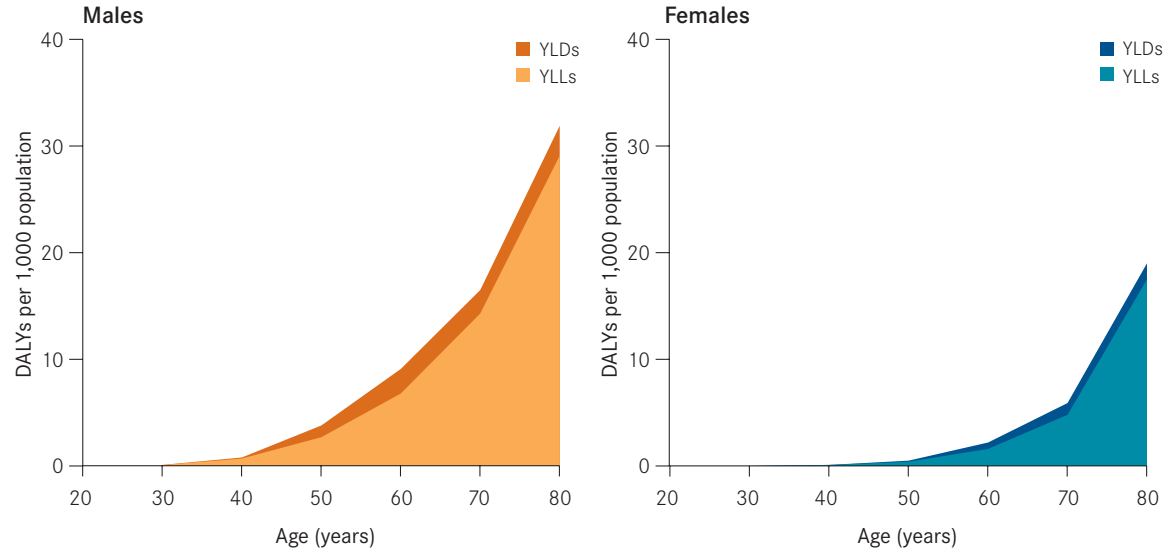
Figure 31 Disease burden attributable to elevated blood pressure in DALY rates by age and sex, Victoria, 2001



5.6 High blood cholesterol

The impact of raised blood cholesterol on IHD and peripheral vascular disease accounts for about 6.1 per cent of the overall burden (figure 25). IHD is responsible for over 95 per cent of this share. The disease burden due to high blood cholesterol is higher in males because IHD is a more common disease in males and because the literature suggests that cholesterol is a stronger risk factor for IHD in males. Almost the entire disease burden due to cholesterol is from an increased risk of dying rather than from having disability (figure 32).

Figure 32 Disease burden attributable to high cholesterol in DALY rates by age and sex, Victoria, 2001



5.7 Physical inactivity

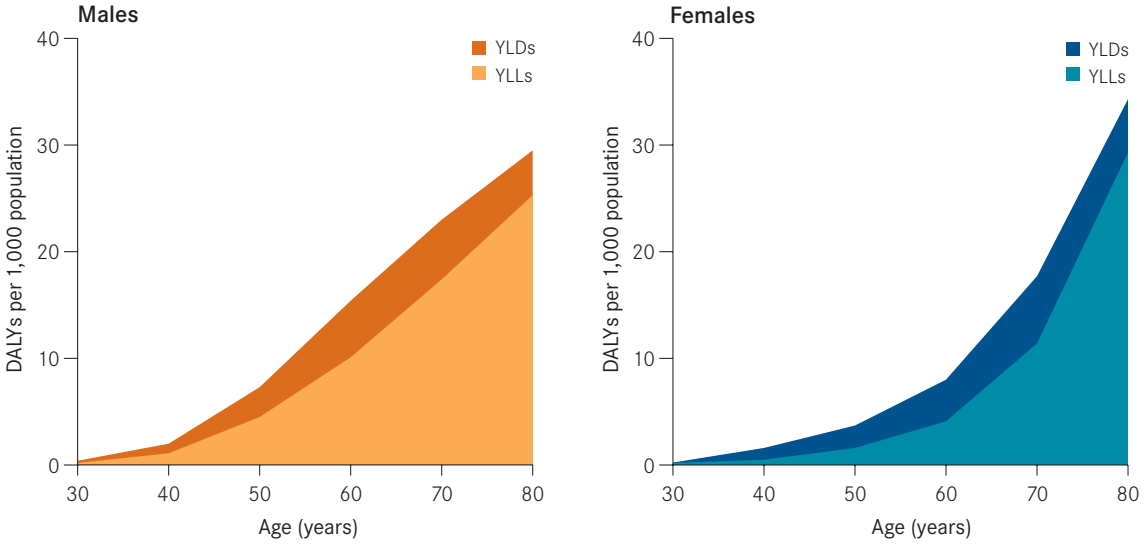
There is strong evidence that physical inactivity is the cause of a higher risk of dying and falling ill from a number of diseases and injuries. While physical inactivity is often accompanied by other risk factors such as obesity, high blood pressure and high blood cholesterol levels, it is recognised as a risk factor in its own right. We obtained the prevalence of self-reported physical activity and inactivity from the Victorian Population Health Survey (DHS, 2003). Physical inactivity is responsible for 4.1 per cent of the total burden, and 68 per cent of this burden is due to the increased risk of cardiovascular disease in inactive people (table 25 and figure 33).

Table 25 Disease burden attributable to physical inactivity by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Ischaemic heart disease	1,414	11,506	1,759	13,265	2.0
Stroke	430	3,126	2,186	5,312	0.8
Bowel cancer	265	3,020	876	3,896	0.6
Type 2 diabetes	115	1,046	3,091	4,136	0.7
Total burden	**2,224**	**18,697**	**7,912**	**26,609**	**4.1**

Physical inactivity particularly affects older people and a lot of short-term gain in health can be expected from measures that stimulate activity in the elderly, although physical disorders that are more prevalent in the elderly may hinder the full uptake of such measures. Given that habits of physical activity are acquired at younger age, longer-term gains are also likely to come from the promotion of more active life styles at younger ages.

Figure 33 Disease burden attributable to physical inactivity in DALY rates by age and sex, Victoria, 2001



5.8 Insufficient intake of fruits and vegetables

A review by colleagues at the New Zealand Ministry of Health helped us with estimates of relative risk for cancers, IHD and stroke. In line with dietary recommendations, we define inadequate consumption as less than five servings a day (NZMOH, 1999). The majority of Victorians eat too few fruits and vegetables (DHS, 2003). Eating enough fruits and vegetables prevents mostly cancer and, to a lesser extent, IHD and stroke (table 26). Inadequate fruit and vegetable consumption accounts for 3.3 per cent of the total disease burden.

Table 26 Disease burden attributable to insufficient intake of fruits and vegetables by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
All cancers	298	3,579	399	4,276	0.7
Ischaemic heart disease	1,268	11,325	1,701	14,294	2.2
Stroke	310	2,480	1,974	4,763	0.7
Total burden	**1,876**	**17,384**	**4,074**	**21,457**	**3.3**

5.9 Unsafe sex

HIV/AIDS accounts for 28 per cent of the burden due to unsafe sex, which amounts to 0.4 per cent of the overall burden. Cervical cancer is the cause of 38 per cent of the disease burden (table 27).

Table 27 Disease burden attributable to unsafe sex by condition, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
HIV/AIDS	17	368	420	787	0.1
Cervix cancer	68	868	217	1,085	0.2
Sexually transmitted diseases	1	21	858	879	0.1
Maternal conditions	-	-	11	11	0.0
Hepatitis	4	69	17	86	0.0
Total burden	**91**	**1,325**	**1,523**	**2,848**	**0.4**

5.10 Occupational exposures and hazards

An estimated 489 deaths in 2001 are due to occupational exposures. Because most of these deaths occur at younger ages, the mortality burden is a somewhat higher proportion (60 per cent) of all DALYs. Occupation is responsible for 1.5 per cent of the overall burden and accounts for 2.0 per cent of total DALYs in males. Cancers account for 48 per cent of the occupational burden, followed by injuries (22 per cent); other chronic diseases account for the remaining share (table 28).

Table 28 Disease and injury burden attributable to occupational exposures by broad cause group, Victoria, 2001

Condition	Deaths	YLLs	YLDs	DALYs	% of total DALYs
Cancers	368	3,983	755	4,738	0.7
Other chronic diseases	58	585	2,387	2,972	0.5
Injuries	63	1,378	820	2,198	0.3
Total burden	**489**	**5,945**	**3,963**	**9,908**	**1.5**

5.11 Intimate partner violence

The greatest proportion of the disease burden of intimate partner violence is from mental health problems (depression, anxiety, eating disorders alcohol and illicit drug use accounting for greater than 80 per cent). Suicide and smoking are also significant contributors (figure 34). In women under the age of 45 years, intimate partner violence is responsible for an estimated 9.0 per cent of the total disease burden. The proportion is less for older women and 3.2 per cent of the disease burden in all Victorian women (table 29 and figure 35).

Figure 34 Health outcomes contributing to the disease burden of intimate partner violence in women, Victoria, 2001

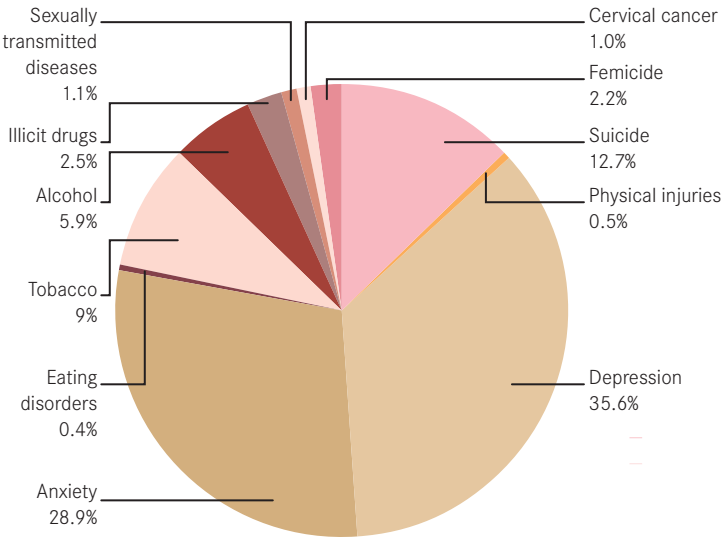
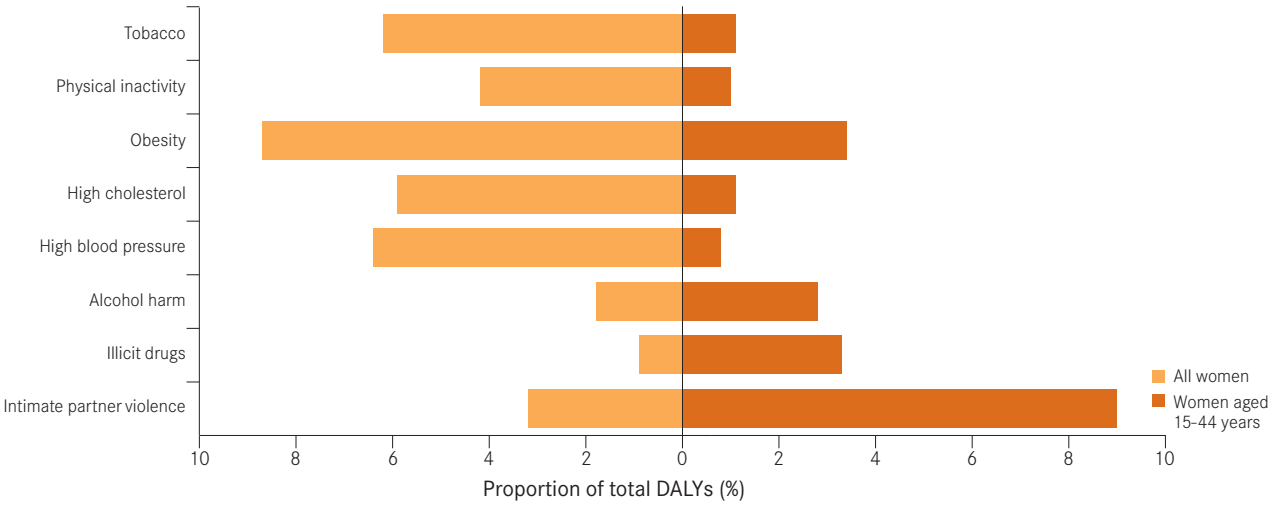


Table 29 Disease and injury burden attributable to intimate partner violence, Victoria, 2001

Condition	18-44 years	45+ years	Total DALYs	% of intimate partner violence burden
Femicide	134	91	225	2
Suicide	958	321	1,279	13
Physical injuries	38	14	52	1
Depression	2,377	1,206	3,583	36
Anxiety	2,304	612	2,916	29
Eating disorders	44	-	45	0
Tobacco	178	733	911	9
Alcohol	271	327	598	6
Drug use	229	22	251	2
Sexually transmitted diseases	104	10	114	1
Cervical Cancer	31	67	98	1
Total burden	**6,669**	**3,404**	**10,073**	**100**

Intimate partner violence has a greater impact than that of any other risk factor on the health of Victorian women under the age of 45 years. The burden contributed by this form of violence is greater than that for many other risk factors, such as elevated body mass, cholesterol, blood pressure and illicit drug use (figure 35).

Figure 35 Burden of disease attributable to the top eight risk factors in women, Victoria, 2001



5.12 Air pollution

The burden of disease attributed to air pollution was calculated for urban Victoria and accounts for only 0.1 per cent of the total disease burden (table 30).

Table 30 Disease and injury burden attributable to air pollution, Victoria, 2001

Condition	YLLs	YLDs	DALYs	% of total DALYs
Lower respiratory infections	17	4	20	0.3
Ischaemic heart disease	246	26	272	0.4
Stroke	96	70	166	0.5
Inflammatory heart disease	13	5	19	0.5
Chronic obstructive pulmonary disease	55	37	92	0.5
Asthma	6	20	27	0.2
Other chronic respiratory diseases	18	20	38	0.4
Lung cancer	98	9	107	0.5
Total	**551**	**190**	**741**	**0.1**

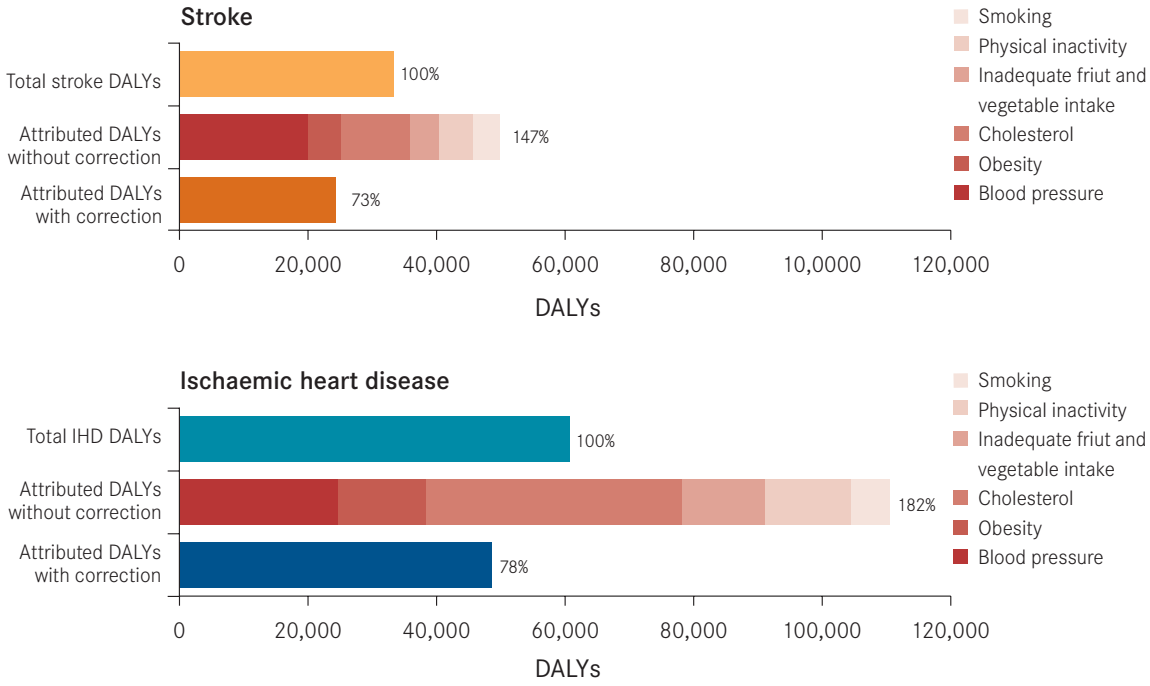
These estimates are based on the assumption of a threshold for particulate matter concentrations to cause disease and death, and should be considered to be preliminary and conservative estimates. However, more sophisticated methods being developed–employing daily fluctuations in concentrations of particulate matter (as opposed to monthly or annual average figures), and accounting for the effects of other pollutants (gases such as ozone and sulphur dioxide)–may result in different estimates.

5.13 Joint effects correction

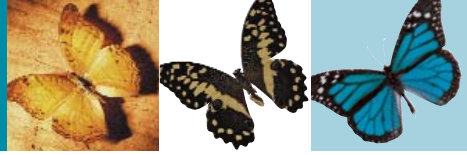
The DALYs attributed to the various risk factors cannot be added to determine the burden of disease that is attributable to all risk factors combined. This is because risk factors may operate at different points in the causal pathway of a disease. In the case of stroke and IHD the joint effects correction results in smaller disease burdens being attributed to blood pressure, inadequate fruit and vegetable consumption, cholesterol concentration, body mass, physical inactivity and smoking, to take into

account the relationship and overlap between these risk factors. Figure 36 presents the observed burden of stroke and IHD and the proportion of the burden attributed to selected risk factors before and after accounting for joint effects.

Figure 36 Proportion of total stroke and ischaemic heart disease burden attributed to selected risk factors with and without joint effects correction, Victoria, 2001



The total attributable burden of stroke and IHD without the correction for joint effects is 147 per cent and 182 per cent of the observed burden of stroke and IHD, respectively. That is obviously not possible. However, once the joint effects correction is applied the total burden attributed to six risk factors amounts to 73 per cent and 78 per cent, respectively. In other words, removing exposure to these risk factors would reduce, by three-quarters, the burden due to these two major cardiovascular diseases. This suggests that large health gains can be expected from effective public health interventions.

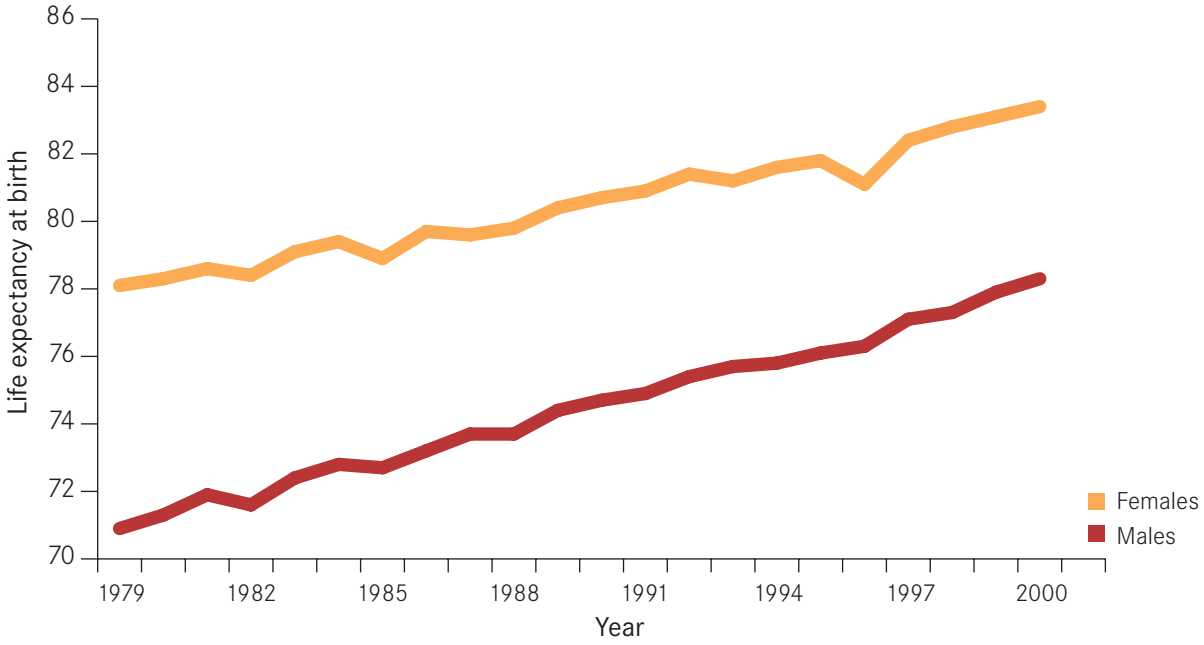


6 Comparison of the 1996 and 2001 results

6.1 Mortality rates

Many indicators show a consistent message: that the health status of Victorians is improving. Life expectancy at birth is an easily interpreted and commonly used summary measure of population health. Between 1996 and 2001, life expectancy at birth rose by two years for Victorian males (from 76.1 to 78.3 years) and also improved for females (from 81.8 to 83.4 years) (figure 37). This improvement continues to be observed beyond 2001: see www.health.vic.gov.au/healthstatus/le-99-03.htm.

Figure 37 Improvement in life expectancy at birth, by sex, in Victoria between 1979 and 2001



This improvement of two years arises from the fall in mortality rates across the age groups. In 1996, 15,717 Victorian females died, as well as 17,006 males. The 1996 mortality rate was 6.8 per 1,000 females and 7.6 per 1,000 males. Five years later in 2001, 15,858 females and 16,437 males died, and the crude (unadjusted) rates per 1,000 fell to 6.5 in females and 6.9 in males.

After adjusting for changes in the age structure of the population that occurred between these two periods, the comparable age-standardised (to 1996) mortality rate per 1,000 in 2001 is 5.9 in females and 6.3 in males. This equates to a fall in mortality rates of 17 per cent in males and 12 per cent in females. The dramatic improvement in mortality rates is almost entirely explained for both males and females by large reductions in mortality from cardiovascular disease, followed by cancers and chronic respiratory diseases (chronic obstructive pulmonary disease (COPD) and asthma).

Table 31 Mortality per 1,000, by sex, Victoria, 1996 and 2001

	Males			Females		
Disease groups	**1996**	**2001**	**Improvement in % terms**	**1996**	**2001**	**Improvement in % terms**
Infections and parasitic diseases	0.12	0.08	-34	0.07	0.08	19
Respiratory infections	0.08	0.09	9	0.12	0.13	11
Neonatal conditions	0.03	0.04	24	0.03	0.03	13
Cancers	2.24	2.02	-10	1.75	1.66	-5
Diabetes mellitus	0.23	0.19	-19	0.21	0.18	-15
Mental disorders	0.08	0.06	-23	0.02	0.03	11
Neurological and sense disorders	0.28	0.26	-6	0.41	0.40	-2
Cardiovascular diseases	2.87	2.13	-26	3.02	2.31	-24
Chronic respiratory diseases	0.56	0.44	-21	0.40	0.33	-17
Digestive disorders	0.21	0.18	-15	0.21	0.20	-3
Genitourinary disorders	0.14	0.14	4	0.15	0.18	18
Musculoskeletal diseases	0.03	0.03	1	0.07	0.07	-7
Congenital abnormalities	0.04	0.03	-21	0.03	0.03	-18
Unintentional injuries	0.29	0.25	-13	0.15	0.15	3
Intentional injuries	0.19	0.20	3	0.06	0.06	9
Total	**7.55**	**6.28**	**-17**	**6.81**	**5.97**	**-12**

Note 2001 rates standardised to the 1996 population

6.2 Years of life lost

We can compare the years of life lost (YLL) rate for all diseases included in the 1996 and 2001 studies because the calculation methods can readily be made directly comparable. For this purpose, both the 1996 and 2001 Victorian mortality data are converted to YLLs using the Global Burden of Disease (GBD) Study's standard life expectancy (80 years for males and 82.5 years for females), and the 2001 YLL rates are standardised to the 1996 Victorian population. YLLs represent 47 per cent of the total burden of disease and injury (DALYs) in 2001.

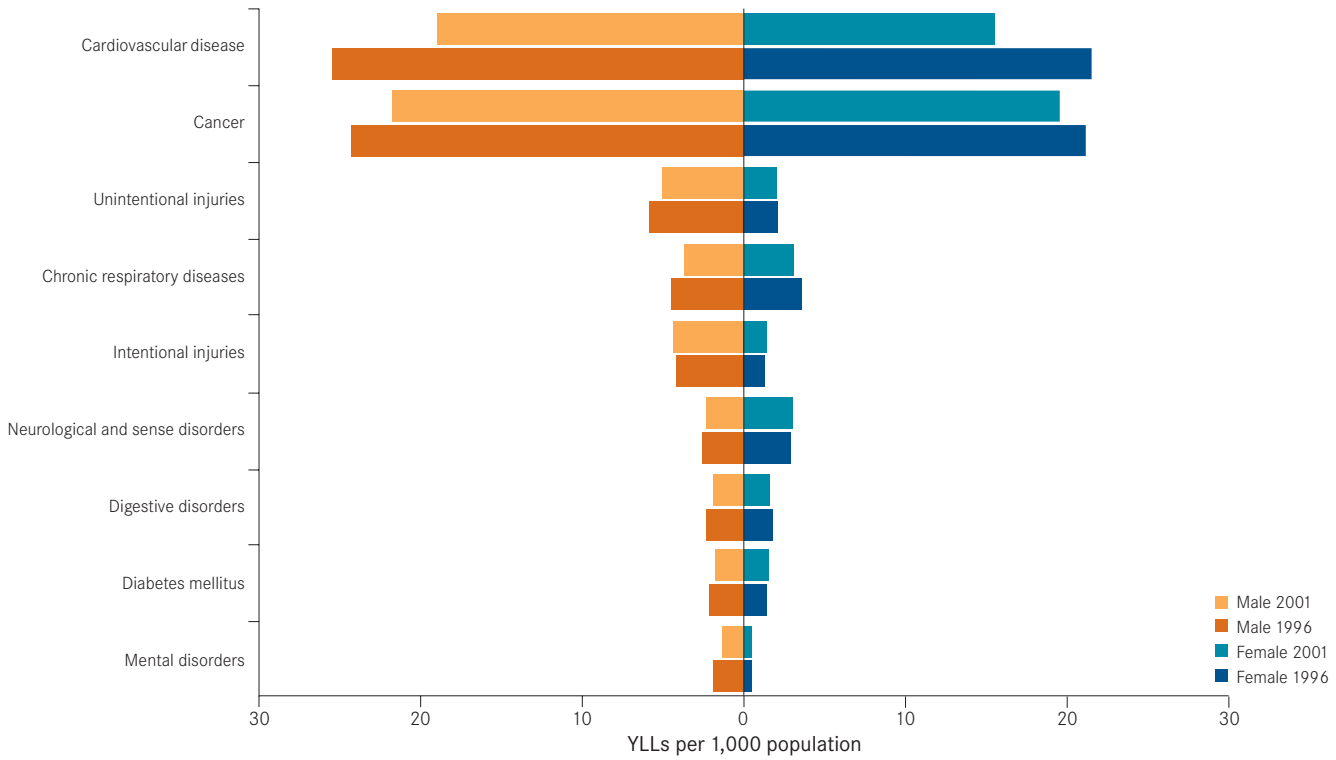
There have been remarkable improvements in the YLL rates over this short period of time. The total male YLL rate per 1,000 fell by 16 per cent from 81 to 68, while the improvement is smaller for women, at a 12 per cent fall from 63 to 55 (table 32 and figure 38). Improvements in cardiovascular disease and cancer explain over 70 per cent of the total improvement in male YLL rates and nearly 100 per cent of the improvement for females. Cardiovascular disease is the most important contributor to the improvement in YLL rates, explaining 54 per cent of the fall in male YLL rates and nearly 80 per cent of the improvement in female rates. The third largest improvements are found in chronic respiratory diseases (COPD and asthma).

Table 32 YLLs per 1,000, by sex and broad disease grouping, Victoria, 1996 and 2001

	Male		Female	
Diseases and injuries	**1996**	**2001**	**1996**	**2001**
Infections and parasitic diseases	1.9	0.9	0.6	0.8
Respiratory infections	0.7	0.6	0.7	0.8
Neonatal conditions	1.0	1.6	0.8	1.2
Cancer	24.3	21.7	21.2	19.5
Diabetes mellitus	2.1	1.8	1.8	1.5
Mental disorders	1.9	1.3	0.5	0.5
Neurological and sense disorders	2.6	2.4	2.9	3.0
Cardiovascular diseases	25.5	18.4	21.5	15.5
Chronic respiratory diseases	4.5	3.7	3.6	3.1
Digestive disorders	2.3	1.9	1.8	1.6
Genitourinary disorders	1.0	1.0	1.1	1.2
Musculoskeletal diseases	0.3	0.3	0.6	0.6
Congenital abnormalities	1.2	1.1	0.9	0.9
Unintentional injuries	5.9	5.0	2.1	2.0
Intentional injuries	4.2	4.3	1.3	1.4
Other	1.6	1.6	1.3	1.4
Total YLL rate per 1,000	80.8	67.6	62.6	54.9

Note: The GBD standard life expectancy is used to recalculate the previously published 1996 rates and the 2001 rates are standardised to the 1996 population

Figure 38 YLL rates for major disease groupings, by sex, Victoria, 1996 and 2001



6.2.1 Cardiovascular disease

Approximately 60 per cent of the improvement in cardiovascular disease for both males and females is explained by a reduction in the YLL rate for ischaemic heart disease (IHD). Stroke contributes the second largest improvement to the total cardiovascular disease YLL rate, at 22 per cent in females and 16 per cent in males (table 33 and figure 39). Change in the other cardiovascular conditions is less marked. There have been major improvements in both the prevention and treatment of cardiovascular disease, with a consequent reduction in mortality, as well as improvements in the quality of life, for those with the condition.

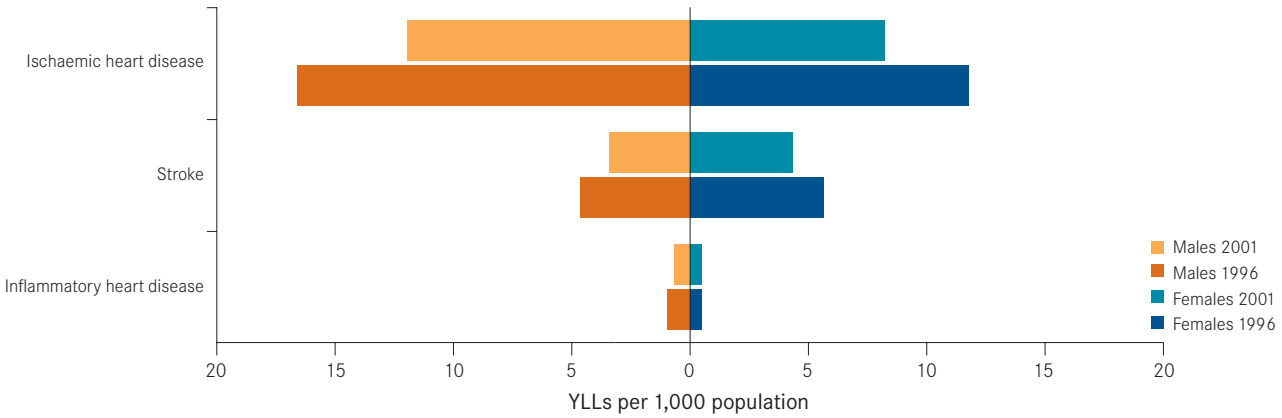
Table 33 Cardiovascular disease YLL rates per 1,000, by sex, Victoria, 1996 and 2001

	Males			Females		
Disease groups	**1996**	**2001**	**Comparison to overall CVD improvement (%)**	**1996**	**2001**	**Comparison to overall CVD improvement (%)**
Ischaemic heart disease	16.6	12.0	63	11.8	8.2	59
Stroke	4.6	3.4	16	5.7	4.3	22
Inflammatory heart disease	0.9	0.7	4	0.5	0.5	0
Hypertensive heart disease	0.5	0.1	6	0.8	0.2	11
Non-rheumatic valvular disease	0.4	0.4	-1	0.5	0.5	-1
Aortic aneurysm	0.8	0.1	10	0.4	0.2	4
Peripheral vascular disease	0.4	0.3	2	0.6	0.3	6
Rheumatic heart disease	0.2	0.1	1	0.3	0.2	2

CVD = cardiovascular disease.

Note: The GBD standard life expectancy is used to recalculate the previously published 1996 rates, and the 2001 rates are standardised to the 1996 population.

Figure 39 Cardiovascular disease YLL rates per 1,000, by sex, Victoria, 1996 and 2001



6.2.2 Cancer

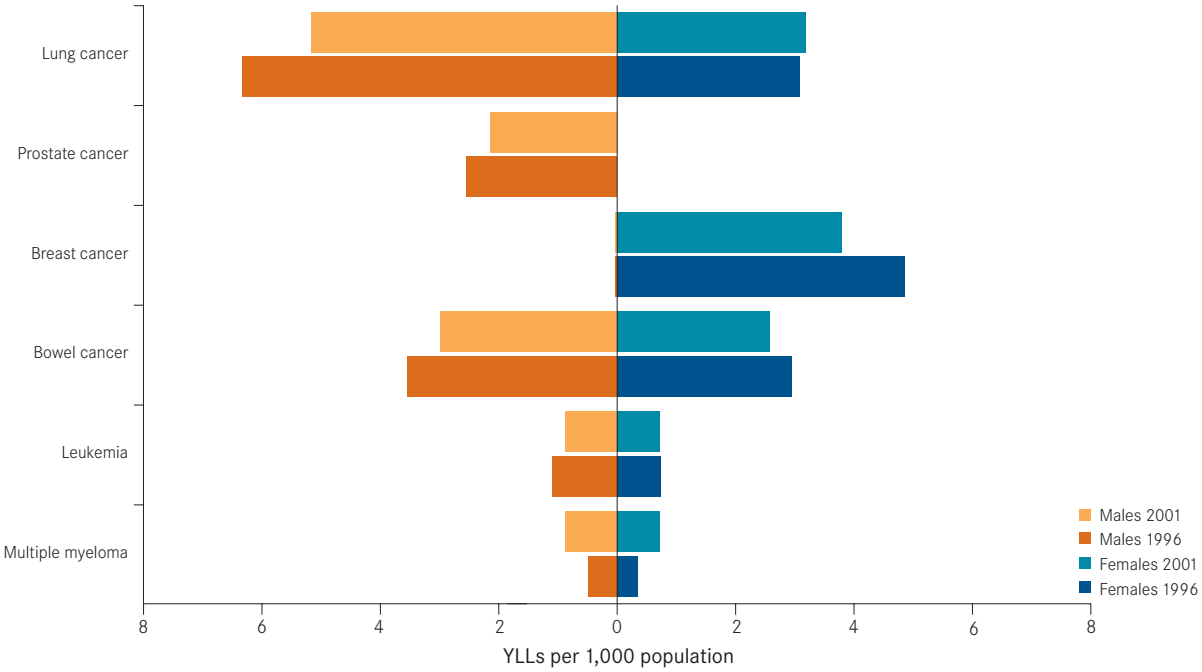
Over half of the improvement in the total male cancer YLL rate is explained by lung cancer. The largest contributor to the improvement in the female cancer YLL rate is breast cancer. While the male YLL rate for lung cancer is falling, there is no such improvement for females (table 34 and figure 40). This difference reflects the later start of the tobacco epidemic in females, while the prevalence of smoking behaviour in males has been falling for many years from the very high rates that prevailed in the 1950s and 1960s. The benefits of smoking cessation over 20 years earlier are reflected in the reduced mortality from lung cancer and chronic respiratory disease in males today.

Table 34 Cancer YLL rates per 1,000, by sex, Victoria, 1996 and 2001

	Males			Females		
Cancers	**1996**	**2001**	**Comparison to overall cancer improvement (%)**	**1996**	**2001**	**Comparison to overall cancer improvement (%)**
Bladder	0.6	0.6	2	0.2	0.3	-4
Bone and connective tissue	0.3	0.2	6	0.2	0.3	-7
Bowel	3.5	3.0	32	3.0	2.6	40
Brain	1.0	1.1	-5	0.8	0.8	1
Breast	0.0	0.0	0	4.9	3.8	112
Cervix	0.0	0.0	0	0.5	0.4	8
Endometrium	0.0	0.0	0	0.4	0.4	-4
Gall bladder	0.1	0.2	-2	0.3	0.3	9
Kidney	0.5	0.6	-5	0.5	0.4	6
Larynx	0.3	0.3	5	0.0	0.0	-2
Leukaemia	1.1	0.9	13	0.7	0.7	1
Liver	0.6	0.7	-7	0.2	0.3	-9
Lung	6.3	5.2	70	3.1	3.2	-10
Lymphoma	1.1	1.0	7	1.0	0.9	6
Melanoma	0.8	0.7	7	0.4	0.5	-8
Mouth	0.8	0.6	10	0.3	0.3	7
Multiple myeloma	0.5	0.9	-24	0.3	0.7	-38
Oesophagus	0.8	0.9	-2	0.4	0.4	2
Other neoplasia	0.3	0.9	-38	0.2	0.7	-49
Other skin cancers	0.2	0.3	-3	0.1	0.1	0
Ovary	0.0	0.0	0	1.5	1.2	23
Pancreas	1.1	1.2	-5	1.1	1.0	5
Prostate	2.6	2.1	24	0.0	0.0	0
Stomach	1.1	0.9	12	0.7	0.6	13
Testis	0.1	0.0	4	0.0	0.0	0
Thyroid	0.0	0.0	0	0.1	0.1	-1

Note: The GBD standard life expectancy is used to recalculate the previously published 1996 rates, and the 2001 rates are standardised to the 1996 population.

Figure 40 Major cancer YLL rates, by sex, Victoria, 1996 and 2001



6.3 Disability-adjusted life years

We cannot directly compare the total DALY rate between the two study years, given the methodological changes introduced for estimating the years of life lost as a result of disability (YLDs) for several diseases. Here, we group all diseases studied into three subgroups according to the ease of comparability of estimates in the 1996 and 2001 studies: (1) high comparability, (2) moderate comparability with some caution and (3) poor comparability where comparisons are not recommended. Sixty-five per cent of the total DALYs in 2001 arise in the highly comparable subgroup, along with 17 per cent in the moderately comparable subgroup and the remaining 18 per cent in the subgroup for which comparisons are not recommended. For the latter subgroup, the methods used to calculate the morbidity component have been refined to such an extent that comparisons are difficult to attempt without a lot of repeated disease modelling of the 1996 estimates. Table 35 displays the composition of the subgroups in 2001.

Table 35 Comparability of broad disease groupings 1996 and 2001

Disease	Comments
Diseases with high comparability between 1996 and 2001	
Infections and parasitic diseases	Disease models made directly comparable; data sources the same in both studies
Respiratory infections	
Maternal conditions	
Neonatal conditions	
Nutritional disorders	
Cancers	
Endocrine and metabolic disorders	
Mental disorders surveyed in the National Mental Health and Wellbeing Survey (excludes autism, attention deficit hyperactivity disorder, eating disorders and psychoses)	
Chronic respiratory diseases	
Digestive disorders	
Genitourinary disorders	
Skin diseases	
Musculoskeletal diseases	
Congenital abnormalities	
Injuries	
Moderately comparable diseases with some caution	
Cardiovascular disease	Use of the linked VAED data to derive the incidence of ischaemic heart disease; underlying causes of heart failure and remission rates. Change of study source of stroke incidence data
Diseases for which comparisons are not recommended	
Oral health	Change in case definition; new data sources; introduction of regression analysis across surveys
Diabetes	Change of data sources (from self-reported to measured) and other newer studies on the complications of diabetes
Neurological and sense disorders	Dementia prevalence refined in age goups. Parkinsons prevalence used more recent studies and case fatality estimated from local data. Hearing loss used refined assumptions regarding progression from mild to severe

For those diseases for which direct comparisons are possible, we calculated age-standardised DALY rates for the two study years. Over the five-year period, the total population size grew and changed in its composition. For comparison purposes, we adopted age standardisation to the 1996 Victorian population. For each disease in the highly comparable disease grouping, we entered the incidence as reported/measured in 1996 in the 2001 YLD spreadsheets to calculate equivalent 1996 YLDs using the same duration and disability weights that apply to the 2001 incidence estimates. We then added the reworked 1996 YLDs to the reworked YLLs for 1996 (using the GBD conversion) to derive the reworked DALYs for 1996.

Over this subset of highly comparable diseases, the male DALY rate has improved by 3 per cent (from 92 to 89 DALYs per 1,000), while there has been a 1 per cent change in females (from 79 to 78 DALYs per 1,000) (table 36). Improvement in cancer, musculoskeletal diseases and chronic respiratory diseases make the largest contribution to the overall improvement in male DALY rates, while improvements for females are largest in musculoskeletal diseases, cancers and digestive disorders. Other smaller positive and negative changes have occurred in some other diseases in both males and females, but the changes are so small as to be of no real consequence. The comparison column in table 36 reflects the percentage improvement (+%) or worsening (–%) in the DALY rate for each disease relative to the overall DALY rate improvement.

Table 36 Age-standardised DALY rates per 1,000 population for highly comparable diseases, by sex, Victoria, 1996 and 2001

	Males			Females		
Highly comparable diseases	**1996**	**2001**	**Comparison to overall rate change (%)**	**1996**	**2001**	**Comparison to overall rate change (%)**
Infections and parasitic diseases	2.4	1.6	26	1.3	1.5	-36
Respiratory infections	1.4	1.3	2	1.4	1.5	-24
Neonatal conditions	1.6	2.0	-11	1.3	1.5	-27
Cancer	30.9	28.1	87	26.3	25.0	162
Surveyed mental disorders	16.7	16.7	0	17.7	17.7	0
Chronic respiratory diseases	10.3	9.9	14	9.1	9.4	-39
Digestive disorders	3.5	2.9	20	3.2	2.8	49
Genitourinary disorders	3.5	3.8	-8	2.8	3.6	-110
Musculo-skeletal diseases	4.6	3.3	40	6.9	4.9	251
Congenital abnormalities	1.6	3.1	-48	1.3	2.0	-98
Unintentional injuries	8.8	8.1	23	3.8	3.5	39
Intentional injuries	4.4	4.6	-7	1.4	1.5	-20
Total DALY rates	**91.7**	**88.5**		**79.0**	**78.3**	

Note: The GBD standard life expectancy is used to recalculate the previously published 1996 rates, and the 2001 rates are standardised to the 1996 population.

6.4 Risk factors

It is not possible within our time frame to compare the importance of risk factors between study years, because risk factors have been estimated using very different methods (as outlined in chapter 2, section 2.12).

6.5 Disease rankings

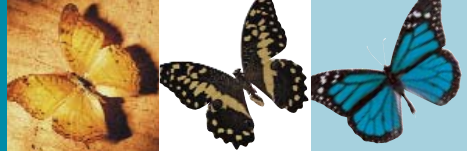
It is possible to examine the ranking order of the major disease groups contributing to the overall burden of disease in 1996 and the forecasts made at that time to 2016. It is not often that predictions are compared to actual events in health, but we can see for each of the top eight disease groups how the 1996 predictions for 2016 compare to the rankings of the 2001 study (table 37). The predicted fall in the importance of cardiovascular disease by 2016 has already occurred for both men and women. A total of four predictions for men have been realised already,

along with two for women. Also clear is the otherwise small degree of change in the rankings that occurs within a five-year period. The rise in the ranking of diabetes in women is probably due to improved data sources in 2001, coupled with the relatively poor prediction method adopted in 1996, rather than due to any real trend in disease. Most of the trends in mortality that were used in the 1996 predictions for 2016 continue to be realised.

Table 37 Changes in the rank of the burden of disease in DALYs for major disease groups, by sex, Victoria, 1996, 1996 projections for 2016, and 2001

	Males			Females		
	1996	2016[a]	2001	1996	2016[a]	2001
Cardiovascular disease	1	2	2	1	3	2
Cancer	2	1	1	2	1	1
Mental disorders	3	3	3	3	4	3
Neurological and sense disorders	4	4	4	4	2	4
Chronic respiratory diseases	5	6	5	5	5	5
Unintentional injuries	6	9	6	7	10	8
Diabetes mellitus	7	5	7	8	7	6
Musculoskeletal diseases	10	8	10	6	6	7

a Predictions made at the time of the 1996 study.



7 Discussion and conclusions

7.1 Precision of estimates

The calculation of mortality burden is straightforward, and the precision of the estimates of years of life lost as a result of premature mortality (YLL) depends almost entirely on the quality of data on underlying cause of death.

The calculation of the non-fatal burden requires much more extensive epidemiological modelling, drawing on a diverse range of data sources, research findings and expert opinion. The precision of the estimates of equivalent 'healthy' years of life lost as a result of disability (YLD) is not really quantifiable in the usual statistical sense of deriving a confidence interval because it varies across diseases and depends on the specific disease model being applied and the source and nature of the data underlying this model.

An additional issue that affects precision relates to the choice of disability weights. The majority of weights used in this study were not derived within a Victorian context so may not reflect local community preferences for different health states. We anticipate that further improvements in methods, models and data will result in incremental improvements in the accuracy and certainty of burden of disease estimates for Victoria.

It is likely, however, that the uncertainty in our estimates for many conditions is not excessive. This is because about half the total burden is due to mortality, where estimates are generally fairly precise, and around 40 per cent of the remaining non-fatal burden is attributable to a small number of diseases for which reasonably good Australian or Victorian data are available (for example, injuries, cancers, stroke, diabetes, and affective and anxiety disorders). This leaves around 30 per cent of the total burden with varying higher levels of uncertainty. Also note that burden estimates for many conditions lower in the overall ranking of conditions would fluctuate over time as a result of variations in incidence and mortality. In particular, the estimates for many infectious diseases vary from year to year depending on whether it is an epidemic year. For this reason, precise ordering of smaller causes of burden is not very useful.

7.2 Data gaps and deficiencies

One of the important byproducts of the extensive epidemiological modelling carried out as part of this study has been the identification of gaps and deficiencies in Victorian population health data (notwithstanding the high quality and extensive availability of such data in Australia compared with many other countries). The key issues arising from these gaps and deficiencies are discussed in the following sections.

7.2.1 Descriptive epidemiology

Incidence or prevalence data for some diseases are relatively complete (for example, cancer and some infectious diseases), but data for many others are unavailable or have severe limitations. This can lead to inconsistencies among commonly quoted incidence, prevalence and mortality estimates, particularly for important diseases such as diabetes and dementia. To the extent that this issue can be addressed, the diseases that require priority, given their contribution to the total non-fatal burden, are discussed in more detail below:

- **Osteoarthritis and rheumatoid arthritis.** The only population-level data we are aware of for Australia are self-reported data from the National Health Survey. Self-reported prevalence of both types of arthritis is considerably higher than the best estimates from epidemiological studies. For this reason, our YLD estimates are based on overseas population-based epidemiological studies using clinical criteria to define incident cases.

- **Asthma.** There are two ways in which asthma is defined in population surveys. The first method relies on questions about cough, wheeze and shortness of breath, as well as whether a doctor has made a diagnosis of asthma. Prevalence estimates based on this method are consistently two to three times higher than those based on the alternative method, which uses a positive reaction to an airway hyper-reactivity test as an additional diagnostic criterion. While we acknowledge that some people with genuine asthma are missed by airway hyper-reactivity testing, it is implausible that this is the case for more than half the total number of asthmatics. To err on the conservative side, we used prevalence estimates from studies that use the latter method.
- **Hearing loss.** The prevalence of hearing impairment with use of hearing aids (if any) is not known in Victoria. Our estimates for adult-onset hearing loss are based on a population survey of measured hearing loss in South Australia, together with assumptions about the effectiveness of hearing aids.
- **Chronic obstructive pulmonary disease.** Prevalence and severity estimates are based on the Busselton study in Western Australia. It is not known how representative the results from this one rural town in the early 1990s are of the current Victorian population.

Other gaps in our knowledge of the epidemiology of disease and injury in Victoria relate to information on (1) the distribution of disease severity, which is inadequate or lacking for some important conditions (for example, asthma, angina, heart failure, stroke, peripheral arterial disease, osteoarthritis, dementia and head injuries), and (2) case fatality rates, which are not available for the vast majority of conditions. Improvements in record linkage and retention of identifiers in population surveys should allow these issues to be addressed at relatively low cost.

7.2.2 Self-reported health status

Often, the techniques used to obtain health-related information are inappropriate and result in misleading or implausible findings. This problem explains the inconsistencies between self-reported health data from population surveys and best estimates from epidemiological studies for some important diseases and risk factors (for example, arthritis, asthma, upper and lower respiratory conditions, and body mass). The major limitations of self-reported data on health conditions relate to:

- under-reporting of undiagnosed conditions (for example, many mental health problems and diabetes)
- over-reporting of some conditions (for example, where symptoms such as joint pain are incorrectly labelled as osteoarthritis, or occasional wheezing as asthma)
- a lack of information on condition severity (resulting in high prevalence due to the inclusion of minor conditions or minor symptoms).

7.2.3 Risk factor attribution

Plausible risk factor attributable fractions are difficult to calculate. Some of the complicating factors are summarised below:

- While a considerable amount of 'self-reported' survey data is available, considerably less 'measurement' survey data are available on representative samples with adequate response rates.
- Evidence of the relative risk of death or disease in the presence of a risk factor is limited and often reported by categories of exposure that are different from those used in population surveys.
- A cross-sectional measure of risk factor prevalence may not reflect the exposure level that is relevant to current health status. Given the long lag time between exposure to tobacco smoke and cancer, for example, current smoking prevalence would underestimate the true attributable fraction, because it is considerably lower than prevalence figures in past decades that are the cause of current cancer rates. We accounted for this issue in our calculations of the tobacco burden, but similar issues are relevant to other risk factors.

- One-off measurements of a level of exposure may not reflect the health impact of the true exposure over time. Blood pressure and cholesterol levels, for example, are subject to considerable variation over time.
- Similar to the doubts expressed above about the validity of self-reported health status, survey results of risk factors such as alcohol consumption, smoking behaviour and dietary habits may be far from accurate.

7.3 Methodological issues and developments

During this study, methodological issues emerged that we consider require development and refinement to improve the validity and applicability of the disability-adjusted life year (DALY) metric. Efforts are already underway internationally in some of these areas. Here, we briefly summarise the major areas in which methods need improvement. A more detailed paper on these issues is planned.

7.3.1 Comorbidity

Victorian and national studies made the first attempts to account for comorbidity in estimating the total burden of disease. They did so for comorbidity between congenital malformations, between mental disorders, between injuries and between physical disorders at older ages. We did not attempt to adjust for comorbidity between mental and physical disorders, although Australian data are available that indicate mental–physical comorbidity. One problem is that we rely on self-reported data for physical conditions and, as indicated in the previous section, there are many reasons to doubt the validity of such results, particularly the attribution to particular diseases. We thus ignored this area of comorbidity. Because most of the important mental disorders are much more common in young and mid adulthood, while physical conditions are far more common in the elderly, this omission is unlikely to influence our results greatly. Other issues still need to be addressed, however, including modelling the effect of comorbidity on combined disability weights, managing the potentially large number of comorbid combinations, and dealing more comprehensively with dependent comorbidity.

7.3.2 Numerical valuation of health states

A substantial program of research and development is required to:

- improve methods to determine disability weights for low-severity conditions. The current methods, in which valuation panels are asked to trade-off the deaths of persons in good health against those in a state of less than perfect health, are not good at determining low-severity weights. As a result, estimates of highly prevalent low-severity conditions such as mild hearing loss are inaccurate.
- determine the key domains to include in summary health state instruments for use in valuation exercises and population data on health outcomes
- obtain disability weights using more panels that are more representative of the general population
- include the experience of people with particular conditions while still aiming to obtain a societal (rather than an affected individual's) perspective in valuation exercises
- develop comparable weights across cultures and among socioeconomic groups
- develop Australian-specific weights. Such weights would lead to estimates that may best suit the needs of Australian health policy formulation. On the other hand, an international standard may provide weights that are close enough to Australian preferences that the differences from Australian-specific weights are negligible in terms of policy development, while allowing direct international comparisons. Internationally derived weights would also mean the weights could be based on more and more extensive studies without requiring large resource input from the Australian health budget.

7.4 Policy implications and future directions

The release of a second burden of disease study for Victoria coincides with a steadily increasing demand for an improved understanding of the health of our population from policy makers and planners. Reports on population health status–such as those based on the descriptive epidemiology of mortality, hospitalisation profiles and selected survey findings–have an important place but are limited in the extent to which they document the net burden of disease states on society.

No one tool achieves the required level of knowledge adequately, but analyses of the burden of disease derived from complex modelling of relevant data provide an intuitive picture of health, mortality and morbidity that is generally well understood. The broadly accepted DALY metric allows the relative contributions of mortality and disability from all disease states to be described. Although the allocation of particular disease weights to certain conditions to calculate the YLD can be difficult, the uniformity of the methodological approach to modelling disease burden across all diseases provides a unique perspective on the distribution of ill health and its underlying causes across society.

Based on our experience, the outcomes of discussions on the quantification of burden estimates inevitably lead to a renewed focus on conditions that can otherwise be overlooked in more traditional health status reports. This focus often results in a constructive analysis of day-to-day problems and issues that are confronting health policy makers at all levels in a practical sense. Burden of disease outputs thus contribute an essential element to the policy development and health planning cycle.

The Victorian Burden of Disease Study is just one of a number of sources of information that can be used for policy making and priority setting across the sector. Burden of disease estimates do not indicate the efficacy or effectiveness of interventions relevant to disease states, nor do they alone indicate the value for money that can be achieved in seeking a level of health gain. On the other hand, recent cost-effectiveness studies demonstrated that economic evaluations based on DALYs potentially averted through intervention strategies can provide additional insights that have practical applications for health planners (Nelson *et al*., 2005, Vos *et al*., 2005).

A common misconception is that DALYs are new sources of data for health planners: rather, DALYs are simply alternative representations of information derived from existing data. Estimates are compiled from the best available data relevant to diseases, including data on disease incidence and prevalence, duration, mortality and severity. The description of method in this report highlights the data sources and technical approaches used in detail.

In the Australian context, available data have many gaps that force epidemiologists to refer to best available international data sources. In particular, data on the incidence and prevalence of chronic diseases are often poor, as are gold standard measurement data on the risk factors for chronic diseases. On the other hand, vital statistics data such as mortality data are generally of high quality and are regularly updated. The frequency with which future burden of disease studies may be conducted in jurisdictions such as Victoria will largely reflect the availability of appropriate new data of sufficient quality to warrant generating a complete new set of estimates.

This latest study in Victoria provides a new set of disease burden estimates that significantly enhances our knowledge, given both the availability of improved data for some conditions (for example, cancers) and significant refinements in the epidemiological modelling of these data. For some conditions where new data were not forthcoming between 1996 and 2001 (for example, hearing loss and most mental disorders), the improved approaches to analysis provide us with a much clearer picture of burden than was possible when the original study was performed in 1996. Chapter 6 of this report provides the reader with detailed information on comparisons that are both valid and invalid between the current study (2001 data) and the first Victorian study (1996 data).

Given the many methodological changes, we caution against comparisons between the published results of the two studies, apart from those presented in chapter 6. On the other hand, we are confident that this study provides the best possible overview of the burden of disease in Victoria using latest available data and the most refined methods available, and that it will allow policy makers to make more confident decisions.

Where to next? Work is underway to generate a second set of burden of disease (DALY) estimates for all local government areas in the state (based on 2001 data). These estimates are due for release in mid-2006. The Department of Human Services' Health Surveillance and Evaluation Section also annually releases profiles of life expectancy at birth. These data are accessible on the web site www.health.vic.gov.au/healthstatus.

Key areas of work requiring attention are (1) the development of appropriate disease weights based on Australian population data and (2) the conduct of a comprehensive sensitivity and uncertainty analysis of estimates derived from studies such as this Victorian study and the soon-to-be-completed national study. The Health Surveillance and Evaluation Section has close collaborative links with the national burden of disease study group at the University of Queensland, which has identified both of the above issues in its work program. Further, the existence of a national burden of disease advisory group, coordinated by the University of Queensland with representation from all jurisdictions, is providing a significant boost to the development, harmonisation and sharing of the technical capacity required in Victoria and nationally to progress this work.

7.5 Conclusions

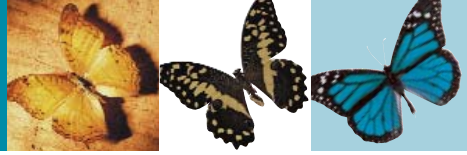
This report has addressed the need for comprehensive and comparable information on the causes of loss of health in the Victorian population. It provides the second detailed, and internally consistent, estimates for Victoria of the incidence, prevalence, duration, mortality and disease burden for an exhaustive and mutually exclusive set of disease and injury categories. It has also taken steps towards quantifying the burden associated with a range of risk factors and health determinants, using vastly improved methods. While we made every attempt to identify the best available information in relation to each disease, injury and risk factor category, and to consult as widely as possible, the estimates published here are developmental. We hope others will contribute to future improvements in data, disease models and disability weights. One fundamental goal in constructing summary measures is to identify the relative magnitude of different health problems, including diseases, injuries and risk factors. The DALY method provides a conceptual framework linking determinants to disease and injury, through to impairments, disability and other health outcomes. It brings together a range of concepts and data sources to present internally consistent information on the origins, patterns, nature and consequences of disability and related health conditions.

The DALY method also provides a way in which to link information on disease causes and occurrence to information on both short-term and long-term health outcomes, including impairments, functional limitations (disability) and, potentially, restrictions on participation in usual roles (handicap). The burden of disease method is designed to inform health policy on the prevention and treatment (cure or reduction in severity) of these health outcomes. In principle, if measurement instruments and classification categories for impairments and functional limitations are used consistently in epidemiological studies of the sequelae of diseases and injuries and in population disability surveys, burden of disease analyses should provide DALY estimates consistent with the overall prevalence of impairments and disabilities in the population.

This coherent system of health statistics represents a major advance in our ability to monitor population health (both levels and distributions) and accumulate knowledge about causal factors.

The use of a common metric such as the DALY for burden of disease analyses, measurement of clinical outcomes, and cost-effectiveness analyses allows existing or prospective interventions to be judged in terms of both their cost-effectiveness and their relative impacts in reducing the burden of disease and ill health.

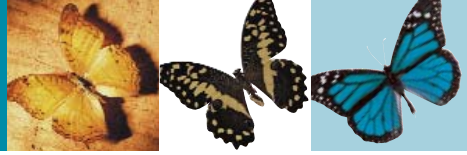
In summary, burden of disease analysis provides a unique perspective on health–one that integrates fatal and non-fatal outcomes, yet allows the two classes of outcomes to be examined separately as well. Additionally, the burden can be readily disaggregated by cause for analysis at the level of diseases and risk factors, and can be estimated for any subgroup of the population for which data are available. The results reported here thus provide a valuable insight into the scope for further health gain in Victoria.



Glossary of abbreviations

ABS	Australian Bureau of Statistics
ADHD	attention-deficit with hyperactivity disorder
AHT	airway hyper-responsiveness test
AIDS	acquired immune deficiency syndrome
AIHW	Australian Institute of Health and Welfare
AMI	acute myocardial infarction
ANZDATA	Australian and New Zealand Register of Dialysis and Transplant Patients
AP	angina pectoris
ART	assisted reproductive technologies
BCC	basal cell carcinoma
BEACH	Bettering the Evaluation and Care of Health
BFV	Barmah Forest virus
BMES	Blue Mountains Eye Study
BMI	body mass index
BPH	benign prostatic hypertrophy
CABG	coronary artery bypass graft
CFR	case fatality rate
CFS	chronic fatigue syndrome
COPD	chronic obstructive pulmonary disease
CNS	central nervous system
CRA	comparative risk assessment
CVD	cardiovascular disease
DALY	disability-adjusted life year
DHAC	Australian Department of Health and Aged Care
DHS	Department of Human Services (Victoria)
DisMod 2	Disease Modelling software package
DSM-IV	Diagnostic and statistical manual of mental disorders–fourth edition
DW	disability weight
FEV	forced expiratory volume
GAD	generalized anxiety disorder
GBD	Global Burden of Disease (study)
HCC	hepatocellular cancer
HIV	human immunodeficiency virus
ICD-10	International Classification of Diseases–revision 10
ICD-9	International Classification of Diseases–revision 9
IDDM	insulin-dependent diabetes mellitus
IDU	injecting drug user
IHD	ischaemic heart disease
IOTF	International Obesity Task Force
MDD	major depressive disorder
MDE	major depressive episode

MHS	National Mental Health and Wellbeing Survey 1997
NCSCH	National Cancer Statistics Clearing House
NEMESIS	North East Melbourne Stroke Incidence Study
NHMRC	National Health and Medical Research Council
NHS	National Health Survey
NIDDM	non-insulin-dependent diabetes mellitus
NIDSS	Notifiable Infectious Diseases Surveillance System
NOHS	National Oral Health Survey
NOHSC	National Occupational Health and Safety Commission
NPSU	National Perinatal Statistics Unit (AIHW)
NZMOH	New Zealand Ministry of Health
OCD	obsessive-compulsive disorder
PID	pelvic inflammatory disease
PTO	person trade-off valuation method
PTCA	percutanerous transluminal coronary angioplasty
PTSD	post-traumatic stress disorder
PVD	peripheral vascular disease
QALY	quality adjusted life year
RR	relative risk
RRV	Ross River virus
RSI	repetitive strain injury
SACR	South Australian Cancer Registry
SCC	squamous cell carcinoma
SF-12	Medical Outcomes Study 12-item Short-Form Health Survey
SF-36	Medical Outcomes Study 36-item Short-Form Health Survey
SIDS	sudden infant death syndrome
SLA	statistical local area
SMR	standardised mortality ratio
STD	sexually transmitted disease
TB	tuberculosis
TOP	termination of pregnancy
VAED	Victorian Admitted Episode Dataset
VCR	Victorian Cancer Registry
VEMD	Victorian Emergency Minimum Dataset
VHPSS	Victorian Hospital Pathogens Surveillance Scheme
WHO	World Health Organization
YLD	years lost as a result of disability
YLL	years of life lost (as a result of premature mortality)



Appendix

Appendix table 1 Disease categories and disability weights

Disease category, subcategory, or sequelae	Disability weight	Comments
I. Communicable diseases, maternal, neonatal and nutritional conditions		
A. Infectious and parasitic diseases		
1. Tuberculosis		
Pulmonary tuberculosis	0.295	GBD weight
Extra-pulmonary tuberculosis	0.300	GBD weight
2. Sexually transmitted diseases (not HIV/AIDS)		
(a) Syphilis		
Primary syphilis	0.148	GBD weight
Secondary syphilis	0.048	GBD weight
Tertiary syphilis (cardiovascular)	0.196	GBD weight
Tertiary syphilis (gummas)	0.102	GBD weight
Tertiary syphilis (neurologic)	0.283	GBD weight
Syphilis (congenital)	0.315	GBD weight
(b) Chlamydia		
Conjunctivitis	0.180	GBD weight
Urethritis	0.067	GBD weight
Cervicitis	0.049	GBD weight
Pelvic inflammatory disease	0.420	GBD weight
Ectopic pregnancy	0.549	GBD weight
Chronic pelvic pain	0.122	GBD weight
Infertility	0.180	GBD weight
Tubo-ovarian abscess	0.549	GBD weight
(c) Gonorrhoea		
Urethritis	0.067	GBD weight
Cervicitis	0.049	GBD weight
Pelvic inflammatory disease	0.420	GBD weight
Ectopic pregnancy	0.549	GBD weight
Chronic pelvic pain	0.122	GBD weight
Infertility	0.180	GBD weight
Tubo-ovarian abscess	0.549	GBD weight
(d) Other sexually transmitted disease		
Pelvic inflammatory disease	0.420	GBD weight
Ectopic pregnancy	0.549	GBD weight
Chronic pelvic pain	0.122	GBD weight
Infertility	0.180	GBD weight
Tubo-ovarian abscess	0.549	GBD weight

Disease category, subcategory, or sequelae	Disability weight	Comments
3. HIV/AIDS		
Diagnosed asymptomatic HIV	0.200	Dutch weight
Symptomatic HIV	0.310	Dutch weight
AIDS	0.560	Dutch weight
AIDS–terminal phase	0.950	Dutch weight
4. Diarrhoeal diseases and gastroenteritis		
Uncomplicated episodes	0.093	GBD age-specific weights (average shown here)
Complicated episodes	0.420	Dutch weight for complicated episode (50%) plus GBD weight for uncomplicated episode (50%)
5. Vaccine-preventable cluster		
(a) Diphtheria		
Cases	0.230	GBD weight
Neurological complications	0.078	GBD weight
Myocarditis	0.323	GBD weight
(b) Whooping cough		
Pertussis episode	0.178	GBD weight
Mental retardation (treated)	0.420	GBD weight (0.394 for 0–4 years old, 0.420 for 5–14 years old)
Mental retardation (untreated)	0.483	GBD weight (0.469 for 0–4 years old, 0.483 for 5–14 years old)
(c) Tetanus		
Cases	0.612	GBD weight
(d) Poliomyelitis		
Cases	0.369	GBD weight
(e) Measles		
Episodes	0.152	GBD weight
Measles encephalitis	0.338	GBD weight for neurological sequelae of encephalitis
Sub-acute sclerosing panencephalitis	0.930	Dutch weight for end-stage disease
(f) Rubella		
Episodes	0.152	GBD weight for measles episode
Congenital cataracts	0.430	Dutch weight for severe vision loss
Congenital heart disease	0.350	Dutch weight for heart failure
Congenital deafness	0.230	Dutch weight
(g) Haemophilus influenzae type b (Hib)		
Epiglottitis	0.152	GBD weight for Haemophilus influenzae episode
Meningitis	0.430	Average of weights for meningitis manifestations
Septicaemia	0.350	GBD weight
Pneumonia	0.230	Estimated using EQ5D + regression model

Disease category, subcategory, or sequelae	Disability weight	Comments
6. Meningitis		
Acute episodes	0.913	Estimated using EQ-5D+ regression model
After effects up to six months	0.226	Estimated using EQ-5D+ regression model
VP shunt	0.170	Dutch weight for motor deficit
Hearing loss	0.234	Average of Dutch weights for mild, moderate, and severe loss
Seizure disorder	0.110	Dutch weight
Less severe developmental problems	0.100	Average of Dutch weights for developmental problems
Mental retardation	0.250	Dutch weight
Motor deficit plus mental retardation	0.760	Dutch weight
Less severe developmental problems	0.100	Based on Dutch weights for developmental problems
Scarring/deformity	0.133	Based on GBD amputation weights
7. Septicaemia		
Cases	0.613	GBD age-specific weights (average shown here)
8. Arbovirus infection (including Ross River fever)		
Acute phase	0.258	Dutch weight for moderate rheumatoid arthritis
Chronic phase	0.140	Dutch weight for mild rheumatoid arthritis
9. Hepatitis		
(a) Hepatitis A		
Uncomplicated episodes	0.093	GBD age-specific weights, average shown here
Complicated episodes	0.420	Dutch weight for complicated episode (50%) plus GBD weight for uncomplicated episode (50%)
Prolonged or relapsing episodes	0.140	Dutch weight for mild depression
(b) Hepatitis B		
Cases	0.000	Asymptomatic cases only
Acute symptomatic episodes	0.210	Dutch weight
Chronic symptomatic carrier	0.360	Dutch weight
Compensated liver cirrhosis	0.310	Dutch weight
Decompensated liver cirrhosis	0.840	Dutch weight
Hepato-cellular cancer	–	See sequelae and weights for F5 Liver cancer
(c) Hepatitis C		
Cases	0.000	Asymptomatic cases only
Acute symptomatic episode	0.210	Dutch weight for hepatitis B
Chronic symptomatic carrier	0.360	Dutch weight for hepatitis B
Decompensated liver cirrhosis	0.840	Dutch weight
Hepato-cellular cancer	–	See sequelae and weights for F5 Liver cancer

Disease category, subcategory, or sequelae	Disability weight	Comments
B. Acute respiratory infections		
1. Lower respiratory tract infections		
Influenza episodes	0.047	Estimated using EQ-5D+ regression model
Acute bronchitis episodes	0.132	Estimated using EQ-5D+ regression model
Pneumonia episodes	0.373	Estimated using EQ-5D+ regression model
2. Upper respiratory tract infections		
Acute nasopharyngitis	0.014	Estimated using EQ-5D+ regression model
Acute sinusitis	0.061	Estimated using EQ-5D+ regression model
Pharyngitis/tonsillitis	0.061	Estimated using EQ-5D+ regression model
3. Otitis media		
Acute episodes	0.090	Dutch weight for one day severe pain plus four days moderate pain
Chronic otitis media	0.110	Dutch weight for early acquired mild to moderate hearing loss
Deafness	0.233	Dutch weight for early acquired severe hearing loss
C. Maternal conditions		
1. Maternal haemorrhage		
Cases	0.011	GBD weight for moderate anaemia
Severe anaemia	0.093	GBD weight
2. Maternal sepsis		
Episodes	0.500	GBD weight
Infertility	0.180	GBD weight
3. Hypertension in pregnancy		
Episodes	0.117	Estimated using EQ-5D+ regression model
Neurological sequelae	0.388	GBD weight
4. Obstructed labour		
Episodes	0.349	Estimated using EQ-5D+ regression model
5. Abortion		
Episodes spontaneous abortion	0.000	GBD weight
Episodes induced abortion	0.000	GBD weight
Infertility	0.180	GBD weight

Disease category, subcategory, or sequelae	Disability weight	Comments
D. Neonatal causes		
1. Birth trauma and asphyxia		
Deafness	0.230	Dutch weight
Seizure	0.110	Dutch weight
Cerebral palsy without intellectual disability	0.170	Dutch weight
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight
2. Low birth weight		
Mild permanent disability	0.110	Dutch weight for mild to moderate early acquired hearing loss
Severe hearing loss	0.370	Dutch weight
Vision loss	0.170	Dutch weight for moderate vision loss
Epilepsy	0.110	Dutch weight
Cerebral palsy without intellectual disability	0.170	Dutch weight
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight
3. Neonatal infections		
Acute neonatal episodes	0.894	Dutch weight for acute meningitis episode
Deafness	0.370	Dutch weight
Motor deficit	0.170	Dutch weight
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight
4. Other neonatal causes		
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight
Cerebral palsy without intellectual disability	0.170	Dutch weight for motor deficit
E. Nutritional deficiencies		
1. Iron-deficiency anaemia		
Non-anaemic iron deficiency	0.005	Estimated using EQ-5D+ regression model
Mild anaemia	0.005	GBD weight
Moderate anaemia	0.011	GBD weight
Severe anaemia	0.090	GBD weight
Very severe anaemia	0.250	GBD weight
Cognitive impairment	0.024	GBD weight

Disease category, subcategory, or sequelae	Disability weight	Comments
II. Non-communicable diseases		
F. Malignant neoplasms		
1. Mouth and oropharynx cancers		
Diagnosis and primary therapy	0.560	Dutch weight for oesophageal cancer
State after intentionally curative primary therapy	0.370	Dutch weight for oesophageal cancer
In remission	0.370	Dutch weight for oesophageal cancer
Disseminated cancer	0.900	Dutch weight for oesophageal cancer
Terminal stage	0.930	Dutch weight for end-stage disease
2. Oesophagus cancer		
Diagnosis and primary therapy	0.560	Dutch weight
State after intentionally curative primary therapy	0.370	Dutch weight
Irradically removed or disseminated carcinoma	0.900	Dutch weight
Pre-terminal and terminal stages	0.930	Dutch weight for end-stage disease
3. Stomach cancer		
Diagnosis and primary therapy	0.530	Dutch weight
State after intentionally curative primary therapy	0.380	Dutch weight
Irradically removed or disseminated carcinoma	0.730	Dutch weight
Pre-terminal and terminal stages	0.930	Dutch weight for end-stage disease
4. Bowel cancer		
Diagnosis and primary therapy	0.430	Dutch weight
State after intentionally curative primary therapy	0.200	Dutch weight
In remission	0.430	Dutch weight
Irradically removed or disseminated carcinoma	0.830	Dutch weight
Terminal stage	0.930	Dutch weight for end-stage disease
5. Liver cancer		
Diagnosis and initial treatment	0.430	Dutch weight for colorectal cancer
State after intentionally curative primary therapy	0.200	Dutch weight for colorectal cancer
Clinically disease free	0.200	Dutch weight for colorectal cancer
Irradically removed/disseminated/preterminal	0.830	Dutch weight for colorectal cancer
Terminal phase	0.930	Dutch weight for end-stage disease
6. Gall bladder cancer		
Diagnosis and initial treatment	0.430	Dutch weight for colorectal cancer
State after intentionally curative primary therapy	0.200	Dutch weight for colorectal cancer
Clinically disease free	0.200	Dutch weight for colorectal cancer
Irradically removed/disseminated/preterminal	0.830	Dutch weight for colorectal cancer
Terminal phase	0.930	Dutch weight for end-stage disease

Disease category, subcategory, or sequelae	Disability weight	Comments
7. Pancreas cancer		
Diagnosis and initial treatment	0.430	Dutch weight for colorectal cancer
State after intentionally curative primary therapy	0.200	Dutch weight for colorectal cancer
Disseminated	0.830	Dutch weight for colorectal cancer
Terminal phase	0.930	Dutch weight for end-stage disease
8. Lung cancer		
Non-small cell cancer		
Diagnosis and primary therapy	0.440	Dutch weight
Disease free after primary therapy	0.470	Dutch weight
Diagnosis and primary therapy for inoperable cancer	0.760	Dutch weight
Disseminated cancer	0.910	Dutch weight
Terminal stage	0.930	Dutch weight for end-stage disease
Diagnosis and chemotherapy small cell cancer	0.680	Dutch weight
Disease free after primary therapy for small cell cancer	0.470	Dutch weight
Small cell cancer in remission	0.540	Dutch weight
Relapse/terminal stage small cell cancer	0.930	Dutch weight for end-stage disease
9. Bone and connective tissue cancers		
Diagnosis and primary therapy	0.350	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.300	Provisional weight based on Dutch weights
In remission	0.300	Provisional weight based on Dutch weights
Disseminated carcinoma	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
10. Melanoma		
Primary treatment: no evidence of dissemination	0.190	Dutch weight
No evidence of dissemination after initial treatment	0.190	Dutch weight
Primary treatment: lymph node but no distant dissemination	0.430	Dutch weight
In remission	0.190	Dutch weight
Disseminated melanoma	0.810	Dutch weight
Terminal phase	0.930	Dutch weight for end-stage disease
11. Non-melanoma skin cancers		
Basal cell carcinoma	0.050	Dutch weight
Squamous cell carcinoma undisseminated	0.070	Dutch weight
Squamous cell carcinoma with dissemination	0.400	Dutch weight
Squamous cell carcinoma–local recurrence	0.500	Dutch weight
Terminal phase	0.930	Dutch weight for end-stage disease

12. Breast cancer		
Diagnosis and primary therapy: non-invasive tumour <2 cm	0.260	Dutch weight
Diagnosis and primary therapy: tumour 2–5 cm or lymph node dissemination	0.690	Dutch weight
Diagnosis and primary therapy: tumour >5 cm	0.810	Dutch weight
Disease free after initial treatment	0.260	Dutch weight
In remission	0.260	Dutch weight
Disseminated cancer	0.790	Dutch weight
Terminal phase	0.930	Dutch weight for end-stage disease
13. Cervix cancer		
Diagnosis and primary therapy	0.430	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.200	Provisional weight based on Dutch weights
In remission	0.200	Provisional weight based on Dutch weights
Disseminated carcinoma	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
14. Endometrium cancer		
Diagnosis and primary therapy	0.430	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.200	Provisional weight based on Dutch weights
In remission	0.200	Provisional weight based on Dutch weights
Disseminated carcinoma	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
15. Ovary cancer		
Diagnosis and primary therapy	0.430	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.200	Provisional weight based on Dutch weights
In remission	0.200	Provisional weight based on Dutch weights
Disseminated carcinoma	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
16. Prostate cancer		
Diagnosis and primary therapy: localised cancer	0.270	Dutch weight
Follow-up without active therapy (watchful waiting)	0.270	Dutch weight
In remission	0.200	Dutch weight
Clinically disease free after primary therapy	0.180	Dutch weight
Hormone refractory cancer	0.640	Dutch weight
Terminal stage	0.930	Dutch weight end-stage disease

Disease category, subcategory, or sequelae	Disability weight	Comments
17. Testicular cancer		
Diagnosis and primary therapy	0.270	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.180	Provisional weight based on Dutch weights
In remission	0.180	Provisional weight based on Dutch weights
Disseminated carcinoma	0.640	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
18. Bladder cancer		
Diagnosis and primary therapy	0.270	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.180	Provisional weight based on Dutch weights
In remission	0.180	Provisional weight based on Dutch weights
Disseminated carcinoma	0.640	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
19. Kidney cancer		
Diagnosis and primary therapy	0.270	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.180	Provisional weight based on Dutch weights
In remission	0.180	Provisional weight based on Dutch weights
Disseminated carcinoma	0.640	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
20. Brain cancer		
Diagnosis and primary therapy	0.680	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.180	Provisional weight based on Dutch weights
Disseminated carcinoma	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
21. Thyroid cancer		
Diagnosis and primary therapy	0.270	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.180	Provisional weight based on Dutch weights
In remission	0.180	Provisional weight based on Dutch weights

Disease category, subcategory, or sequelae	Disability weight	Comments
Disseminated carcinoma	0.640	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
22. Lymphoma		
(a) Non-Hodgkin's lymphoma		
Low grade: dissemination stage I and II	0.190	Dutch weight
Low grade: dissemination stage III and IV	0.610	Dutch weight
Intermediate/high grade: dissemination stage I	0.550	Dutch weight
Intermediate/high grade: dissemination stage II-IV	0.750	Dutch weight
Temporary remission after treatment	0.190	Dutch weight
Pre-terminal phase	0.750	Dutch weight
Terminal phase	0.930	Dutch weight for end-stage disease
Complete remission	0.190	Dutch weight
(b) Hodgkin's disease		
Low grade: dissemination stages I and II	0.190	Dutch weight
Low grade: dissemination stages III and IV	0.610	Dutch weight
Intermediate/high grade: dissemination stage I	0.550	Dutch weight
Intermediate/high grade: dissemination stages II-IV	0.750	Dutch weight
Temporary remission after treatment	0.190	Dutch weight
Pre-terminal phase	0.750	Dutch weight
Terminal phase	0.930	Dutch weight for end-stage disease
Complete remission	0.190	Dutch weight
23. Leukaemia		
(a) Acute myeloid leukaemia		
Diagnosis and primary therapy	0.550	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.190	Provisional weight based on Dutch weights
In remission	0.190	Provisional weight based on Dutch weights
Pre-terminal stage	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
(b) Chronic myeloid leukaemia		
Diagnosis and primary therapy	0.550	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.190	Provisional weight based on Dutch weights
In remission	0.190	Provisional weight based on Dutch weights
Pre-terminal stage	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
(c) Acute lymphoid leukaemia		
Diagnosis and primary therapy	0.550	Provisional weight based on Dutch weights

Disease category, subcategory, or sequelae	Disability weight	Comments
State after intentionally curative primary therapy	0.190	Provisional weight based on Dutch weights
In remission	0.190	Provisional weight based on Dutch weights
Pre-terminal stage	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
(d) Chronic lymphoid leukaemia		
Diagnosis and primary therapy	0.550	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.190	Provisional weight based on Dutch weights
In remission	0.190	Provisional weight based on Dutch weights
Pre-terminal stage	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
24. Multiple myeloma		
Diagnosis and primary therapy	0.190	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.190	Provisional weight based on Dutch weights
In remission	0.190	Provisional weight based on Dutch weights
Disseminated carcinoma	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
25. Larynx		
Diagnosis and primary therapy	0.560	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.370	Provisional weight based on Dutch weights
Preterminal stage	0.900	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
Life-long disability following radical surgery	0.200	Locally derived weight
26. Eye cancer		
Diagnosis and primary therapy	0.350	Provisional weight based on Dutch weights
State after intentionally curative primary therapy	0.200	Provisional weight based on Dutch weights
Survivors with eye removal	0.300	Weight for long term eye injury
In remission	0.430	Provisional weight - Dutch weight for colorectal cancer
Disseminated cancer	0.830	Provisional weight - Dutch weight for colorectal cancer
Terminal stage	0.930	Dutch weight for end-stage disease

Disease category, subcategory, or sequelae	Disability weight	Comments
G. Other neoplasms		
1. Benign brain tumour		
Diagnosis and primary therapy	0.680	Provisional weight based on Dutch weights
State after intentionally curative primary	0.180	Provisional weight based on Dutch weights
Pre-terminal stage	0.750	Provisional weight based on Dutch weights
Terminal stage	0.930	Dutch weight for end-stage disease
2. Uterine myomas		
Symptomatic cases	0.066	Estimated using EQ-5D+ regression model
Hysterectomy or myomectomy	0.349	Estimated using EQ-5D+ regression model
Reproductive disability	0.180	GBD weight for infertility
H. Diabetes mellitus–insulin dependent (IDDM) and non-insulin dependent (NIDDM)		
Cases 0.070 Dutch weight		
Retinopathy–moderate vision loss	0.170	Dutch weight
Retinopathy–severe vision loss	0.430	Dutch weight
Cataract–mild vision loss	0.020	Dutch weight
Cataract–moderate vision loss	0.170	Dutch weight
Cataract–severe vision loss	0.430	Dutch weight
Glaucoma–mild vision loss	0.020	Dutch weight
Glaucoma–moderate vision loss	0.170	Dutch weight
Glaucoma–severe vision loss	0.430	Dutch weight
Neuropathy	0.190	Dutch weight
Nephropathy	0.290	Dutch weight
Diabetic foot	0.220	GBD weight
Amputation–toe	0.064	GBD weight
Amputation–foot or leg	0.300	GBD weight
I. Endocrine and metabolic disorders		
1. Non-deficiency anaemia		
(a) Thalassaemia		
Very severe anaemia	0.250	GBD weight
(b) Other non-deficiency anaemia		
Genetically inherited anaemias	0.090	GBD weight
Severe anaemia	0.090	GBD weight
Very severe anaemia	0.250	GBD weight
2. Cystic fibrosis		
Cases	0.530	Dutch weight for severe chronic obstructive pulmonary disease

Disease category, subcategory, or sequelae	Disability weight	Comments
3. Haemophilia		
Severe cases	0.270	Weight based on QALY measurements
Moderate cases	0.050	Weight based on QALY measurements
J. Mental disorders		
1. Substance abuse disorders		
(a) Alcohol dependence and harmful use		
Harmful use	0.110	Dutch weight for problem drinking
Moderate dependence	0.330	Average of Dutch weights for problem drinking and manifest alcoholism
Manifest alcoholism	0.550	Dutch weight
(b) Heroin or poly-drug dependence and harmful use		
Cases	0.270	Locally derived weight: slightly higher than GBD weight of 0.252
(c) Benzodiazepine dependence and harmful use		
Cases	0.184	Extrapolation by Australian mental health experts
(d) Cannabis dependence and harmful use		
Cases	0.113	Extrapolation by Australian mental health experts
(e) Other drug dependence and harmful use		
Stimulant dependence and harmful use	0.110	Dutch weight for problem drinking
Other drug dependence	0.113	Dutch weight for cannabis dependence
Analgesic nephropathy	0.290	Dutch weight for diabetic nephropathy
2. Psychoses		
Cases (excluding toxic psychoses and mania due to bipolar affective disorder)	0.434	Composite GBD weight: psychosis (30%), treated schizophrenia (70%).
3. Affective disorders		
(a) Major depression		
Dysthymia cases	0.140	Dutch weight for mild depression
Major depressive episode–mild	0.140	Dutch weight
Major depressive episode–moderate	0.350	Dutch weight
Major depressive episode–severe	0.760	Dutch weight
(b) Bipolar affective disorder		
Cases	0.176	Composite Dutch weight: disability weight for mild depression between episodes; disability weight for moderate depression for depressive episodes; local extrapolated weight for manic episodes

Disease category, subcategory, or sequelae	Disability weight	Comments
4. Anxiety disorders		
(a) Panic disorder		
Mild to moderate panic disorder	0.160	Dutch weight
Severe panic disorder	0.690	Dutch weight
(b) Agoraphobia		
Mild to moderate agoraphobia	0.110	Dutch weight
Severe agoraphobia	0.550	Dutch weight
(c) Social phobia		
Mild to moderate social phobia	0.170	Dutch weight
Severe social phobia	0.590	Dutch weight
(d) Generalised anxiety disorder (GAD)		
Mild to moderate GAD	0.170	Dutch weight
Severe GAD	0.600	Dutch weight
(e) Obsessive-compulsive disorder (OCD)		
Mild to moderate OCD	0.170	Dutch weight
Severe OCD	0.600	Dutch weight
(f) Post-traumatic stress disorder (PTSD)		
Mild to moderate PTSD	0.130	Dutch weight
Severe PTSD	0.510	Dutch weight
(g) Separation anxiety disorder		
Mild to moderate separation anxiety disorder	0.110	Dutch weight for mild to moderate agoraphobia
Severe separation anxiety disorder	0.550	Dutch weight for severe agoraphobia
5. Borderline personality disorder		
Symptomatic cases	0.540	Extrapolation by Australian mental health experts
6. Eating disorders		
(a) Anorexia nervosa		
Cases	0.280	Dutch weight
(b) Bulimia nervosa		
Cases	0.280	Dutch weight
7. Childhood conditions		
(a) Attention-deficit hyperactivity disorder (ADHD)		
Mild	0.020	Dutch weight
Moderate to severe	0.150	Dutch weight
(b) Autism and Asperger syndrome		
Autism cases	0.550	Dutch weight
Asperger syndrome cases	0.250	Average of Dutch weights for moderate/severe ADHD and autism

Disease category, subcategory, or sequelae	Disability weight	Comments
K. Nervous system and sense organ disorder		
1. Alzheimer and other dementias		
Mild	0.270	Dutch weight
Moderate	0.630	Dutch weight
Severe	0.940	Dutch weight
2. Epilepsy		
Cases	0.110	Dutch weight
3. Parkinson's disease		
Initial stage	0.480	Dutch weight
Intermediate stage	0.790	Dutch weight
End stage	0.920	Dutch weight
4. Multiple sclerosis		
Relapsing-remitting phase	0.330	Dutch weight
Progressive phase	0.670	Dutch weight
Progressive from onset	0.670	Dutch weight
5. Motor neuron disease		
Cases	0.670	Dutch weight for progressive phase of multiple sclerosis
6. Huntington's chorea		
Initial stage	0.480	Dutch weight for initial stage of Parkinson's disease
Intermediate stage	0.790	Dutch weight for intermediate stage of Parkinson's disease
End-stage	0.920	Dutch weight for end-stage of Parkinson's disease
7. Muscular dystrophy		
Initial stage	0.480	Dutch weight for initial stage of Parkinson's disease
Paraplegia	0.570	Dutch weight
Quadriplegia	0.840	Dutch weight
8. Sense organ disorders		
(a) Glaucoma		
Cases	0.000	GBD and Dutch weights
Mild vision loss	0.020	Dutch weight
Moderate vision loss	0.170	Dutch weight
Severe vision loss	0.430	Dutch weight
(b) Cataracts		
Cases	0.000	GBD and Dutch weights
Mild vision loss	0.020	Dutch weight
Moderate vision loss	0.170	Dutch weight
Severe vision loss	0.430	Dutch weight

Disease category, subcategory, or sequelae	Disability weight	Comments
(c) Age-related vision disorders		
Mild vision loss	0.020	Dutch weight
Moderate vision loss	0.170	Dutch weight
Severe vision loss	0.430	Dutch weight
(d) Adult-onset hearing loss		
Mild hearing loss (25–34 dBHTL)	0.020	One half of Dutch weight for mild hearing loss
Mild hearing loss (35–44 dBHTL)	0.040	Dutch weight
Moderate hearing loss	0.120	Dutch weight
Severe hearing loss	0.370	Dutch weight
9. Mental retardation (no defined aetiology)		
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight
L. Cardiovascular disease		
1. Rheumatic heart disease		
Rheumatic fever	0.047	Regression weight for influenza
Rheumatic heart disease		
Untreated	0.323	GBD weight
Treated	0.171	GBD weight
2. Ischaemic heart disease		
Angina pectoris	0.105	Dutch weight
Acute myocardial infarction	0.395	GBD (treated) age-specific weights (average shown here)
Heart failure	0.191	Dutch weight (60% mild, 35% moderate, 5% severe)
3. Stroke		
Mild permanent impairments	0.360	Dutch weight
Moderate permanent impairments	0.630	Dutch weight
Severe permanent impairments	0.920	Dutch weight
4. 'Inflammatory heart disease'		
Cases	0.191	Dutch weight for heart failure (60% mild, 35% moderate, 5% severe)
5. Hypertensive heart disease		
Cases	0.191	Dutch weight for heart failure (60% mild, 35% moderate, 5% severe)
6. Non-rheumatic valvular disease		
Cases	0.118	Dutch weight for heart failure (80% mild, 20% moderate)
7. Aortic aneurysm		
Cases	0.430	Generic weight for laparotomy, estimated using EQ-5D+ regression model (222211)

Disease category, subcategory, or sequelae	Disability weight	Comments
8. Peripheral arterial disease		
Cases	0.248	Estimated using EQ-5D+ regression model
Amputation	0.209	GBD weight
M. Chronic respiratory disease		
1. Chronic obstructive pulmonary disease (COPD)		
Mild to moderate COPD	0.170	Dutch weight
Severe COPD	0.530	Dutch weight
2. Asthma		
Mild asthma	0.030	Dutch weight
Severe asthma	0.230	Estimated using EQ-5D+ regression model and Australian data on severity distribution of disability
3. Other chronic respiratory diseases	0.164	Provisional weight: average weight for COPD
N. Diseases of the digestive system		
1. Peptic ulcer disease	0.066	Dutch weight
2. Cirrhosis of the liver	0.339	GBD weight
3. Appendicitis	0.463	GBD weight
4. Intestinal obstruction		
Cases	0.463	Dutch weight for appendicitis
Stoma	0.211	Estimated using EQ-5D+ regression model
5. Diverticulitis		
Cases	0.400	Dutch weight for inflammatory bowel disease – active exacerbation
Stoma	0.211	Estimated using EQ-5D+ regression model
6. Gall bladder and bile duct disease		
Cases	0.349	Estimated using EQ-5D+ regression model
7. Pancreatitis		
Cases	0.349	Estimated using EQ-5D+ regression model
8. Inflammatory bowel disease		
Crohn's disease	0.224	Dutch weight
Ulcerative colitis	0.224	Dutch weight
Stoma	0.211	Estimated using EQ-5D+ regression model
9. Vascular insufficiency of intestine		
Cases	0.400	Dutch weight for inflammatory bowel disease –active exacerbation
Stoma	0.211	Estimated using EQ-5D+ regression model

Disease category, subcategory, or sequelae	Disability weight	Comments
O. Genitourinary diseases		
1. Nephritis and nephrosis		
End-stage renal failure with dialysis	0.290	Dutch weight for diabetic nephropathy
End-stage renal failure with transplant	0.290	Dutch weight for diabetic nephropathy
Transplanted patient	0.110	GBD weight for treated renal failure: Dutch weight for uncertain prognosis
Untreated end-stage renal failure	0.104	GBD weight
2. Benign prostatic hypertrophy		
Symptomatic case	0.038	GBD weight
Prostatectomy	0.349	Estimated using EQ-5D+ regression model
Urethral stricture	0.151	GBD weight
Impotence	0.195	GBD weight
Severe urinary incontinence	0.157	Estimated using EQ-5D+ regression model
3. Urinary incontinence		
Occasional urine leakage	0.000	No weight for occasional urine leak
Moderate incontinence	0.025	GBD weight for stress incontinence (0.033 for age group 60+ years)
Severe incontinence	0.157	Estimated using EQ-5D+ regression model
4. Other genitourinary diseases		
Menstrual disorders	0.033	Estimated from EQ-5D+ regression model
Hysterectomy	0.349	Estimated from EQ-5D+ regression model
Infertility following hysterectomy	0.180	GBD weight
Other short-term reproductive disability	0.180	GBD weight
Other long-term reproductive disability	0.180	GBD weight
P. Skin diseases		
1. Eczema	0.056	Estimated from EQ-5D+ regression model
2. Other skin diseases	0.056	Estimated from EQ-5D+ regression model
Q. Musculoskeletal diseases		
1. Rheumatoid arthritis		
Mild	0.210	Dutch weight
Moderate	0.370	Dutch weight
Severe	0.940	Dutch weight
2. Osteoarthritis		
Grade 2 (radiological) hip or knee (asymptomatic)	0.010	Dutch weight for activity of daily living limitations in the elderly
Grade 2 symptomatic	0.140	Dutch weight
Grades 3–4 (radiological) hip or knee (asymptomatic)	0.140	Dutch weight for grade 2 (radiological)
Grades 3–4 symptomatic	0.420	Dutch weight

Disease category, subcategory, or sequelae	Disability weight	Comments
3. Chronic back pain		
Episodes	0.060	Dutch weight
4. Slipped disc		
Episodes	0.060	Dutch weight for back problems
Excision or destruction of disc	0.060	Dutch weight for back problems
Chronic pain	0.125	Estimated using EQ-5D+ regression model
5. Occupational overuse syndrome		
Mild handicap or disability	0.056	Estimated using EQ-5D+ regression model
Moderate handicap	0.293	Estimated using EQ-5D+ regression model
Severe or profound handicap	0.516	Estimated using EQ-5D+ regression model
6. Osteoporosis		
Diagnosed cases	0.009	Estimated using EQ-5D+ regression model
7. Other musculoskeletal disorders		
Recent non-chronic episodes	0.060	Dutch weight for low back pain
Chronic conditions	0.060	Dutch weight for low back pain
R. Congenital anomalies		
1. Anencephaly		
Live born cases	1.000	
2. Spina bifida		
Low-level spina bifida aperta	0.160	Dutch weight
Medium-level spina bifida aperta	0.500	Dutch weight
High-level spina bifida aperta	0.680	Dutch weight
3. Congenital heart disease		
Surgically treated congenital atrial or ventricular septal defect	0.030	Dutch weight
After surgical treatment for Fallot's tetralogy or transposition of great arteries		
Child/adolescent in permanent stage	0.200	Dutch weight
Young adult in permanent stage	0.110	Dutch weight
After surgical treatment for pulmonary stenosis		
Child/adolescent in permanent stage	0.020	Dutch weight
Young adult in permanent stage	0.160	Dutch weight
Complex/not curatively operable congenital heart disease	0.720	Dutch weight
4. Cleft lip and/or palate		
Cleft palate–untreated	0.231	GBD weight
Cleft palate–treated	0.015	GBD weight
Cleft lip–untreated	0.098	GBD weight
Cleft lip–treated	0.016	GBD weight

Disease category, subcategory, or sequelae	Disability weight	Comments
5. Digestive system malformations		
(a) Anorectal atresia		
Cases	0.850	GBD weight for anorectal atresia
Long-term disability	0.037	GBD weight for symptomatic urethritis
(b) Oesophageal atresia		
Cases	0.850	GBD weight for anorectal atresia
Long-term disability	0.037	GBD weight for symptomatic urethritis
(c) Other digestive system malformations		
Small intestine atresia	0.850	GBD weight for digestive system atresia
Other	0.850	GBD weight for digestive system atresia
6. Urogenital tract malformations		
(a) Renal agenesis		
Bilateral renal agenesis or dysgenesis	0.850	GBD weight for renal agenesis
Unilateral renal agenesis or dysgenesis	0.037	GBD weight for symptomatic urethritis
End-stage renal failure	0.294	Dutch weight
(b) Other urogenital tract malformations		
Hypospadias	0.000	Assumed negligible ongoing disability
Cystic kidney disease	0.037	GBD weight for acute urethritis
Obstructive defects of renal pelvis and ureter	0.037	GBD weight for renal diseases
Other urinary tract malformations	0.290	Dutch weight for renal failure
7. Abdominal wall defect		
Cases	0.850	GBD weight for abdominal wall defect
Long-term disability	0.200	Dutch weight for permanent stage treated cardiovascular disease malformation
8. Down syndrome		
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight
9. Other chromosomal conditions		
Mild intellectual disability	0.290	Dutch weight
Moderate intellectual disability	0.430	Dutch weight
Severe intellectual disability	0.820	Dutch weight
Profound intellectual disability	0.760	Dutch weight

Disease category, subcategory, or sequelae	Disability weight	Comments
S. Oral health		
1. Dental caries	0.004	Estimated using EQ-5D+ regression model and Brennan & Spencer (2004)
2. Periodontal disease Gingivitis (pockets of ≥6 mm)	0.001	Estimated using EQ-5D+ regression model and Brennan & Spencer (2004)
3. Edentulism Cases	0.004	Estimated using EQ-5D+ regression model and Slade & Spencer (1994)
X. Ill-defined conditions		
1. Chronic fatigue syndrome		
Mild handicap	0.137	Estimated using EQ-5D+ regression model
Moderate handicap	0.449	Estimated using EQ-5D+ regression model
Severe or profound handicap	0.760	Estimated using EQ-5D+ regression model
III. Injuries – type of injury sequelae		
1. Fractures		
Skull–short term	0.431	GBD weight
Skull–long term	0.350	GBD weights (0.404 for age group 65+ years)
Face bones	0.223	GBD weight
Vertebral column	0.266	GBD weight
Rib or sternum	0.199	GBD weight
Pelvis	0.247	GBD weight
Clavicle, scapula or humerus	0.153	GBD weight
Radius or ulna	0.180	GBD weight
Hand bones	0.100	GBD weight
Femur–short-term	0.372	GBD weight
Femur–long-term	0.272	GBD weight
Patella, tibia or fibula	0.271	GBD weight
Ankle	0.196	GBD weight
Foot bones	0.077	GBD weight
2. Injured spinal cord	0.725	GBD weight
3. Dislocations		
Shoulder, elbow or hip	0.074	GBD weight
Other dislocation	0.074	GBD weight for shoulder, elbow or hip dislocation
4. Sprains	0.064	GBD weight
5. Intracranial injuries		
Short term	0.359	GBD weight
Long term	0.350	GBD weight

Disease category, subcategory, or sequelae	Disability weight	Comments
6. Internal injuries	0.208	GBD weight
7. Open wound	0.108	GBD weight
8. Injury to eyes		
Short term	0.108	GBD weight for open wound
Long term	0.298	GBD weight (0.301 for age group 0–14 years)
9. Amputations		
Thumb	0.165	GBD weight
Finger	0.102	GBD weight
Arm	0.257	GBD weight
Toe	0.102	GBD weight
Foot	0.300	GBD weight
Leg	0.300	GBD weight
10. Crushing	0.218	GBD weight
11. Burns		
Less than 20%–short term	0.158	GBD weight
Less than 20%–long term	0.001	GBD weight
20 to 60%–short term	0.441	GBD weight
20 to 60%–long term	0.255	GBD weight
Greater than 60%–short term	0.441	GBD weight
Greater than 60%–long term	0.255	GBD weight
12. Injured nerves		
Short-term	0.064	GBD weight
Long-term	0.064	GBD weight
13. Poisoning	0.608	GBD weight (0.611 for age group 0–14 years)

Appendix table 2 Principal data sources for estimation of years of life lost as a result of disability (YLDs)

A. Disease registers, surveillance and notification systems[(a)]
1. Infectious Diseases Epidemiology and Surveillance System
Tuberculosis
Sexually transmitted diseases (apart from HIV/AIDS)
Childhood immunisable diseases
Arbovirus infection
Hepatitis
HIV/AIDS
2. Victorian Cancer Registry
Malignant neoplasms (except non-melanoma skin cancer)
3. Victorian Perinatal Dataset
Low birth weight
Congenital anomalies (apart from R9 Other chromosomal anomalies)
4. National Diabetes Register
Type 1 diabetes
5. Australian and New Zealand Register of Dialysis and Transplant Patients (ANZDATA)
Nephritis and nephrosis, other renal failure
6. Australian Sentinel Practice Research Network (ASPREN)
Lower respiratory tract infections (influenza)
B. Health service utilisation data[a]
1. Victorian Admitted Episode Dataset
Other sexually transmitted diseases (pelvic inflammatory disease)
Complicated diarrhoea
Meningitis
Septicaemia
Maternal conditions
Abortion
Birth trauma and asphyxia
Neonatal infections
Benign neoplasms
Other non-deficiency anaemia
Ischaemic heart disease (acute myocardial infarction and angina)
Stroke
Aortic aneurysm
Appendicitis
Intestinal obstruction
Diverticulitis
Cirrhosis
Gall bladder and bile duct disease
Pancreatitis

B. Health service utilisation data[a] (continued)

	Vascular insufficiency of intestine
	Benign prostatic hypertrophy
	Other genitourinary diseases
	Slipped disc
	Unintentional injuries
	Intentional injuries
2.	Victorian Emergency Minimum Dataset
	Unintentional injuries
	Intentional injuries
3.	National survey of general practice (BEACH)
	Acute respiratory infections
	Peptic ulcer disease
	Otitis media

C. Australian population health surveys[a]

1.	National Drug Strategy Household Survey 1998
	Heroin/poly-drug dependence and harmful alcohol use (consumption prevalence)
2.	Survey of Disability, Ageing and Carers 1998
	Urinary incontinence (severe)
3.	Survey of Disability, Ageing and Carers 1993
	Peripheral arterial disease
	Occupational overuse syndrome
4.	National Mental Health and Wellbeing Survey 1997
	Substance use disorders (except heroin)
	Affective disorders
	Anxiety disorders (except J4g Separation anxiety disorder)
	Psychoses (from Low Prevalence Disorders Study)
	Borderline personality disorder
5.	Australian Longitudinal Study on Women's Health
	Urinary incontinence
6.	Child Dental Health Survey 1999
	Dental caries
7.	National Oral Health Survey 1988-89
	Dental caries
	Periodontal disease
	Edentulism
8.	South Australian Dental Surveys 1997-2002
	Dental caries
	Edentulism
9.	National Health Survey (1995 and/or 2001)
	Upper respiratory tract infections (colds)
	Otitis media
	Other chronic respiratory diseases
	Other genitourinary diseases (menstrual)
	Other skin diseases
	Chronic back pain
	Other musculoskeletal disorders

D. Epidemiological studies[a]

1. Meta-analyses of epidemiological studies
   - Alcohol (relative risks)
   - Asthma
   - Chronic fatigue syndrome
   - Chronic obstructive pulmonary disease
   - Cirrhosis of the liver
   - Cystic fibrosis
   - Dementia
   - Eating disorders
   - Eczema
   - Haemophilia
   - Illicit drugs (relative risks)
   - Iron-deficiency anaemia
   - Mental retardation
   - Multiple sclerosis
   - Non-melanoma skin cancers
   - Occupation (attributable fractions)
   - Other chromosomal anomalies
   - Other neonatal causes
   - Physical inactivity (relative risks)
   - Sense organ disorders
   - Stroke
   - Tobacco smoking (relative risks)
   - Unsafe sex (attributable fractions)
2. Other epidemiological studies
   - Attention-deficit hyperactivity disorder
   - Autism and Asperger syndrome
   - Dementia
   - Diabetes
   - Epilepsy
   - Heart failure
   - High blood cholesterol (risks)
   - High blood pressure (risks)
   - Inflammatory bowel disease
   - Muscular dystrophy
   - Obesity (relative risks)
   - Osteoarthritis
   - Parkinson's disease
   - Psychoses
   - Rheumatoid arthritis

E. Estimates	
1.	Expert estimates Separation anxiety disorder
2.	Extrapolation from Victorian mortality data[b]
	Other infectious and parasitic diseases
	Other endocrine and metabolic disorders
	Other nervous system disorders
	Other cardiovascular disease
	Other chronic respiratory disease
	Other digestive system diseases
	Other congenital anomalies

a Primary source for estimates of incidence or prevalence. For many disease categories, multiple sources were used, and estimates were cross-checked for consistency and validity. Detailed descriptions of analyses for specific disease and injury categories are in the YLD worksheets, which are available on request.

b The YLDs for most 'Other' categories have been estimated from the YLLs by applying the average YLD:YLL ratio for other conditions in the same disease group.

Appendix table 3 Deaths, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**18**	**11**	**7**	-	-	1	4	6	-	-	-	1	6
	Syphilis	**1**	**1**	**-**	-	-	1	-	-	-	-	-	-	-
	Gonorrhoea	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Pelvic inflammatory disease	**1**	**-**	**1**	-	-	-	-	-	-	-	-	-	1
	HIV/AIDS	**26**	**22**	**4**	-	1	17	4	-	1	1	1	1	-
	Diarrhoea	**8**	**2**	**6**	-	-	-	2	-	-	-	1	-	5
	Tetanus	**1**	**1**	**-**	-	-	-	-	1	-	-	-	-	-
	Poliomyelitis	**4**	**3**	**1**	-	-	-	-	3	-	-	-	1	-
	Meningitis	**17**	**9**	**8**	2	1	4	-	2	2	2	-	3	1
	Septicaemia	**233**	**96**	**137**	1	2	1	25	67	2	2	3	18	111
	Hepatitis A	**1**	**-**	**1**	-	-	-	-	-	-	-	-	-	1
	Hepatitis B	**19**	**13**	**6**	-	-	6	6	1	-	-	2	3	2
	Hepatitis C	**21**	**15**	**6**	-	-	6	8	1	-	-	2	3	2
	Other hepatitis	**1**	**1**	**-**	-	-	-	1	-	-	-	-	-	-
	Malaria	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other infectious and parasitic diseases	**53**	**23**	**30**	-	1	6	7	9	2	1	2	3	22
Acute respiratory infections	Lower respiratory tract infections: pneumonia	**597**	**246**	**350**	1	-	5	40	200	1	2	5	25	317
	Lower respiratory tract infections: other	**10**	**5**	**5**	-	-	1	1	3	1	-	-	1	3
	Upper respiratory tract infections	**3**	**1**	**2**	-	-	-	-	1	1	-	-	-	1
	Otitis media	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
Maternal conditions	Maternal haemorrhage	**1**	**-**	**1**	-	-	-	-	-	-	-	1	-	-
	Obstructed labour	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other maternal conditions	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-

Appendix table 3 (continued) Deaths, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Neonatal conditions	Birth trauma and asphyxia	**39**	**23**	**15**	23	-	-	-	-	15	-	-	-	-
	Low birth weight	**54**	**28**	**27**	28	-	-	-	-	27	-	-	-	-
	Neonatal infections	**17**	**10**	**7**	10	-	-	-	-	7	-	-	-	-
	Other conditions arising in the perinatal period	**50**	**30**	**20**	30	-	-	-	-	20	-	-	-	-
Nutritional disorders	Protein-energy malnutrition	**25**	**14**	**11**	-	-	-	2	12	-	-	1	2	8
	Deficiency anaemia	**18**	**10**	**8**	-	-	-	-	10	-	-	-	-	8
	Other nutritional deficiencies	**3**	**1**	**2**	-	-	-	1	-	-	-	-	-	2
Malignant neoplasia	Mouth and oropharynx cancers	**164**	**107**	**57**	-	-	26	60	20	-	-	11	18	29
	Oesophagus cancer	**309**	**206**	**104**	-	-	20	105	81	-	-	6	31	67
	Stomach cancer	**348**	**205**	**143**	-	-	24	102	79	-	1	22	40	80
	Bowel cancer	**1,335**	**724**	**611**	-	1	68	336	319	-	6	58	218	330
	Liver cancer	**227**	**150**	**77**	-	2	29	74	45	-	2	6	23	45
	Gallbladder cancer	**98**	**39**	**58**	-	-	4	18	17	-	-	3	25	30
	Pancreas cancer	**533**	**262**	**271**	-	1	25	142	94	-	1	17	71	182
	Lung cancer	**1,916**	**1,221**	**695**	-	2	77	680	462	-	-	57	326	312
	Bone and connective tissue cancer	**85**	**33**	**51**	-	8	5	17	3	4	4	6	19	18
	Melanoma	**223**	**138**	**85**	-	7	24	58	48	-	4	19	28	34
	Non-melanoma skin cancers	**101**	**71**	**31**	-	-	3	35	33	-	-	1	7	22
	Breast cancer	**713**	**8**	**706**	-	-	2	1	5	-	10	181	260	254
	Cervix cancer	**75**	**-**	**75**	-	-	-	-	-	-	3	13	25	35
	Corpus uteri cancer	**86**	**-**	**86**	-	-	-	-	-	-	1	14	34	37
	Ovary cancer	**266**	**-**	**266**	-	-	-	-	-	-	5	27	111	122
	Prostate cancer	**755**	**755**	**-**	-	-	6	222	528	-	-	-	-	-
	Testis cancer	**1**	**1**	**-**	-	-	-	-	1	-	-	-	-	-
	Bladder cancer	**256**	**172**	**84**	-	-	3	73	95	-	-	4	14	66
	Kidney cancer	**247**	**138**	**109**	1	1	19	56	61	1	-	5	35	68
	Brain cancer	**310**	**173**	**137**	7	6	46	75	39	-	5	27	62	42
	Thyroid cancer	**25**	**9**	**16**	-	-	-	4	4	-	-	4	7	5
	Lymphoma	**451**	**228**	**223**	-	7	18	104	99	-	2	22	78	122

Appendix table 3 (continued) Deaths, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Multiple myeloma	**192**	**110**	**82**	-	-	9	43	57	-	1	3	27	52
	Leukaemia	**363**	**209**	**154**	6	3	12	90	98	2	6	15	47	84
	Larynx cancer	**64**	**56**	**8**	-	-	7	32	17	-	-	1	2	4
	Other malignant neoplasms	**383**	**206**	**177**	1	3	30	87	85	1	3	12	55	106
Benign neoplasia	Uterine myoma	**1**	**-**	**1**	-	-	-	-	-	-	-	-	1	-
	Benign brain tumour	**20**	**2**	**18**	-	-	-	1	1	-	1	1	4	12
	Other neoplasms	**192**	**102**	**90**	1	3	7	23	68	3	1	4	15	67
Diabetes mellitus	Type 1	**101**	**55**	**46**	-	3	5	16	31	-	2	8	12	24
	Type 2	**865**	**441**	**424**	-	2	25	163	250	-	-	5	105	314
Endocrine and metabolic disorders	Haemolytic anaemia	**8**	**3**	**5**	-	1	-	-	2	-	1	-	-	4
	Other non-deficiency anaemia	**16**	**5**	**11**	-	-	-	1	4	-	-	-	1	10
	Cystic fibrosis	**16**	**9**	**7**	1	4	2	-	2	3	3	-	-	1
	Haemophilia	**1**	**-**	**1**	-	-	-	-	-	-	-	-	-	1
	Other endocrine and metabolic disorders	**333**	**165**	**167**	8	6	20	65	66	3	2	8	46	108
Mental disorders	Alcohol dependence and harmful use	**52**	**42**	**10**	-	3	12	18	9	-	1	5	4	-
	Heroin or poly-drug use and dependence	**92**	**73**	**19**	1	50	21	-	1	-	12	6	-	-
	Benzodiazepine dependence and harmful use	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Cannabis dependence and harmful use	**1**	**1**	**-**	-	1	-	-	-	-	-	-	-	-
	Other drug dependence and harmful use	**20**	**12**	**8**	-	8	4	-	-	-	5	3	-	-
	Psychoses	**13**	**5**	**8**	-	1	2	1	1	-	-	3	2	3
	Depression	**18**	**6**	**12**	-	-	-	1	5	-	-	-	1	11
	Bipolar affective disorder	**1**	**1**	**-**	-	-	-	1	-	-	-	-	-	-
	Panic disorder	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Generalised anxiety disorder	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Anorexia nervosa	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Bulimia nervosa	**1**	**-**	**1**	-	-	-	-	-	-	-	-	-	1
	Autism	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other mental disorders	**18**	**11**	**7**	-	-	2	2	7	-	-	-	4	3

Appendix table 3 (continued) Deaths, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Neurological and sense disorders	Alzheimer and other dementias	**1,107**	**363**	**745**	2	-	2	48	311	-	1	1	37	706
	Epilepsy	**74**	**39**	**34**	2	11	20	3	3	2	6	9	6	11
	Parkinson's disease	**274**	**153**	**121**	-	-	-	29	124	-	-	1	16	104
	Multiple sclerosis	**40**	**12**	**28**	-	-	4	7	1	-	2	10	13	3
	Motor-neuron disease	**121**	**58**	**63**	-	-	10	24	24	-	-	6	34	23
	Huntington disease	**13**	**5**	**8**	-	-	-	1	4	-	1	1	3	3
	Muscular dystrophy	**13**	**7**	**6**	-	4	1	1	1	-	-	1	2	3
	Hearing loss	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Mental retardation not classified elsewhere	**1**	**-**	**1**	-	-	-	-	-	-	1	-	-	-
	Other nervous system and sense organ disorders	**150**	**69**	**80**	5	6	6	23	29	7	5	9	21	38
Cardiovascular diseases	Rheumatic heart disease	**65**	**18**	**47**	-	-	2	9	7	-	1	3	16	27
	Ischaemic heart disease	**6,960**	**3,595**	**3,365**	-	12	242	1,084	2,257	-	1	45	431	2,888
	Stroke	**2,970**	**1,187**	**1,782**	-	6	53	275	853	-	4	28	206	1,544
	Inflammatory heart disease	**295**	**157**	**138**	1	4	16	61	75	4	1	4	35	94
	Hypertensive heart disease	**399**	**150**	**249**	-	-	6	37	107	-	-	5	16	228
	Non-rheumatic valvular disease	**230**	**101**	**128**	-	1	2	23	75	1	-	-	17	110
	Aortic aneurysm	**296**	**181**	**114**	-	2	9	59	111	-	-	4	22	88
	Peripheral vascular disease	**193**	**95**	**98**	-	-	2	15	78	-	-	3	5	90
	Other cardiovascular disease	**507**	**196**	**311**	-	9	14	44	129	-	4	12	42	252
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**1,467**	**878**	**589**	2	-	13	260	603	2	1	12	191	383
	Asthma	**116**	**57**	**59**	1	7	8	17	24	2	2	5	20	30
	Other chronic respiratory diseases	**470**	**239**	**231**	1	3	7	66	162	-	1	9	47	173
Digestive disorders	Peptic ulcer disease	**156**	**67**	**89**	-	-	3	15	50	-	-	2	9	78
	Cirrhosis of the liver	**266**	**172**	**94**	1	-	47	74	51	-	-	23	24	47
	Appendicitis	**5**	**4**	**1**	-	-	1	-	3	-	-	-	-	1
	Intestinal obstruction	**100**	**38**	**62**	-	-	1	7	30	-	1	1	5	55
	Diverticulitis	**61**	**18**	**43**	-	-	1	3	14	-	-	-	5	38

Appendix table 3 (continued) Deaths, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Digestive disorders (continued)	Gallbladder and bile duct disease	**60**	**23**	**37**	-	-	-	5	18	-	-	-	6	31
	Pancreatitis	**54**	**26**	**28**	-	-	3	8	15	-	-	1	4	23
	Inflammatory bowel disease	**11**	**4**	**7**	-	-	-	1	3	-	-	2	3	2
	Vascular insufficiency bowel	**112**	**52**	**60**	-	-	-	19	33	-	-	-	9	51
	Other digestive diseases	**194**	**79**	**115**	-	1	7	29	42	-	-	3	24	88
Genitourinary disorders	Nephritis and nephrosis	**682**	**310**	**372**	-	1	7	53	248	-	-	8	31	333
	Benign prostatic hypertrophy	**9**	**9**	**-**	-	-	-	-	9	-	-	-	-	-
	Other genitourinary diseases	**188**	**75**	**113**	-	1	3	14	57	-	-	5	9	99
Skin diseases	Eczema	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Skin diseases	**62**	**25**	**37**	-	-	2	5	18	-	-	1	5	31
Musculoskeletal diseases	Rheumatoid arthritis	**55**	**13**	**42**	-	-	-	4	9	-	-	-	11	31
	Osteoarthritis	**25**	**11**	**14**	-	-	-	3	8	-	-	-	2	12
	Chronic back pain	**7**	**1**	**6**	-	-	-	-	1	-	-	-	-	6
	Slipped disc	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Osteoporosis	**42**	**7**	**35**	-	-	-	-	7	-	-	-	4	31
	Other musculoskeletal diseases	**120**	**44**	**76**	-	-	5	19	19	-	5	3	20	48
Congenital abnormalities	Anencephaly	**2**	**2**	**-**	2	-	-	-	-	-	-	-	-	-
	Spina bifida	**6**	**4**	**2**	3	1	-	-	-	2	-	-	-	-
	Congenital heart disease	**40**	**21**	**19**	12	2	6	-	1	8	6	2	1	2
	Cleft lip and palate	**1**	**-**	**1**	-	-	-	-	-	1	-	-	-	-
	Anorectal atresia	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Oesophageal atresia	**1**	**-**	**1**	-	-	-	-	-	1	-	-	-	-
	Other digestive congenital anomalies	**3**	**-**	**3**	-	-	-	-	-	3	-	-	-	-
	Renal agenesis	**6**	**5**	**1**	3	-	1	-	1	1	-	-	-	-
	Other urogenital congenital anomalies	**6**	**6**	**-**	4	1	-	-	1	-	-	-	-	-
	Abdominal wall defect	**2**	**-**	**2**	-	-	-	-	-	2	-	-	-	-
	Down syndrome	**23**	**12**	**11**	4	1	3	4	-	3	1	2	5	-
	Other chromosomal disorders	**13**	**8**	**5**	8	-	-	-	-	5	-	-	-	-
	Other congenital anomalies	**31**	**16**	**15**	14	1	1	-	-	13	2	-	-	-

Appendix table 3 (continued) Deaths, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Oral health	Other oral conditions	**5**	**2**	**3**	-	-	-	1	1	-	-	-	-	3
Ill-defined conditions	SIDS	**15**	**11**	**4**	11	-	-	-	-	4	-	-	-	-
	Chronic fatigue syndrome	**4**	**-**	**4**	-	-	-	-	-	-	-	-	-	4
Unintentional injuries	Road traffic accidents	**439**	**311**	**128**	10	153	76	48	24	6	37	23	33	29
	Other transport accidents	**61**	**53**	**8**	1	22	17	9	4	2	-	2	2	2
	Poisoning	**45**	**17**	**27**	-	9	5	3	1	-	6	17	4	1
	Falls	**290**	**120**	**170**	1	9	5	23	82	2	1	1	15	153
	Fires	**14**	**12**	**2**	-	4	5	2	1	-	-	1	1	-
	Drowning	**42**	**35**	**6**	6	9	14	4	2	3	1	-	2	-
	Sports injuries	**1**	**1**	**-**	-	-	1	-	-	-	-	-	-	-
	Natural and environmental factors	**9**	**6**	**3**	1	-	2	2	1	1	-	-	2	-
	Machinery accidents	**4**	**4**	**-**	-	1	3	-	-	-	-		-	-
	Suffocation and foreign bodies	**26**	**16**	**10**	2	4	2	3	4	1	2	2	-	5
	Surgical/medical misadventure	**19**	**5**	**14**	-	-	-	2	3	-	-	-	2	12
	Adverse effects of drugs in therapeutic use	**3**	**-**	**3**	-	-	-	-	-	-	-	2	1	-
	Cutting and piercing accidents	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Striking and crushing accidents	**14**	**11**	**3**	3	2	3	2	1	1	-	-	1	1
	Other unintentional injuries	**42**	**24**	**19**	1	4	4	5	10	-	1	1	1	15
Intentional injuries	Self-inflicted injuries	**570**	**433**	**137**	1	173	160	71	28	1	52	57	20	8
	Homicide and violence	**55**	**37**	**18**	3	12	12	6	3	-	7	7	3	1
	Other intentional injuries	**1**	**1**	**-**	-	1	-	-	-	-	-	-	-	-
	Total	**32,285**	**16,436**	**15,849**	**227**	**608**	**1,424**	**5,340**	**8,838**	**175**	**247**	**927**	**3,264**	**11,236**
	Communicable, maternal neonatal and nutritional conditions	**1,221**	**566**	**655**	96	5	48	100	317	79	8	17	60	491
	Non-communicable diseases	**29,429**	**14,784**	**14,645**	102	200	1,067	5,058	8,357	79	132	797	3,117	10,519
	Injuries	**1,635**	**1,086**	**549**	29	403	309	181	164	17	106	113	87	226

Summary of deaths, by age, sex and cause, Victoria, 2001

				Males, by age group (years)					Females, by age group (years)				
Broad disease group	Persons	Males	Females	0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infections and parasitic diseases	403	197	207	3	5	42	56	90	7	6	10	32	151
Respiratory infections	610	253	357	1	-	6	41	204	3	2	5	26	321
Maternal conditions	1	-	1	-	-	-	-	-	-	-	1	-	-
Neonatal conditions	160	92	69	92	-	-	-	-	69	-	-	-	-
Nutritional disorders	46	25	21	-	-	-	3	22	-	-	1	2	18
Cancer	9,526	5,220	4,307	15	42	458	2,413	2,291	8	56	533	1,565	2,145
Other neoplasms	214	104	109	1	3	7	24	69	3	2	5	20	79
Diabetes mellitus	966	496	470	-	5	30	179	281	-	2	13	117	338
Other endocrine and metabolic disorders	374	182	192	9	11	22	66	74	6	6	8	47	124
Mental disorders	216	151	65	1	63	41	23	23	-	18	17	11	18
Neurological and sense disorders	1,793	707	1,087	9	21	43	136	497	9	17	38	132	891
Cardiovascular diseases	11,915	5,682	6,233	1	34	347	1,608	3,692	5	11	105	790	5,322
Chronic respiratory diseases	2,054	1,175	879	4	10	28	343	789	4	4	26	258	586
Digestive disorders	1,020	484	536	1	1	62	161	258	-	1	32	89	414
Genitourinary disorders	879	394	485	-	2	10	67	315	-	-	13	40	433
Skin diseases	62	25	37	-	-	2	5	18	-	-	1	5	31
Musculoskeletal diseases	250	76	174	-	-	5	26	45	-	5	3	37	128
Congenital abnormalities	135	74	61	50	6	11	4	3	39	9	4	6	2
Oral health	5	2	3	-	-	-	1	1	-	-	-	-	3
Unintentional injuries	1,009	616	394	25	216	136	104	133	16	48	49	64	217
Intentional injuries	626	471	155	4	186	172	77	31	1	59	64	23	9
Miscellaneous	19	11	8	11	-	-	-	-	4	-	-	-	4
Total	**32,285**	**16,436**	**15,849**	**227**	**608**	**1,424**	**5,340**	**8,838**	**175**	**247**	**927**	**3,264**	**11,236**

Appendix table 4 Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**151**	**96**	**54**	-	-	19	52	25	-	-	-	19	36
	Syphilis	**21**	**21**	**-**	-	-	21	-	-	-	-	-	-	-
	Chlamydia	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Gonorrhoea	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Pelvic inflammatory disease	**9**	**-**	**9**	-	-	-	-	-	-	-	-	-	9
	HIV/AIDS	**572**	**471**	**101**	-	26	391	54	-	31	27	25	19	-
	Diarrhoea	**68**	**22**	**46**	-	-	-	22	-	-	-	20	-	26
	Tetanus	**8**	**8**	**-**	-	-	-	-	8	-	-	-	-	-
	Poliomyelitis	**31**	**19**	**11**	-	-	-	-	19	-	-	-	11	-
	Vaccine preventable cluster	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Meningitis	**347**	**191**	**156**	60	28	89	-	14	60	58	-	34	3
	Septicaemia	**1,811**	**759**	**1,053**	30	54	21	294	359	62	58	65	255	614
	Arbovirus Infections	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Hepatitis A	**5**	**-**	**5**	-	-	-	-	-	-	-	-	-	5
	Hepatitis B	**287**	**207**	**80**	-	-	129	70	8	-	-	32	34	14
	Hepatitis C	**307**	**227**	**80**	-	-	129	90	8	-	-	32	34	14
	Other hepatitis	**17**	**17**	**-**	-	-	-	17	-	-	-	-	-	-
	Malaria	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other infectious and parasitic diseases	**569**	**282**	**288**	-	27	128	86	41	61	27	48	42	110
Acute respiratory infections	Lower respiratory tract infections: pneumonia	**3,563**	**1,569**	**1,993**	30	-	98	470	971	30	54	110	330	1,469
	Lower respiratory tract infections: other	**112**	**52**	**59**	-	-	21	15	16	30	-	-	11	17
	Upper respiratory tract infections	**39**	**6**	**33**	-	-	-	-	6	31	-	-	-	2
	Otitis media	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-

Appendix table 4 (continued) Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Maternal conditions	Maternal haemorrhage	**25**	**-**	**25**	-	-	-	-	-	-	-	25	-	-
	Maternal sepsis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Hypertension in pregnancy	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Obstructed labour	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Abortion	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other maternal conditions	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
Neonatal conditions	Birth trauma and asphyxia	**1,175**	**702**	**472**	702	-	-	-	-	472	-	-	-	-
	Low birth weight	**1,655**	**838**	**817**	838	-	-	-	-	817	-	-	-	-
	Neonatal infections	**520**	**318**	**202**	318	-	-	-	-	202	-	-	-	-
	Other conditions arising in the perinatal period	**1,519**	**917**	**602**	917	-	-	-	-	602	-	-	-	-
Nutritional disorders	Protein-energy malnutrition	**179**	**95**	**84**	-	-	-	32	63	-	-	22	23	39
	Deficiency anaemia	**100**	**56**	**44**	-	-	-	-	56	-	-	-	-	44
	Other nutritional deficiencies	**22**	**10**	**12**	-	-	-	10	-	-	-	-	-	12
Malignant neoplasia	Mouth and oropharynx cancers	**2,145**	**1,479**	**666**	-	-	532	806	140	-	-	228	246	192
	Oesophagus cancer	**3,204**	**2,238**	**966**	-	-	409	1,344	484	-	-	134	427	405
	Stomach cancer	**3,786**	**2,226**	**1,560**	-	-	522	1,235	469	-	27	489	547	496
	Bowel cancer	**14,235**	**7,636**	**6,599**	-	29	1,406	4,255	1,946	-	164	1,252	3,087	2,097
	Liver cancer	**2,704**	**1,881**	**823**	-	55	594	926	306	-	58	131	337	298
	Gallbladder cancer	**1,046**	**393**	**653**	-	-	85	204	104	-	-	73	367	212
	Pancreas cancer	**5,534**	**2,920**	**2,613**	-	29	517	1,802	572	-	27	356	1,018	1,213
	Lung cancer	**21,149**	**13,079**	**8,070**	-	55	1,571	8,541	2,912	-	-	1,218	4,594	2,257
	Bone and connective tissue cancer	**1,308**	**549**	**759**	-	199	118	207	25	120	118	144	258	120
	Melanoma	**2,899**	**1,733**	**1,166**	-	194	507	738	294	-	110	425	398	232
	Non-melanoma skin cancers	**935**	**678**	**256**	-	-	62	431	186	-	-	21	102	134
	Breast cancer	**9,882**	**85**	**9,797**	-	-	47	13	24	-	276	3,965	3,859	1,697
	Cervix cancer	**964**	**-**	**964**	-	-	-	-	-	-	82	279	367	236
	Corpus uteri cancer	**1,093**	**-**	**1,093**	-	-	-	-	-	-	27	287	515	263
	Ovary cancer	**3,172**	**-**	**3,172**	-	-	-	-	-	-	136	575	1,613	848
	Prostate cancer	**5,614**	**5,614**	**-**	-	-	122	2,578	2,914	-	-	-	-	-

Appendix table 4 (continued) Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Testis cancer	**3**	**3**	**-**	-	-	-	-	3	-	-	-	-	-
	Bladder cancer	**2,154**	**1,474**	**679**	-	-	60	876	539	-	-	90	197	393
	Kidney cancer	**2,663**	**1,576**	**1,087**	30	28	388	746	385	30	-	106	497	455
	Brain cancer	**4,644**	**2,642**	**2,002**	207	168	983	1,014	269	5	136	613	940	308
	Thyroid cancer	**303**	**80**	**223**	-	-	-	52	27	-	-	96	105	22
	Lymphoma	**4,963**	**2,533**	**2,430**	-	195	382	1,339	618	-	56	474	1,087	813
	Multiple myeloma	**1,870**	**1,086**	**784**	-	-	186	557	343	-	27	70	338	350
	Leukaemia	**4,029**	**2,222**	**1,807**	177	85	242	1,122	596	65	167	328	685	563
	Larynx cancer	**732**	**640**	**93**	-	-	149	379	111	-	-	21	35	37
	Eye cancer	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other malignant neoplasia	**4,192**	**2,363**	**1,829**	29	83	616	1,123	512	31	81	246	802	668
Benign neoplasia	Uterine myoma	**19**	**-**	**19**	-	-	-	-	-	-	-	-	19	-
	Benign brain tumour	**205**	**16**	**189**	-	-	-	10	6	-	30	24	58	77
	Other neoplasms	**1,717**	**916**	**801**	30	79	142	270	396	91	27	88	209	385
Diabetes mellitus	Type 1	**1,163**	**578**	**585**	-	80	105	203	191	-	56	179	186	165
	Type 2	**7,402**	**4,004**	**3,399**	-	52	519	1,992	1,441	-	-	113	1,375	1,911
Endocrine and metabolic disorders	Haemolytic anaemia	**79**	**36**	**44**	-	27	-	-	8	-	27	-	-	17
	Other non-deficiency anaemia	**119**	**33**	**86**	-	-	-	12	21	-	-	-	19	68
	Cystic fibrosis	**380**	**196**	**184**	30	111	47	-	9	91	86	-	-	7
	Haemophilia	**3**	**-**	**3**	-	-	-	-	-	-	-	-	-	3
	Other endocrine and metabolic disorders	**3,636**	**2,032**	**1,605**	238	159	419	835	380	94	55	181	647	629
Mental disorders	Alcohol dependence and harmful use	**845**	**646**	**199**	-	81	258	247	60	-	27	111	60	-
	Heroin or poly drug use and dependence	**2,341**	**1,853**	**487**	29	1,338	479	-	8	-	331	152	5	-
	Benzodiazepine dependence and harmful use	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Cannabis dependence and harmful use	**27**	**27**	**-**	-	27	-	-	-	-	-	-	-	-
	Stimulant dependence	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other drug dependence and harmful use	**515**	**302**	**214**	-	212	89	-	-	-	139	75	-	-

Appendix table 4 (continued) Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0–14	15–34	35–54	55–74	75+	0–14	15–34	35–54	55–74	75+
Mental disorders (continued)	Psychoses	**186**	**90**	**96**	–	26	42	17	4	–	–	63	26	8
	Depression	**93**	**31**	**62**	–	–	–	10	21	–	–	–	11	50
	Bipolar affective disorder	**10**	**10**	**–**	–	–	–	10	–	–	–	–	–	–
	Panic disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Agoraphobia	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Social phobia	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Generalised anxiety disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Obsessive compulsive disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Post-traumatic stress disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Separation anxiety disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Borderline personality disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Anorexia nervosa	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Bulimia nervosa	**3**	**–**	**3**	–	–	–	–	–	–	–	–	–	3
	Attention deficit hyperactivity disorder	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Autism	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Other mental disorders	**197**	**121**	**76**	–	–	42	30	49	–	–	–	60	16
Neurological and sense disorders	Alzheimer's and other dementias	**6,022**	**2,160**	**3,862**	60	–	38	529	1,532	–	29	20	457	3,355
	Epilepsy	**1,451**	**863**	**588**	59	298	453	35	18	61	173	199	84	71
	Parkinson's disease	**1,840**	**1,008**	**832**	–	–	–	314	694	–	–	22	194	616
	Multiple sclerosis	**670**	**186**	**484**	–	–	86	94	6	–	54	213	195	22
	Motor-neuron disease	**1,413**	**663**	**750**	–	–	210	304	149	–	–	129	460	162
	Huntington disease	**150**	**42**	**108**	–	–	–	15	27	–	27	20	39	21
	Muscular dystrophy	**227**	**152**	**75**	–	110	21	15	6	–	–	24	33	19
	Glaucoma	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Cataracts	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Refraction errors	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Age-related macular degeneration	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Other causes of vision loss	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–
	Hearing loss	**–**	**–**	**–**	–	–	–	–	–	–	–	–	–	–

Appendix table 4 (continued) Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Neurological and sense disorders (continued)	Other nervous system and sense organ disorders	**2,044**	**904**	**1,140**	150	164	128	296	165	213	171	200	313	243
Cardiovascular diseases	Rheumatic heart disease	**667**	**204**	**463**	-	-	46	119	40	-	27	66	206	163
	Ischaemic heart disease	**52,986**	**31,050**	**21,936**	-	310	4,994	13,463	12,283	-	20	979	5,662	15,274
	Stroke	**20,618**	**9,036**	**11,582**	-	161	1,106	3,341	4,428	-	112	624	2,787	8,059
	Inflammatory heart disease	**2,921**	**1,691**	**1,230**	30	107	341	772	442	121	27	92	481	508
	Hypertensive heart disease	**2,575**	**1,139**	**1,436**	-	-	133	463	542	-	-	108	222	1,106
	Non-rheumatic valvular disease	**1,557**	**760**	**797**	-	27	46	279	408	31	-	-	215	551
	Aortic aneurysm	**2,466**	**1,549**	**917**	-	53	186	685	625	-	-	87	292	538
	Peripheral vascular disease	**1,221**	**620**	**602**	-	-	38	171	411	-	-	68	68	466
	Other cardiovascular disease	**4,105**	**1,804**	**2,301**	-	251	299	555	698	-	119	267	573	1,343
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**12,069**	**6,758**	**5,310**	61	-	261	3,007	3,429	62	29	262	2,563	2,395
	Asthma	**1,439**	**758**	**681**	29	186	172	242	130	61	55	114	285	165
	Other chronic respiratory diseases	**3,825**	**1,968**	**1,857**	30	79	162	803	894	-	30	200	627	999
Digestive disorders	Peptic ulcer disease	**1,074**	**526**	**548**	-	-	55	192	280	-	-	47	128	374
	Cirrhosis of the liver	**3,477**	**2,345**	**1,133**	30	-	979	1,015	320	-	-	499	357	276
	Appendicitis	**49**	**44**	**5**	-	-	24	-	19	-	-	-	-	5
	Intestinal obstruction	**694**	**260**	**434**	-	-	23	72	165	-	27	25	69	312
	Diverticulitis	**417**	**143**	**274**	-	-	19	32	92	-	-	-	65	209
	Gallbladder and bile duct disease	**380**	**150**	**230**	-	-	-	62	88	-	-	-	81	149
	Pancreatitis	**430**	**241**	**190**	-	-	60	92	90	-	-	22	53	115
	Inflammatory bowel disease	**120**	**27**	**93**	-	-	-	15	13	-	-	44	34	14
	Vascular insufficiency bowel	**854**	**416**	**439**	-	-	-	237	178	-	-	-	126	313
	Other digestive diseases	**1,627**	**739**	**888**	-	26	151	349	214	-	-	66	326	495

Appendix table 4 (continued) Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0–14	15–34	35–54	55–74	75+	0–14	15–34	35–54	55–74	75+
Genitourinary disorders	Nephritis and nephrosis	**4,540**	**2,145**	**2,395**	-	28	145	638	1,334	-	-	161	404	1,830
	Benign prostatic hypertrophy	**41**	**41**	**-**	-	-	-	-	41	-	-	-	-	-
	Incontinence	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Infertility	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other genitourinary diseases	**1,297**	**541**	**757**	-	26	65	163	286	-	-	113	118	526
Skin diseases	Eczema	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Skin diseases	**402**	**185**	**216**	-	-	40	57	88	-	-	20	57	139
Musculoskeletal diseases	Rheumatoid arthritis	**459**	**109**	**350**	-	-	-	52	57	-	-	-	141	209
	Osteoarthritis	**157**	**82**	**75**	-	-	-	35	47	-	-	-	28	47
	Chronic back pain	**48**	**8**	**41**	-	-	-	-	8	-	-	-	-	41
	Slipped disc	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Occupational overuse syndrome (RSI)	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other musculoskeletal diseases	**1,459**	**489**	**970**	-	-	115	240	134	-	139	66	327	437
Congenital abnormalities	Anencephaly	**61**	**61**	**-**	61	-	-	-	-	-	-	-	-	-
	Spina bifida	**180**	**118**	**62**	91	27	-	-	-	62	-	-	-	-
	Congenital heart disease	**1,046**	**557**	**489**	366	54	133	-	4	247	167	50	11	14
	Cleft lip and palate	**31**	**-**	**31**	-	-	-	-	-	31	-	-	-	-
	Anorectal atresia	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Oesophageal atresia	**31**	**-**	**31**	-	-	-	-	-	31	-	-	-	-
	Other digestive congenital anomalies	**92**	**-**	**92**	-	-	-	-	-	92	-	-	-	-
	Renal agenesis	**154**	**124**	**31**	91	-	24	-	8	31	-	-	-	-
	Other urogenital congenital anomalies	**156**	**156**	**-**	122	27	-	-	8	-	-	-	-	-
	Abdominal wall defect	**62**	**-**	**62**	-	-	-	-	-	62	-	-	-	-
	Down syndrome	**524**	**272**	**253**	122	27	66	57	-	92	27	47	86	-
	Other chromosomal disorders	**396**	**242**	**154**	242	-	-	-	-	154	-	-	-	-
	Other congenital anomalies	**935**	**477**	**457**	427	26	24	-	-	400	58	-	-	-

Appendix table 4 (continued) Years of life lost (YLLs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Oral health	Caries	-	-	-	-	-	-	-	-	-	-	-	-	-
	Periodontal disease	-	-	-	-	-	-	-	-	-	-	-	-	-
	Edentulism	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other oral conditions	**31**	**16**	**15**	-	-	-	10	6	-	-	-	-	15
Ill-defined conditions	SIDS	**459**	**335**	**123**	335	-	-	-	-	123	-	-	-	-
	Chronic fatigue syndrome	**17**	-	**17**	-	-	-	-	-	-	-	-	-	17
Unintentional injuries	Road traffic accidents	**9,306**	**6,880**	**2,426**	295	4,129	1,666	643	147	177	1,019	526	506	197
	Other transport accidents	**1,312**	**1,155**	**158**	30	599	369	133	24	59	-	46	37	16
	Poisoning	**994**	**389**	**606**	-	233	100	47	8	-	151	382	66	7
	Falls	**2,071**	**1,008**	**1,063**	29	232	108	272	366	60	17	13	219	753
	Fires	**286**	**251**	**35**	-	106	103	36	6	-	-	24	11	-
	Drowning	**961**	**811**	**150**	178	245	316	57	16	91	27	2	29	-
	Sports injuries	**17**	**17**	-	-	-	-	17	-	-	-	-	-	-
	Natural and environmental factors	**161**	**108**	**53**	29	-	47	25	8	30	-	-	23	-
	Machinery accidents	**85**	**85**	-	-	25	59	-	-	-	-	-	-	-
	Suffocation and foreign bodies	**448**	**287**	**162**	64	110	51	42	20	30	53	44	-	35
	Surgical/medical misadventure	**130**	**41**	**89**	-	-	-	20	21	-	-	-	23	66
	Adverse effects of drugs in therapeutic use	**58**	-	**58**	-	-	-	-	-	-	-	47	11	-
	Cutting and piercing accidents	-	-	-	-	-	-	-	-	-	-	-	-	-
	Striking and crushing accidents	**293**	**242**	**51**	90	52	64	32	4	30	-	-	11	9
	Other unintentional injuries	**480**	**332**	**148**	30	97	91	63	51	-	35	28	19	67
Intentional injuries	Self-inflicted injuries	**12,404**	**9,313**	**3,091**	29	4,593	3,550	976	166	29	1,406	1,293	315	47
	Homicide and violence	**1,201**	**809**	**391**	93	331	276	91	18	-	185	154	46	7
	Other intentional injuries	**27**	**27**	-	-	27	-	-	-	-	-	-	-	-
	Total	**309,471**	**168,817**	**140,654**	**6,840**	**16,212**	**30,129**	**66,409**	**49,228**	**5,307**	**6,679**	**20,400**	**45,394**	**62,875**
	Proportion of total (%)	**100**	**100**	**100**	**4**	**10**	**18**	**39**	**29**	**4**	**5**	**15**	**32**	**45**
	Communicable, maternal neonatal and nutritional conditions	**13,109**	**6,883**	**6,226**	2,895	134	1,046	1,214	1,594	2,399	224	379	811	2,414
	Non-communicable diseases	**266,127**	**140,180**	**125,947**	3,078	5,298	22,282	62,743	46,779	2,400	3,562	17,463	43,263	59,258
	Injuries	**30,234**	**21,753**	**8,481**	867	10,779	6,800	2,453	855	508	2,893	2,558	1,319	1,203

Summary of years of life lost (YLLs), by age, sex and cause, Victoria, 2001

				Males, by age group (years)					Females, by age group (years)				
Broad disease group	Persons	Males	Females	0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infections and parasitic diseases	4,203	2,320	1,883	91	134	927	687	481	214	170	222	447	831
Respiratory infections	3,713	1,628	2,086	30	-	119	485	994	91	54	110	341	1,488
Maternal conditions	25	-	25	-	-	-	-	—	-	-	25	-	
Neonatal conditions	4,868	2,775	2,093	2,775	-	-	-	-	2,093	-	-	-	-
Nutritional disorders	300	161	139	-	-	-	42	119	-	-	22	23	94
Cancer	105,223	55,131	50,093	443	1,121	9,497	30,289	13,781	251	1,492	11,623	22,420	14,306
Other neoplasms	1,940	932	1,008	30	79	142	279	402	91	58	112	285	462
Diabetes mellitus	8,565	4,581	3,984	-	132	624	2,195	1,631	-	56	292	1,561	2,075
Other endocrine and metabolic disorders	4,218	2,297	1,922	268	298	467	847	418	184	168	181	666	723
Mental disorders	4,217	3,079	1,138	29	1,684	910	313	143	-	497	401	162	78
Neurological and sense disorders	13,817	5,978	7,839	269	572	937	1,602	2,596	275	454	828	1,774	4,508
Cardiovascular diseases	89,116	47,852	41,264	30	909	7,188	19,848	19,876	153	305	2,291	10,506	28,010
Chronic respiratory diseases	17,332	9,484	7,848	120	265	595	4,052	4,453	123	114	576	3,476	3,560
Digestive disorders	9,122	4,890	4,232	30	26	1,310	2,065	1,459	-	27	704	1,240	2,261
Genitourinary disorders	5,878	2,.726	3,152	-	54	210	801	1,661	-	-	274	522	2,356
Skin diseases	402	185	216	-	-	40	57	88	-	-	20	57	139
Musculoskeletal diseases	2,123	687	1,436	-	-	115	327	245	-	139	66	496	734
Congenital abnormalities	3,666	2,007	1,660	1,523	159	248	57	20	1,200	252	97	97	14
Oral health	31	16	15	-	-	-	10	6	-	-	-	-	15
Unintentional injuries	16,604	11,605	4,999	745	5,828	2,975	1,386	671	479	1,302	1,111	958	1,149
Intentional injuries	13,631	10,149	3,482	122	4,951	3,825	1,067	184	29	1,591	1,447	361	54
Miscellaneous	476	335	140	335	-	-	-	-	123	-	-	-	17
Total	**309,471**	**168,817**	**140,654**	**6,840**	**16,212**	**30,129**	**66,409**	**49,228**	**5,307**	**6,679**	**20,400**	**45,394**	**62,875**

Appendix table 5 Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**44**	**21**	**23**	1	6	6	5	3	1	10	6	4	3
	Syphilis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Chlamydia	**520**	**3**	**517**	-	2	1	-	-	4	344	149	15	4
	Gonorrhoea	**10**	**1**	**9**	-	1	-	-	-	-	6	3	-	-
	STDs (other)	**335**	**-**	**335**	-	-	-	-	-	3	223	97	10	3
	HIV/AIDS	**598**	**540**	**58**	-	221	302	17	-	-	30	28	-	-
	Diarrhoea	**540**	**266**	**273**	112	62	37	33	22	90	87	45	41	11
	Tetanus	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Poliomyelitis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Vaccine preventable cluster	**22**	**10**	**12**	7	1	1	1	-	7	1	2	1	-
	Meningitis	**409**	**202**	**208**	168	19	10	5	-	171	22	8	4	2
	Septicaemia	**239**	**128**	**112**	6	9	22	50	41	4	8	18	35	46
	Arbovirus Infections	**33**	**17**	**16**	-	5	8	3	-	-	4	9	3	-
	Hepatitis A	**8**	**6**	**2**	-	3	2	1	-	-	1	1	-	-
	Hepatitis B	**70**	**41**	**29**	6	6	14	12	3	4	6	7	9	3
	Hepatitis C	**161**	**93**	**67**	6	15	38	27	6	3	15	21	22	7
	Other hepatitis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Malaria	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other infectious and parasitic diseases	**415**	**161**	**253**	-	15	73	50	23	54	24	42	37	97
Acute respiratory infections	Lower respiratory tract infections: pneumonia	**357**	**180**	**177**	40	27	49	40	24	14	42	41	28	52
	Lower respiratory tract infections: other	**583**	**283**	**300**	56	74	76	60	18	42	81	86	63	28
	Upper respiratory tract infections	**900**	**437**	**462**	149	140	99	40	9	138	167	99	45	13
	Otitis media	**1,634**	**772**	**862**	367	175	75	138	16	314	263	144	61	80
Maternal conditions	Maternal haemorrhage	**27**	**-**	**27**	-	-	-	-	-	-	21	6	-	-
	Maternal sepsis	**26**	**-**	**26**	-	-	-	-	-	-	24	2	-	-
	Hypertension in pregnancy	**138**	**-**	**138**	-	-	-	-	-	-	109	29	-	-
	Obstructed labour	**34**	**-**	**34**	-	-	-	-	-	-	28	6	-	-

Appendix table 5 (continued) Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Maternal conditions (continued)	Abortion	**11**	**-**	**11**	-	-	-	-	-	-	10	1	-	-
	Other maternal conditions	**136**	**-**	**136**	-	-	-	-	-	-	100	36	-	-
Neonatal conditions	Birth trauma and asphyxia	**841**	**508**	**332**	508	-	-	-	-	332	-	-	-	-
	Low birth weight	**1,513**	**798**	**715**	798	-	-	-	-	715	-	-	-	-
	Neonatal infections	**190**	**110**	**79**	110	-	-	-	-	79	-	-	-	-
	Other conditions arising in the perinatal period	**211**	**107**	**104**	107	-	-	-	-	104	-	-	-	-
Nutritional disorders	Protein-energy malnutrition	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Deficiency anaemia	**1,666**	**477**	**1,189**	268	66	65	59	19	274	417	398	70	30
	Other nutritional deficiencies	**140**	**31**	**108**	-	-	-	31	-	-	-	-	-	108
Malignant neoplasia	Mouth and oropharynx cancers	**1,415**	**969**	**446**	-	48	286	475	161	-	20	111	194	120
	Oesophagus cancer	**278**	**157**	**120**	-	-	34	79	44	-	2	15	57	46
	Stomach cancer	**509**	**307**	**202**	1	6	53	165	82	-	1	39	91	71
	Bowel cancer	**4,293**	**2,403**	**1,890**	-	21	286	1,293	803	-	23	263	841	764
	Liver cancer	**92**	**64**	**29**	1	-	16	32	15	1	1	5	10	11
	Gallbladder cancer	**61**	**29**	**32**	-	-	6	14	9	-	-	5	16	11
	Pancreas cancer	**213**	**110**	**103**	-	-	16	62	31	-	1	14	38	50
	Lung cancer	**1,916**	**1,161**	**755**	1	3	89	758	310	-	-	109	443	203
	Bone and connective tissue cancer	**251**	**116**	**135**	7	23	26	45	15	9	30	25	40	31
	Melanoma	**1,116**	**895**	**221**	1	77	263	371	183	-	13	37	38	132
	Non-melanoma skin cancers	**338**	**207**	**131**	-	1	33	108	65	-	1	30	50	50
	Breast cancer	**6,385**	**-**	**6,385**	-	-	-	-	-	-	153	2,457	2,750	1,024
	Cervix cancer	**241**	**-**	**241**	-	-	-	-	-	-	68	86	45	42
	Corpus uteri cancer	**512**	**-**	**512**	-	-	-	-	-	-	13	152	279	67
	Ovary cancer	**453**	**-**	**453**	-	-	-	-	-	6	98	164	121	65

Appendix table 5 (continued) Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Prostate cancer	**5,748**	**5,748**	**-**	-	-	448	3,564	1,737	-	-	-	-	-
	Testis cancer	**125**	**125**	**-**	1	77	43	3	1	-	-	-	-	-
	Bladder cancer	**1,012**	**816**	**196**	-	12	79	420	305	-	4	22	77	92
	Kidney cancer	**629**	**378**	**251**	2	-	86	200	89	8	7	57	103	77
	Brain cancer	**416**	**265**	**150**	52	65	104	35	9	31	26	58	25	10
	Thyroid cancer	**223**	**56**	**167**	-	8	26	17	5	1	39	79	38	11
	Lymphoma	**1,144**	**620**	**524**	16	52	144	263	145	7	50	137	195	136
	Multiple myeloma	**301**	**175**	**126**	-	-	30	78	66	-	-	8	53	65
	Leukaemia	**554**	**316**	**238**	37	22	44	129	83	32	18	49	74	65
	Larynx cancer	**365**	**315**	**50**	-	-	68	199	48	-	-	12	24	14
	Eye cancer	**163**	**106**	**57**	23	8	23	35	16	8	5	19	15	9
	Other malignant neoplasms	**1,177**	**674**	**503**	6	35	151	320	163	19	32	84	211	157
Benign neoplasia	Uterine myoma	**126**	**-**	**126**	-	-	-	-	-	-	9	86	26	5
	Benign brain tumour	**241**	**90**	**151**	2	10	24	43	12	3	10	51	53	33
	Other neoplasms	**212**	**124**	**88**	4	11	19	36	54	13	4	9	21	42
Diabetes mellitus	Type 1	**1,146**	**607**	**539**	174	209	138	66	20	168	161	117	69	24
	Type 2	**19,471**	**10,127**	**9,345**	1	155	4,688	4,757	526	1	164	3,771	4,189	1,220
Endocrine and metabolic disorders	Haemolytic anaemia	**94**	**65**	**30**	65	-	-	-	-	30	-	-	-	-
	Other non-deficiency anaemia	**193**	**94**	**99**	5	6	11	39	32	4	19	18	30	28
	Cystic fibrosis	**232**	**131**	**101**	131	-	-	-	-	101	-	-	-	-
	Haemophilia	**14**	**14**	**-**	14	-	-	-	-	-	-	-	-	-
	Other endocrine and metabolic disorders	**3,491**	**2,327**	**1,164**	273	182	480	956	435	68	40	131	469	456
Mental disorders	Alcohol dependence and harmful use	**3,787**	**3,045**	**742**	7	1,820	978	218	21	4	580	152	6	-
	Heroin or polydrug use and dependence	**2,342**	**1,738**	**604**	-	1,644	80	12	2	-	566	28	10	-
	Benzodiazepine dependence and harmful use	**857**	**368**	**489**	-	188	166	14	-	-	203	260	26	-
	Cannabis dependence and harmful use	**2,297**	**1,782**	**515**	-	1,656	126	-	-	5	469	41	-	-
	Stimulant dependence	**66**	**13**	**53**	-	13	-	-	-	-	42	12	-	-
	Other drug dependence and harmful use	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-

Appendix table 5 (continued) Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Mental disorders (continued)	Psychoses	**7,109**	**3,950**	**3,159**	-	3,891	46	12	2	11	1,959	1,137	49	3
	Depression	**31,180**	**13,896**	**17,285**	341	5,094	6,279	2,058	123	379	5,962	7,996	2,707	240
	Bipolar affective disorder	**3,666**	**1,736**	**1,930**	-	1,703	25	7	1	13	1,546	346	17	8
	Panic disorder	**1,591**	**295**	**1,295**	1	157	116	21	1	33	727	471	63	2
	Agoraphobia	**2,110**	**605**	**1,505**	27	406	154	17	1	39	950	475	40	1
	Social phobia	**5,430**	**2,460**	**2,970**	314	1,661	390	90	5	463	2,098	388	18	2
	Generalised anxiety disorder	**12,325**	**3,943**	**8,382**	183	1,861	1,587	288	24	197	3,180	3,870	1,026	109
	Obsessive compulsive disorder	**985**	**412**	**572**	2	223	160	26	1	2	309	197	55	9
	Post-traumatic stress disorder	**3,135**	**1,758**	**1,377**	105	1,379	230	39	4	78	985	298	15	1
	Separation anxiety disorder	**199**	**52**	**147**	52	-	-	-	-	147	-	-	-	-
	Borderline personality disorder	**7,333**	**3,530**	**3,803**	-	1,959	1,314	240	17	31	2,522	1,002	213	35
	Anorexia nervosa	**416**	**62**	**354**	-	62	-	-	-	155	199	-	-	-
	Bulimia nervosa	**591**	**-**	**591**	-	-	-	-	-	19	573	-	-	-
	Attention deficit yhperactivity disorder	**1,838**	**1,173**	**665**	1,150	23	-	-	-	655	10	-	-	-
	Autism	**2,441**	**2,196**	**245**	2,196	-	-	-	-	245	-	-	-	-
	Other mental disorders	**501**	**297**	**204**	-	-	103	73	121	-	-	-	161	43
Neurological and sense disorders	Alzheimer and other dementias	**22,255**	**8,470**	**13,785**	-	19	202	2,915	5,334	-	36	124	3,323	10,301
	Epilepsy	**2,427**	**1,374**	**1,053**	725	257	195	153	44	439	219	177	153	65
	Parkinson's disease	**4,362**	**2,385**	**1,977**	-	-	126	1,379	881	-	5	141	1,103	728
	Multiple sclerosis	**1,069**	**477**	**592**	14	257	200	7	-	27	242	260	61	-
	Motor-neuron disease	**91**	**45**	**46**	-	-	10	19	16	-	-	6	25	15
	Huntington's disease	**200**	**105**	**95**	-	27	58	18	1	-	-	60	33	2
	Muscular dystrophy	**49**	**49**	**-**	49	-	-	-	-	-	-	-	-	-
	Glaucoma	**1,285**	**503**	**783**	-	-	17	305	180	-	-	6	416	361
	Cataract	**432**	**150**	**282**	1	1	9	56	83	1	1	8	78	195
	Refraction errors	**3,476**	**1,451**	**2,025**	83	139	204	492	532	80	140	210	539	1,056
	Age-related macular degeneration	**3,062**	**1,095**	**1,967**	-	-	-	309	786	-	-	-	391	1,576
	Other causes of vision loss	**3,044**	**1,326**	**1,718**	35	24	252	614	400	33	24	264	674	722
	Hearing loss	**14,370**	**9,082**	**5,288**	-	397	2,557	4,940	1,189	-	417	1,235	2,916	721
	Other nervous system and sense organ disorders	**5,215**	**2,300**	**2,915**	382	418	327	754	419	559	377	523	819	636

Appendix table 5 (continued) Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Cardiovascular diseases	Rheumatic heart disease	**402**	**167**	**236**	-	7	28	88	44	5	14	33	102	82
	Ischaemic heart disease	**7,805**	**4,184**	**3,621**	-	37	727	1,904	1,516	-	23	304	1,423	1,872
	Stroke	**13,191**	**5,677**	**7,514**	83	333	1,326	3,361	574	9	727	1,596	4,070	1,113
	Inflammatory heart disease	**1,172**	**775**	**397**	3	75	227	331	138	33	29	77	156	103
	Hypertensive heart disease	**271**	**158**	**114**	-	16	31	76	35	4	7	15	50	38
	Non-rheumatic valvular disease	**617**	**369**	**248**	1	18	81	188	82	14	14	36	97	88
	Aortic aneurysm	**58**	**43**	**16**	-	1	4	23	15	-	-	1	6	8
	Peripheral vascular disease	**1,200**	**693**	**507**	3	27	179	368	115	4	32	127	226	119
	Other cardiovascular disease	**1,220**	**473**	**747**	-	66	78	145	183	-	38	87	186	436
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**8,242**	**4,921**	**3,321**	-	606	1,507	2,274	534	-	378	1,073	1,166	704
	Asthma	**15,415**	**6,990**	**8,425**	5,670	570	360	329	61	4,601	2,487	591	590	157
	Other chronic respiratory diseases	**6,759**	**3,120**	**3,640**	48	125	257	1,273	1,417	-	59	392	1,230	1,959
Digestive disorders	Peptic ulcer disease	**516**	**262**	**254**	-	48	115	96	3	-	6	179	34	35
	Cirrhosis of the liver	**194**	**147**	**47**	-	8	72	59	9	-	13	19	11	4
	Appendicitis	**114**	**57**	**57**	15	26	11	4	1	11	28	13	4	1
	Intestinal obstruction	**363**	**171**	**192**	5	8	49	72	38	15	15	56	69	38
	Diverticulitis	**151**	**68**	**83**	-	2	18	30	19	-	-	15	43	24
	Gallbladder and bile duct disease	**298**	**82**	**216**	-	7	29	34	11	1	50	86	65	15
	Pancreatitis	**55**	**30**	**25**	-	4	12	9	4	-	5	7	8	5
	Inflammatory bowel disease	**2,738**	**1,214**	**1,524**	85	594	393	132	10	101	840	427	139	17
	Vascular insufficiency bowel	**26**	**8**	**18**	-	-	1	5	1	-	-	7	6	5
	Other digestive diseases	**1,004**	**363**	**641**	-	13	74	171	105	-	-	48	236	357
Genitourinary disorders	Nephritis and nephrosis	**720**	**437**	**283**	30	75	124	155	54	21	53	82	88	39
	Benign prostatic hypertrophy	**3,360**	**3,360**	**-**	-	1	285	2,260	815	-	-	-	-	-
	Incontinence	**2,792**	**759**	**2,034**	-	1	358	327	72	10	968	852	126	77
	Infertility	**4,176**	**1,640**	**2,535**	-	1,088	552	-	-	-	1,638	897	-	-
	Other genitourinary diseases	**1,684**	**541**	**1,143**	-	26	65	163	286	3	73	357	178	534

Appendix table 5 (continued) Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Skin diseases	Eczema	**641**	**281**	**360**	67	82	84	39	9	112	148	77	21	2
	Skin diseases	**1,638**	**733**	**904**	86	314	185	123	25	143	348	239	136	39
Musculoskeletal diseases	Rheumatoid arthritis	**4,295**	**1,202**	**3,093**	-	51	506	537	109	-	180	1,494	1,184	234
	Osteoarthritis	**10,726**	**4,765**	**5,961**	-	90	1,376	2,504	796	-	12	907	3,303	1,738
	Chronic backpain	**1,118**	**578**	**540**	5	100	267	139	66	3	113	211	134	80
	Slipped disc	**578**	**334**	**244**	2	83	185	58	5	5	49	144	42	4
	Occupational overuse syndrome (RSI)	**855**	**37**	**818**	-	3	24	10	-	3	83	601	130	1
	Other musculoskeletal diseases	**954**	**551**	**403**	56	264	139	73	18	55	148	131	46	22
Congenital abnormalities	Anencephaly	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Spina bifida	**226**	**102**	**123**	102	-	-	-	-	123	-	-	-	-
	Congenital heart disease	**1,118**	**762**	**356**	762	-	-	-	-	356	-	-	-	-
	Cleft lip & palate	**38**	**25**	**13**	25	-	-	-	-	13	-	-	-	-
	Anorectal atresia	**9**	**5**	**3**	5	-	-	-	-	3	-	-	-	-
	Oesophageal atresia	**8**	**2**	**6**	2	-	-	-	-	6	-	-	-	-
	Other digestive congenital anomalies	**26**	**13**	**13**	13	-	-	-	-	13	-	-	-	-
	Renal agenesis	**54**	**24**	**30**	24	-	-	-	-	30	-	-	-	-
	Other urogenital congenital anomalies	**360**	**251**	**109**	251	-	-	-	-	109	-	-	-	-
	Abdominal wall defect	**26**	**14**	**12**	14	-	-	-	-	12	-	-	-	-
	Down syndrome	**1,705**	**786**	**919**	786	-	-	-	-	919	-	-	-	-
	Other chromosomal disorders	**1,674**	**961**	**713**	961	-	-	-	-	713	-	-	-	-
	Other congenital anomalies	**2,501**	**1,838**	**663**	1,838	-	-	-	-	663	-	-	-	-
Oral health	Caries	**8,192**	**4,002**	**4,190**	823	1,155	1,147	659	218	785	1,156	1,174	682	392
	Periodontal disease	**657**	**313**	**344**	-	33	126	116	37	-	34	129	121	59
	Edentulism	**574**	**168**	**406**	-	14	76	70	8	-	17	238	122	30
Ill-defined conditions	Chronic fatigue syndrome	**983**	**277**	**706**	-	70	176	31	-	-	251	398	57	-

Appendix table 5 (continued) Years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Unintentional injuries	Road traffic accidents	**2,197**	**1,449**	**748**	97	890	381	69	12	45	431	222	37	13
	Other transport accidents	**828**	**618**	**210**	104	349	124	39	2	35	143	26	5	2
	Poisoning	**115**	**74**	**42**	16	16	8	27	7	6	9	5	15	6
	Falls	**2,818**	**1,515**	**1,304**	420	458	293	215	129	261	216	171	265	392
	Fires	**284**	**196**	**88**	93	49	41	12	1	26	26	26	4	6
	Drowning	**1**	**1**	**1**	-	-	-	-	-	1	-	-	-	-
	Sports injuries	**134**	**108**	**25**	32	64	10	1	1	9	16	-	-	-
	Natural and environmental factors	**121**	**53**	**67**	15	9	24	4	1	32	24	8	2	1
	Machinery accidents	**539**	**486**	**54**	14	231	184	55	2	4	17	29	4	-
	Suffocation and foreign bodies	**2**	**2**	**-**	1	-	1	-	-	-	-	-	-	-
	Surgical/medical misadventure	**359**	**194**	**165**	32	41	46	73	2	31	59	30	33	12
	Adverse effects of drugs in therapeutic use	**355**	**324**	**30**	-	93	203	17	11	-	4	4	8	14
	Cutting and piercing accidents	**311**	**230**	**81**	25	149	43	11	1	12	39	20	10	1
	Striking and crushing accidents	**838**	**603**	**235**	213	190	149	48	2	101	78	46	7	4
	Other unintentional injuries	**1,934**	**1,455**	**479**	197	684	378	172	24	124	96	146	77	36
Intentional injuries	Self-inflicted injuries	**71**	**33**	**38**	-	19	12	2	-	1	21	14	2	-
	Homicide and violence	**761**	**607**	**154**	12	452	132	11	1	13	100	36	5	-
	Other intentional injuries	**7**	**6**	**1**	-	5	1	-	-	-	1	-	-	-
	Total	**343,670**	**169,593**	**174,078**	**22,232**	**36,901**	**37,789**	**49,204**	**23,466**	**16,075**	**38,710**	**43,091**	**42,830**	**33,373**
	Proportion of total (%)	**100**	**100**	**100**	**13**	**22**	**22**	**29**	**14**	**9**	**22**	**25**	**25**	**19**
	Communicable, maternal neonatal and nutritional conditions	**11,810**	**5,194**	**6,616**	2,709	850	879	571	185	2,354	2,044	1,283	447	488
	Non-communicable diseases	**320,185**	**156,446**	**163,739**	18,252	32,352	34,880	47,876	23,086	13,022	35,386	41,025	41,908	32,398
	Injuries	**11,675**	**7,953**	**3,722**	1,271	3,700	2,029	757	195	699	1,280	782	475	487

Summary of years lived with disability (incident YLDs), by age, sex and cause, Victoria, 2001

				Males, by age group (years)					Females, by age group (years)				
Broad disease group	Persons	Males	Females	0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infections and parasitic diseases	3,404	1,490	1,914	307	367	515	201	100	341	782	435	180	176
Respiratory Infections	3,474	1,672	1,802	612	416	299	279	66	508	553	370	197	174
Maternal conditions	373	-	373	-	-	-	-	-	-	292	80	-	-
Neonatal conditions	2,754	1,523	1,231	1,523	-	-	-	-	1,231	-	-	-	-
Nutritional disorders	1,805	509	1,297	268	66	65	91	19	274	417	398	70	138
Cancer	29,928	16,010	13,919	149	460	2,352	8,665	4,384	122	606	4,038	5,828	3,325
Other neoplasms	578	214	364	6	20	44	78	66	16	23	146	100	80
Diabetes mellitus	20,617	10,733	9,884	175	365	4,826	4,822	546	169	325	3,889	4,257	1,245
Other endocrine and metabolic disorders	4,025	2,630	1,394	487	188	492	995	468	202	59	149	500	484
Mental disorders	90,200	43,311	46,889	4,379	23,737	11,755	3,116	324	2,477	22,879	16,673	4,408	452
Neurological and sense disorders	61,336	28,812	32,524	1,290	1,540	4,157	11,961	9,864	1,139	1,460	3,014	10,532	16,379
Cardiovascular diseases	25,938	12,537	13,400	91	579	2,681	6,484	2,703	68	883	2,276	6,315	3,859
Chronic respiratory diseases	30,417	15,031	15,386	5,718	1,300	2,124	3,876	2,013	4,601	2,925	2,055	2,986	2,819
Digestive disorders	5,459	2,403	3,056	105	710	775	614	201	129	956	855	614	502
Genitourinary disorders	12,733	6,737	5,995	30	1,191	1,384	2,905	1,227	34	2,732	2,187	392	650
Skin diseases	2,279	1,014	1,264	152	397	270	162	34	255	496	316	157	41
Musculoskeletal diseases	18,525	7,467	11,058	63	592	2,498	3,322	994	66	585	3,489	4,839	2,080
Congenital abnormalities	7,744	4,784	2,960	4,784	-	-	-	-	2,960	-	-	-	-
Oral health	9,422	4,483	4,940	823	1,202	1,349	845	263	785	1,207	1,541	925	481
Unintentional injuries	10,836	7,307	3,529	1,258	3,225	1,886	744	194	685	1,158	732	468	486
Intentional injuries	839	646	193	13	475	144	13	1	14	121	50	7	1
Miscellaneous	983	277	706	-	70	176	31	-	-	251	398	57	-
Total	**343,670**	**169,593**	**174,078**	**22,232**	**36,901**	**37,789**	**49,204**	**23,466**	**16,075**	**38,710**	**43,091**	**42,830**	**33,373**

Appendix table 6 Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**45**	**21**	**23**	1	6	6	5	3	1	10	6	4	3
	Syphilis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Chlamydia	**616**	**3**	**613**	-	2	1	-	-	6	430	157	16	4
	Gonorrhoea	**11**	**1**	**10**	-	1	-	-	-	-	7	3	-	-
	STDs (others)	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	HIV/AIDS	**800**	**723**	**78**	-	296	404	22	-	-	41	37	-	-
	Diarrhoea	**540**	**266**	**274**	112	62	37	33	22	90	87	45	41	11
	Tetanus	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Poliomyelitis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Vaccine preventable cluster	**36**	**17**	**19**	13	1	1	1	-	15	2	2	1	-
	Meningitis	**460**	**264**	**196**	46	91	79	40	7	26	60	61	38	11
	Septicaemia	**239**	**128**	**112**	6	9	22	50	42	4	8	18	35	46
	Arbovirus Infections	**38**	**20**	**19**	-	6	9	4	1	-	5	10	3	1
	Hepatitis A	**8**	**6**	**2**	-	3	2	1	-	-	1	1	-	-
	Hepatitis B	**407**	**225**	**182**	2	36	67	73	47	2	32	50	51	47
	Hepatitis C	**998**	**568**	**430**	34	78	159	176	122	-	73	119	122	116
	Other hepatitis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Malaria	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other infectious and parasitic diseases	**787**	**368**	**419**	-	24	145	127	73	22	10	26	75	286
Acute respiratory infections	Lower respiratory tract infections: pneumonia	**941**	**463**	**477**	96	101	124	101	42	56	123	127	90	80
	Upper respiratory tract infections	**900**	**437**	**462**	149	140	99	40	9	138	167	99	45	13
	Otitis media	**1,742**	**816**	**926**	350	201	97	151	18	304	292	169	75	85
Maternal conditions	Maternal haemorrhage	**27**	**-**	**27**	-	-	-	-	-	-	21	6	-	-
	Maternal sepsis	**32**	**-**	**32**	-	-	-	-	-	-	29	3	-	-
	Hypertension in pregnancy	**150**	**-**	**150**	-	-	-	-	-	-	102	40	8	-
	Obstructed labour	**34**	**-**	**34**	-	-	-	-	-	-	28	6	-	-
	Abortion	**15**	**-**	**15**	-	-	-	-	-	-	14	1	-	-
	Other maternal conditions	**142**	**-**	**142**	-	-	-	-	-	-	98	43	-	-

Appendix table 6 (continued) Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Neonatal conditions	Birth trauma and asphyxia	**1,624**	**933**	**692**	202	290	279	138	22	139	209	208	108	28
	Low birth weight	**2,861**	**1,361**	**1,500**	303	433	411	190	24	305	463	456	227	50
	Neonatal infections	**211**	**123**	**88**	123	-	-	-	-	88	-	-	-	-
	Other conditions arising in the perinatal period	**393**	**182**	**211**	47	55	52	25	3	49	62	62	31	7
Nutritional disorders	Protein-energy malnutrition	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Deficiency anaemia	**1,691**	**484**	**1,207**	272	67	66	60	19	278	423	404	71	31
	Other nutritional deficiencies	**142**	**32**	**110**	-	-	-	32	-	-	-	-	-	110
Malignant neoplasia	Mouth and oropharynx cancers	**1,565**	**1,072**	**494**	-	8	121	628	315	-	4	38	214	238
	Oesophagus cancer	**286**	**161**	**124**	-	-	26	91	45	-	1	13	63	47
	Stomach cancer	**528**	**318**	**210**	1	2	35	196	85	-	-	22	114	74
	Bowel cancer	**4,637**	**2,583**	**2,054**	-	6	109	1,166	1,302	-	5	96	728	1,226
	Liver cancer	**95**	**65**	**29**	1	-	11	38	15	-	1	4	12	12
	Gallbladder cancer	**63**	**30**	**33**	-	-	4	17	10	-	-	3	19	11
	Pancreas cancer	**216**	**112**	**104**	-	-	16	63	32	-	-	15	38	51
	Lung cancer	**1,976**	**1,196**	**780**	1	3	92	782	317	-	-	113	459	208
	Bone and connective tissue cancer	**295**	**135**	**161**	7	33	30	49	16	9	43	32	45	32
	Melanoma	**1,203**	**964**	**239**	-	77	279	414	194	-	15	42	42	141
	Non-melanoma skin cancers	**349**	**214**	**135**	-	1	33	112	68	-	1	30	51	52
	Breast cancer	**7,513**	**-**	**7,513**	-	-	-	-	-	-	36	1,768	4,104	1,605
	Cervix cancer	**324**	**-**	**324**	-	-	-	-	-	-	10	88	148	77
	Corpus uteri cancer	**605**	**-**	**605**	-	-	-	-	-	-	2	67	273	263
	Ovary cancer	**595**	**-**	**595**	-	-	-	-	-	1	44	203	265	82
	Prostate cancer	**6,717**	**6,717**	**-**	-	-	72	2,343	4,303	-	-	-	-	-
	Testis cancer	**134**	**134**	**-**	-	11	44	56	23	-	-	-	-	-
	Bladder cancer	**1,120**	**911**	**208**	-	2	26	257	627	-	-	8	46	154
	Kidney cancer	**679**	**407**	**272**	1	1	25	220	161	2	4	24	116	126
	Brain cancer	**441**	**283**	**158**	33	62	137	42	9	7	28	55	58	10
	Thyroid cancer	**239**	**60**	**179**	-	1	11	29	18	-	5	34	74	66

Appendix table 6 (continued) Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Lymphoma	**1,230**	**666**	**564**	16	56	157	283	154	6	54	148	211	144
	Multiple myeloma	**323**	**188**	**136**	-	-	24	94	71	-	-	7	57	72
	Leukaemia	**615**	**348**	**267**	8	27	50	147	116	5	23	44	97	98
	Larynx cancer	**418**	**360**	**58**	-	-	19	218	123	-	-	5	24	29
	Eye cancer	**244**	**159**	**85**	8	17	29	64	42	3	6	15	35	26
	Other malignant neoplasms	**1,292**	**703**	**589**	6	25	94	269	310	2	14	62	272	239
Benign neoplasia	Uterine myoma	**56**	**-**	**56**	-	-	-	-	-	-	18	38	-	-
	Benign brain tumour	**245**	**92**	**153**	1	10	25	44	12	3	11	52	54	34
	Other neoplasms	**211**	**124**	**87**	2	11	20	36	55	10	4	9	21	43
Diabetes mellitus	Type 1	**1,461**	**778**	**683**	43	204	298	186	47	39	175	245	158	66
	Type 2	**16,400**	**8,430**	**7,970**	-	-	1,902	4,825	1,703	-	6	1,627	3,382	2,956
Endocrine and metabolic disorders	Haemolytic anaemia	**34**	**28**	**5**	7	11	9	2	-	1	2	2	1	-
	Other non-deficiency anaemia	**194**	**94**	**100**	5	6	11	39	32	4	19	18	30	28
	Cystic fibrosis	**385**	**226**	**158**	74	76	51	20	4	65	55	29	8	2
	Haemophilia	**35**	**35**	**-**	7	11	10	5	1	-	-	-	-	-
	Other endocrine and metabolic disorders	**13,501**	**11,904**	**1,597**	4,187	2,669	2,900	1,639	508	40	113	343	610	492
Mental disorders	Alcohol dependence and harmful use	**4,045**	**3,217**	**828**	2	1,226	1,475	450	64	1	463	315	46	3
	Heroin or polydrug use and dependence	**3,070**	**2,197**	**873**	2	1,120	884	171	19	15	460	325	62	11
	Benzodiazepine dependence and harmful use	**872**	**389**	**483**	-	147	212	29	1	-	170	259	54	-
	Cannabis dependence and harmful use	**2,411**	**1,857**	**554**	5	1,557	295	1	-	1	456	96	-	-
	Stimulant dependence	**71**	**14**	**57**	-	13	1	-	-	-	37	19	-	-
	Psychoses	**9,488**	**5,421**	**4,067**	1	1,404	2,691	1,091	234	-	788	1,924	1,020	335
	Depression	**30,792**	**13,769**	**17,023**	287	4,514	6,382	2,373	213	320	5,206	8,011	3,059	426
	Bipolar affective disorder	**4,473**	**2,094**	**2,379**	-	760	1,030	261	42	1	757	1,128	394	100
	Panic disorder	**1,785**	**314**	**1,471**	-	94	164	50	6	5	378	717	309	61
	Agoraphobia	**2,540**	**756**	**1,784**	4	213	353	158	28	5	509	831	354	86
	Social phobia	**7,099**	**3,155**	**3,944**	61	1,078	1,339	555	122	83	1,483	1,612	607	160

Appendix table 6 (continued) Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Mental disorders (continued)	Generalised anxiety disorder	**13,353**	**4,395**	**8,959**	33	1,067	2,082	1,021	191	33	1,605	4,109	2,441	771
	Obsessive compulsive disorder	**1,110**	**467**	**643**	-	109	225	116	18	-	152	301	141	49
	Post-truamatic stress disorder	**3,899**	**2,196**	**1,703**	14	891	930	306	54	11	593	777	263	60
	Separation anxiety disorder	**201**	**55**	**147**	55	-	-	-	-	147	-	-	-	-
	Borderline personality disorder	**7,731**	**3,713**	**4,018**	-	1,480	1,720	465	48	5	2,121	1,468	345	79
	Anorexia nervosa	**462**	**73**	**389**	-	63	10	-	-	54	335	-	-	-
	Bulimia nervosa	**634**	**-**	**634**	-	-	-	-	-	-	608	26	-	-
	Attention deficit hyperactivity disorder	**2,371**	**1,224**	**1,147**	965	258	-	-	-	1,038	109	-	-	-
	Autism	**6,013**	**5,366**	**646**	1,099	1,589	1,572	875	232	122	186	188	106	44
	Other mental disorders	**1,762**	**1,158**	**604**	-	-	190	210	757	-	-	-	377	227
Neurological and sense disorders	Alzheimer and other dementias	**19,293**	**7,350**	**11,943**	-	3	89	1,991	5,266	-	9	99	2,071	9,764
	Epilepsy	**1,848**	**961**	**886**	115	242	270	214	120	91	203	231	190	171
	Parkinson's disease	**4,348**	**2,293**	**2,055**	-	-	38	898	1,356	-	-	53	694	1,308
	Multiple sclerosis	**1,407**	**692**	**715**	3	143	356	157	31	4	129	323	208	51
	Motor-neuron disease	**92**	**46**	**47**	-	-	10	19	16	-	-	6	25	15
	Huntington's disease	**239**	**114**	**125**	-	9	51	47	6	-	-	55	59	12
	Muscular dystrophy	**82**	**82**	**-**	61	22	-	-	-	-	-	-	-	-
	Glaucoma	**712**	**295**	**416**	-	-	15	203	77	-	-	5	260	152
	Cataract	**422**	**168**	**253**	1	1	11	73	82	1	1	10	100	142
	Refraction errors	**3,129**	**1,328**	**1,801**	57	150	186	427	508	55	150	190	452	954
	Age-related macular degeneration	**2,643**	**918**	**1,725**	-	-	-	144	773	-	-	-	122	1,603
	Other causes of vision loss	**2,819**	**1,234**	**1,586**	36	34	191	546	427	35	33	195	576	747
	Hearing loss	**17,081**	**9,941**	**7,141**	-	187	924	5,361	3,468	-	164	1,195	3,017	2,766
	Other nervous system and sense organ disorders	**4,023**	**1,833**	**2,190**	143	281	202	668	538	135	228	494	618	715
Cardiovascular diseases	Rheumatic heart disease	**388**	**158**	**229**	-	5	19	69	66	-	11	30	74	115
	Ischaemic heart disease	**7,377**	**3,900**	**3,477**	-	23	455	1,691	1,731	-	22	219	1,034	2,203
	Stroke	**15,916**	**6,701**	**9,215**	69	180	1,076	2,808	2,569	-	446	1,679	3,393	3,697

Appendix table 6 (continued) Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Cardiovascular diseases (continued)	Inflammatory heart disease	**919**	**593**	**327**	1	31	121	279	161	16	32	51	101	127
	Hypertensive heart disease	**167**	**90**	**77**	0	5	12	45	28	-	-	4	26	47
	Non-rheumatic valvular disease	**603**	**356**	**247**	1	11	62	172	110	8	18	31	77	112
	Aortic aneurysm	**58**	**43**	**15**	-	1	4	23	15	-	-	1	6	8
	Peripheral vascular disease	**1,184**	**731**	**452**	3	31	203	395	100	-	-	92	249	111
	Other cardiovascular disease	**1,675**	**598**	**1,076**	-	61	63	127	347	-	26	81	152	818
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**9,037**	**5,319**	**3,718**	-	230	1,125	2,749	1,214	-	122	825	1,421	1,349
	Asthma	**17,665**	**7,711**	**9,954**	1,792	2,740	1,904	1,012	263	1,784	3,137	2,851	1,565	616
	Other chronic respiratory diseases	**13,675**	**6,171**	**7,504**	5	221	506	1,924	3,514	-	56	895	2,081	4,472
Digestive disorders	Peptic ulcer disease	**675**	**342**	**333**	-	64	151	124	3	-	7	237	45	45
	Cirrhosis of the liver	**995**	**666**	**329**	-	71	153	280	162	-	74	131	94	30
	Appendicitis	**114**	**57**	**57**	15	26	11	4	1	11	28	13	4	1
	Intestinal obstruction	**458**	**164**	**295**	5	8	29	63	58	3	9	50	130	104
	Diverticulitis	**340**	**135**	**205**	-	4	18	75	38	-	-	22	89	93
	Gallbladder and bile duct disease	**298**	**82**	**216**	-	7	29	34	11	1	50	86	65	15
	Pancreatitis	**55**	**30**	**25**	-	4	12	9	4	-	5	7	8	6
	Inflammatory bowel disease	**5,244**	**2,234**	**3,010**	198	1,196	652	177	11	250	1,788	752	200	20
	Vascular insufficiency bowel	**100**	**38**	**62**	-	-	8	17	12	-	-	10	25	27
	Other digestive diseases	**2,127**	**782**	**1,344**	-	24	110	316	332	-	-	75	428	841
Genitourinary disorders	Nephritis and nephrosis	**866**	**556**	**311**	34	87	156	215	65	22	62	95	91	41
	Benign prostatic hypertrophy	**3,861**	**3,861**	**-**	-	2	183	2,101	1,576	-	-	-	-	-
	Incontinence	**4,486**	**1,312**	**3,174**	-	-	169	642	501	-	284	914	1,112	864
	Infertility	**4,461**	**1,762**	**2,698**	-	1,113	649	-	-	-	1,661	1,038	-	-
	Other genitourinary diseases	**6,582**	**934**	**5,648**	-	33	58	190	652	1	54	420	1,032	4,141

Appendix table 6 (continued) Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Skin diseases	Eczema	**724**	**318**	**406**	85	85	88	47	13	109	169	98	26	4
	Skin diseases	**1,771**	**795**	**976**	89	308	204	144	51	127	339	272	165	72
Musculoskeletal diseases	Rheumatoid arthritis	**4,279**	**1,185**	**3,094**	-	12	267	619	286	-	44	789	1,485	776
	Osteoarthritis	**9,708**	**4,339**	**5,369**	-	21	667	2,064	1,587	-	3	388	2,118	2,860
	Chronic backpain	**1,118**	**578**	**540**	5	100	267	140	66	3	113	211	134	80
	Slipped disc	**790**	**456**	**334**	3	127	253	68	5	9	75	196	49	5
	Occupational overuse syndrome (RSI)	**940**	**31**	**909**	-	1	18	12	-	-	153	600	157	-
	Other musculoskeletal diseases	**973**	**595**	**378**	43	248	186	91	28	44	155	107	40	32
Congenital abnormalities	Spina bifida	**500**	**222**	**278**	49	70	61	33	8	56	85	77	44	16
	Congenital heart disease	**2,023**	**1,301**	**722**	1,209	43	28	21	-	582	72	44	24	-
	Cleft lip & palate	**100**	**66**	**35**	66	-	-	-	-	35	-	-	-	-
	Anorectal atresia	**12**	**7**	**5**	7	-	-	-	-	5	-	-	-	-
	Oesophageal atresia	**11**	**3**	**9**	3	-	-	-	-	9	-	-	-	-
	Other digestive congenital anomalies	**26**	**13**	**13**	13	-	-	-	-	13	-	-	-	-
	Renal agenesis	**23**	**15**	**8**	14	-	1	-	-	7	-	1	-	-
	Other urogenital congenital anomalies	**99**	**57**	**42**	4	4	27	21	1	5	3	20	13	1
	Abdominal wall defect	**53**	**28**	**25**	28	-	-	-	-	25	-	-	-	-
	Other congenital anomalies	**1,396**	**1,068**	**328**	869	73	74	46	5	212	46	41	23	5
Oral health	Caries	**8,385**	**4,096**	**4,288**	843	1,182	1,174	675	223	804	1,184	1,202	698	401
	Periodontal disease	**666**	**317**	**349**	-	34	128	118	38	-	35	131	123	60
	Edentulism	**1,175**	**336**	**839**	-	2	55	173	106	-	1	153	386	298
Ill-defined conditions	Chronic fatigue syndrome	**1,020**	**288**	**732**	-	73	183	32	-	-	261	413	59	-
Unintentional injuries	Road traffic accidents	**4,088**	**2,669**	**1,418**	209	1,751	610	87	13	102	886	367	49	14
	Other transport accidents	**1,602**	**1,177**	**425**	235	693	195	51	2	79	297	41	6	2
	Poisoning	**98**	**69**	**29**	30	25	10	3	1	8	12	5	2	1
	Falls	**4,408**	**2,500**	**1,908**	816	845	436	266	138	503	410	250	322	423
	Fires	**526**	**373**	**153**	210	85	61	15	1	56	46	40	5	6

Appendix table 6 (continued) Years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Unintentional injuries (continued)	Drowning	**2**	**1**	**1**	-	-	1	-	-	1	-	-	-	-
	Sports injuries	**273**	**217**	**55**	75	124	17	1	1	21	34	-	-	-
	Natural and environmental factors	**237**	**93**	**143**	36	15	36	6	1	77	50	13	2	1
	Machinery accidents	**962**	**865**	**97**	34	463	295	72	2	9	34	48	6	-
	Suffocation and foreign bodies	**3**	**3**	**-**	2	-	1	-	-	-	-	-	-	-
	Surgical/medical misadventure	**654**	**336**	**317**	80	79	78	97	2	81	125	53	45	13
	Adverse effects of drugs in therapeutic use	**592**	**555**	**37**	1	177	344	21	12	1	7	5	9	15
	Cutting and piercing accidents	**560**	**415**	**144**	52	284	64	14	1	25	77	30	12	1
	Striking and crushing accidents	**1,507**	**1,051**	**457**	464	300	222	62	2	230	144	71	8	4
	Other unintentional injuries	**3,365**	**2,553**	**812**	415	1,294	596	222	26	272	168	231	102	39
Intentional injuries	Self-inflicted injuries	**91**	**45**	**46**	-	28	15	2	-	1	26	16	3	-
	Homicide and violence	**1,415**	**1,122**	**293**	27	871	209	14	1	32	197	58	6	-
	Other intentional injuries	**8**	**7**	**1**	-	6	1	-	-	-1	-	-	-	
	Total	**399,944**	**201,517**	**198,428**	**17,245**	**39,495**	**47,444**	**55,299**	**42,033**	**9,521**	**33,971**	**48,995**	**50,463**	**55,478**
	Proportion of total (%)	**100**	**100**	**100**	**9**	**20**	**24**	**27**	**21**	**5**	**17**	**25**	**25**	**28**
	Communicable, maternal neonatal and nutritional conditions	**15,891**	**7,443**	**8,448**	1,757	1,903	2,062	1,267	454	1,523	2,798	2,158	1,040	928
	Non-communicable diseases	**363,663**	**180,021**	**183,642**	12,804	30,550	42,192	53,099	41,376	6,500	28,659	45,609	48,845	54,029
	Injuries	**20,390**	**14,053**	**6,337**	2,685	7,043	3,191	933	202	1,498	2,514	1,229	577	520

Summary of years lived with disability (prevalent YLDs), by age, sex and cause, Victoria, 2001

				Males, by age group (years)					Females, by age group (years)				
Broad diseas group	Persons	Males	Females	0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infections and parasitic diseases	4,987	2,611	2,376	215	616	932	530	317	166	766	533	386	525
Respiratory Infections	3,582	1,717	1,865	595	441	320	291	69	498	583	396	210	179
Maternal conditions	400	-	400	-	-	-	-	-	-	293	99	8	-
Neonatal conditions	5,090	2,599	2,491	675	778	743	353	50	581	734	726	365	84
Nutritional disorders	1,833	516	1,316	272	67	66	92	19	278	423	404	71	140
Cancer	33,702	17,785	15,917	82	332	1,442	7,576	8,354	36	295	2,936	7,566	5,083
Other neoplasms	512	215	297	3	21	45	80	67	13	33	99	76	77
Diabetes mellitus	17,861	9,208	8,653	43	204	2,201	5,011	1,750	39	180	1,871	3,540	3,022
Other endocrine and metabolic disorders	14,148	12,287	1,861	4,280	2,774	2,982	1,706	546	109	188	392	649	523
Mental disorders	104,184	51,830	52,354	2,529	17,585	21,556	8,132	2,029	1,841	16,417	22,105	9,580	2,411
Neurological and sense disorders	58,138	27,254	30,884	416	1,074	2,344	10,750	12,669	320	917	2,856	8,390	18,401
Cardiovascular diseases	28,287	13,171	15,115	74	347	2,016	5,609	5,126	24	554	2,186	5,112	7,239
Chronic respiratory diseases	40,377	19,201	21,176	1,797	3,191	3,535	5,686	4,991	1,784	3,316	4,571	5,067	6,438
Digestive disorders	10,407	4,531	5,876	218	1,403	1,175	1,101	634	265	1,961	1,382	1,088	1,180
Genitourinary disorders	20,256	8,425	11,832	34	1,235	1,214	3,148	2,794	24	2,060	2,467	2,234	5,046
Skin diseases	2,495	1,113	1,382	174	393	292	191	64	236	509	370	191	77
Musculoskeletal diseases	17,808	7,183	10,625	51	509	1,658	2,993	1,972	57	542	2,292	3,982	3,753
Congenital abnormalities	4,243	2,779	1,464	2,262	190	192	121	14	949	207	183	104	22
Oral health	10,226	4,750	5,476	843	1,218	1,358	965	366	804	1,220	1,486	1,207	760
Unintentional injuries	18,876	12,879	5,997	2,657	6,138	2,967	917	201	1,466	2,289	1,155	568	519
Intentional injuries	1,514	1,174	340	28	905	224	16	1	32	224	74	9	1
Miscellaneous	1,020	288	732	-	73	183	32	-	-	261	413	59	-
Total	**399,944**	**201,517**	**198,428**	**17,245**	**39,495**	**47,444**	**55,299**	**42,033**	**9,521**	**33,971**	**48,995**	**50,463**	**55,478**

Appendix table 7 Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**195**	**118**	**77**	1	6	25	56	29	1	10	6	22	39
	Syphilis	**21**	**21**	**-**	-	-	21	-	-	-	-	-	-	-
	Chlamydia	**520**	**3**	**517**	-	2	1	-	-	4	344	149	15	4
	Gonorrhoea	**10**	**1**	**9**	-	1	-	-	-	-	6	3	-	-
	STDs (other)	**344**	**-**	**344**	-	-	-	-	-	3	223	97	10	12
	HIV/AIDS	**1,170**	**1,011**	**159**	-	248	693	71	-	31	57	53	19	-
	Diarrhoea	**608**	**289**	**320**	112	62	37	55	22	90	87	65	41	36
	Tetanus	**8**	**8**	**-**	-	-	-	-	8	-	-	-	-	-
	Poliomyelitis	**31**	**19**	**11**	-	-	-	-	19	-	-	-	11	-
	Vaccine preventable cluster	**22**	**10**	**12**	7	1	1	1	-	7	1	2	1	-
	Meningitis	**756**	**392**	**363**	228	47	99	5	14	231	80	8	39	6
	Septicaemia	**2,051**	**886**	**1,165**	36	62	43	344	401	66	66	83	290	660
	Arbovirus Infections	**33**	**17**	**16**	-	5	8	3	-	-	4	9	3	-
	Hepatitis A	**13**	**6**	**7**	-	3	2	1	-	-	1	1	-	5
	Hepatitis B	**357**	**248**	**109**	6	6	143	82	10	4	6	40	42	17
	Hepatitis C	**468**	**320**	**148**	6	15	167	117	14	3	15	53	55	21
	Other hepatitis	**17**	**17**	**-**	-	-	-	17	-	-	-	-	-	-
	Malaria	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Other infectious and parasitic diseases	**984**	**443**	**541**	-	42	201	136	64	115	51	89	78	207
Acute respiratory infections	Lower respiratory tract infections: pneumonia	**3,920**	**1,750**	**2,170**	70	27	147	510	995	45	96	152	357	1,521
	Lower respiratory tract infections: other	**695**	**335**	**359**	56	74	97	75	34	72	81	86	74	45
	Upper respiratory tract infections	**939**	**443**	**495**	149	140	99	40	15	168	167	99	45	16
	Otitis media	**1,634**	**772**	**862**	367	175	75	138	16	314	263	144	61	80
Maternal conditions	Maternal haemorrhage	**52**	**-**	**52**	-	-	-	-	-	-	21	31	-	-
	Maternal sepsis	**26**	**-**	**26**	-	-	-	-	-	-	24	2	-	-
	Hypertension in pregnancy	**138**	**-**	**138**	-	-	-	-	-	-	109	29	-	-
	Obstructed labour	**34**	**-**	**34**	-	-	-	-	-	-	28	6	-	-
	Abortion	**11**	**-**	**11**	-	-	-	-	-	-	10	1	-	-
	Other maternal conditions	**136**	**-**	**136**	-	-	-	-	-	-	100	36	-	-

Appendix table 7 (continued) Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Neonatal conditions	Birth trauma and asphyxia	**2,015**	**1,211**	**805**	1,211	-	-	-	-	805	-	-	-	-
	Low birth weight	**3,168**	**1,635**	**1,532**	1,635	-	-	-	-	1,532	-	-	-	-
	Neonatal infections	**709**	**428**	**281**	428	-	-	-	-	281	-	-	-	-
	Other conditions arising in the perinatal period	**1,730**	**1,023**	**707**	1,023	-	-	-	-	707	-	-	-	-
Nutritional disorders	Protein-energy malnutrition	**179**	**95**	**84**	-	-	-	32	63	-	-	22	23	39
	Deficiency anaemia	**1,765**	**533**	**1,232**	268	66	65	59	74	274	417	398	70	74
	Other nutritional deficiencies	**161**	**41**	**120**	-	-	-	41	-	-	-	-	-	120
Malignant neoplasia	Mouth and oropharynx cancers	**3,560**	**2,448**	**1,112**	-	48	818	1,281	302	-	20	339	441	312
	Oesophagus cancer	**3,481**	**2,395**	**1,087**	-	-	444	1,423	528	-	2	150	483	452
	Stomach cancer	**4,296**	**2,533**	**1,762**	1	6	574	1,401	551	-	28	528	638	567
	Bowel cancer	**18,528**	**10,039**	**8,489**	-	50	1,691	5,548	2,749	-	186	1,514	3,928	2,861
	Liver cancer	**2,797**	**1,945**	**852**	1	55	609	958	321	1	59	136	347	310
	Gallbladder cancer	**1,107**	**422**	**684**	-	-	91	218	113	-	-	78	383	223
	Pancreas cancer	**5,747**	**3,030**	**2,716**	-	29	533	1,864	604	-	28	370	1,055	1,263
	Lung cancer	**23,065**	**14,240**	**8,824**	1	58	1,660	9,299	3,223	-	-	1,327	5,037	2,460
	Bone and connective tissue cancer	**1,560**	**665**	**895**	7	222	144	251	40	129	148	169	299	150
	Melanoma	**4,015**	**2,628**	**1,386**	1	271	770	1,109	477	-	124	463	436	364
	Non-melanoma skin cancers	**1,273**	**885**	**388**	-	1	95	539	250	-	1	51	151	184
	Breast cancer	**16,266**	**85**	**16,182**	-	-	47	13	24	-	429	6,422	6,610	2,721
	Cervix cancer	**1,206**	**-**	**1,206**	-	-	-	-	-	-	150	365	413	278
	Corpus uteri cancer	**1,605**	**-**	**1,605**	-	-	-	-	-	-	40	440	794	330
	Ovary cancer	**3,626**	**-**	**3,626**	-	-	-	-	-	6	234	739	1,734	913
	Prostate cancer	**11,362**	**11,362**	**-**	-	-	570	6,142	4,651	-	-	-	-	-
	Testis cancer	**128**	**128**	**-**	1	77	43	3	4	-	-	-	-	-
	Bladder cancer	**3,166**	**2,290**	**876**	-	12	139	1,296	843	-	4	112	274	485
	Kidney cancer	**3,292**	**1,954**	**1,338**	32	28	474	947	474	38	7	163	599	532
	Brain cancer	**5,059**	**2,907**	**2,152**	259	233	1,087	1,050	278	36	162	672	965	318
	Thyroid cancer	**525**	**135**	**390**	-	8	26	69	32	1	39	175	143	33
	Lymphoma	**6,107**	**3,153**	**2,954**	16	247	525	1,602	763	7	106	611	1,282	948

Appendix table 7 (continued) Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Multiple myeloma	**2,172**	**1,261**	**911**	-	-	216	636	410	-	27	78	391	414
	Leukaemia	**4,583**	**2,538**	**2,046**	215	108	286	1,251	678	97	184	377	760	628
	Larynx cancer	**1,097**	**954**	**143**	-	-	216	578	160	-	-	33	58	51
	Eye cancer	**163**	**106**	**57**	23	8	23	35	16	8	5	19	15	9
	Other malignant neoplasia	**5,368**	**3,037**	**2,331**	35	118	767	1,442	675	50	114	330	1,013	824
Benign neoplasia	Uterine myoma	**144**	**-**	**144**	-	-	-	-	-	-	9	86	44	5
	Benign brain tumour	**446**	**106**	**340**	2	10	24	53	18	3	41	75	111	110
	Other neoplasia	**1,929**	**1,040**	**889**	35	90	161	305	450	104	31	97	229	427
Diabetes mellitus	Type 1	**2,309**	**1,185**	**1,125**	174	289	243	268	211	168	217	296	254	189
	Type 2	**26,874**	**14,130**	**12,743**	1	208	5,207	6,748	1,967	1	164	3,884	5,564	3,131
Endocrine and metabolic disorders	Haemolytic anaemia	**174**	**100**	**74**	65	27	-	-	8	30	27	-	-	17
	Other non-deficiency anaemia	**312**	**127**	**185**	5	6	11	52	53	4	19	18	49	96
	Cystic fibrosis	**612**	**327**	**285**	160	111	47	-	9	192	86	-	-	7
	Haemophilia	**18**	**14**	**3**	14	-	-	-	-	-	-	-	-	3
	Other endocrine and metabolic disorders	**7,127**	**4,359**	**2,769**	511	342	900	1,791	815	162	94	311	1,117	1,085
Mental disorders	Alcohol dependence and harmful use	**4,632**	**3,691**	**941**	7	1,901	1,236	464	82	4	607	264	67	-
	Heroin or polydrug use and dependence	**4,683**	**3,591**	**1,091**	29	2,981	559	12	9	-	897	180	15	-
	Benzodiazepine dependence and harmful use	**857**	**368**	**489**	-	188	166	14	-	-	203	260	26	-
	Cannabis dependence and harmful use	**2,324**	**1,808**	**515**	-	1,683	126	-	-	5	469	41	-	-
	Stimulant dependence	**66**	**13**	**53**	-	13	-	-	-	-	42	12	-	-
	Other drug dependence and harmful use	**515**	**302**	**214**	-	212	89	-	-	-	139	75	-	-
	Psychoses	**7,295**	**4,040**	**3,256**	-	3,917	88	29	6	11	1,959	1,200	74	11
	Depression	**31,273**	**13,927**	**17,346**	341	5,094	6,279	2,068	144	379	5,962	7,996	2,719	291
	Bipolar affective disorder	**3,676**	**1,746**	**1,930**	-	1,703	25	17	1	13	1,546	346	17	8
	Panic disorder	**1,591**	**295**	**1,295**	1	157	116	21	1	33	727	471	63	2
	Agoraphobia	**2,110**	**605**	**1,505**	27	406	154	17	1	39	950	475	40	1
	Social phobia	**5,430**	**2,460**	**2,970**	314	1,661	390	90	5	463	2,098	388	18	2
	Generalised anxiety disorder	**12,325**	**3,943**	**8,382**	183	1,861	1,587	288	24	197	3,180	3,870	1,026	109
	Obsessive compulsive disorder	**985**	**412**	**572**	2	223	160	26	1	2	309	197	55	9

Appendix table 7 (continued) Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Mental disorders (continued)	Post-traumatic stress disorder	**3,135**	**1,758**	**1,377**	105	1,379	230	39	4	78	985	298	15	1
	Separation anxiety disorder	**199**	**52**	**147**	52	-	-	-	-	147	-	-	-	-
	Borderline personality disorder	**7,333**	**3,530**	**3,803**	-	1,959	1,314	240	17	31	2,522	1,002	213	35
	Anorexia nervosa	**416**	**62**	**354**	-	62	-	-	-	155	199	-	-	-
	Bulimia nervosa	**595**	**-**	**595**	-	-	-	-	-	19	573	-	-	3
	Attention deficit hyperactivity disorder	**1,838**	**1,173**	**665**	1,150	23	-	-	-	655	10	-	-	-
	Autism	**2,441**	**2,196**	**245**	2,196	-	-	-	-	245	-	-	-	-
	Other mental disorders	**698**	**418**	**280**	-	-	145	102	170	-	-	-	222	59
Neurological and sense disorders	Alzheimer's and other dementias	**28,276**	**10,629**	**17,647**	60	19	241	3,444	6,866	-	64	145	3,781	13,656
	Epilepsy	**3,878**	**2,237**	**1,641**	785	555	648	188	62	500	392	376	237	136
	Parkinson's disease	**6,203**	**3,393**	**2,810**	-	-	126	1,693	1,575	-	5	163	1,297	1,345
	Multiple sclerosis	**1,738**	**663**	**1,076**	14	257	286	100	6	27	296	474	256	22
	Motor-neuron disease	**1,504**	**708**	**796**	-	-	220	323	165	-	-	134	484	177
	Huntington's disease	**349**	**147**	**202**	-	27	58	33	28	-	27	80	72	23
	Muscular dystrophy	**275**	**200**	**75**	49	110	21	15	6	-	-	24	33	19
	Glaucoma	**1,285**	**503**	**783**	-	-	17	305	180	-	-	6	416	361
	Cataract	**432**	**150**	**282**	1	1	9	56	83	1	1	8	78	195
	Refraction errors	**3,476**	**1,451**	**2,025**	83	139	204	492	532	80	140	210	539	1,056
	Age-related macular degeneration	**3,062**	**1,095**	**1,967**	-	-	-	309	786	-	-	-	391	1,576
	Other causes of vision loss	**3,044**	**1,326**	**1,718**	35	24	252	614	400	33	24	264	674	722
	Hearing loss	**14,370**	**9,082**	**5,288**	-	397	2,557	4,940	1,189	-	417	1,235	2,916	721
	Other nervous system and sense organ disorders	**7,259**	**3,204**	**4,054**	533	582	455	1,050	584	772	548	723	1,132	879
Cardiovascular diseases	Rheumatic heart disease	**1,069**	**370**	**698**	-	7	73	206	84	5	41	100	308	245
	Ischaemic heart disease	**60,791**	**35,233**	**25,557**	-	347	5,721	15,367	13,798	-	43	1,283	7,085	17,146
	Stroke	**33,810**	**14,713**	**19,096**	83	494	2,431	6,702	5,002	10	839	2,219	6,856	9,172
	Inflammatory heart disease	**4,093**	**2,465**	**1,627**	33	182	568	1,103	580	154	56	170	637	611
	Hypertensive heart disease	**2,846**	**1,296**	**1,550**	-	16	164	539	577	4	7	123	271	1,145

Appendix table 7 (continued) Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Cardiovascular diseases (continued)	Non-rheumatic valvular disease	**2,174**	**1,130**	**1,045**	1	45	126	467	490	44	14	36	312	639
	Aortic aneurysm	**2,524**	**1,591**	**933**	-	54	190	708	640	-	-	88	298	546
	Peripheral vascular disease	**2,422**	**1,313**	**1,109**	3	27	217	539	526	4	32	195	293	585
	Other cardiovascular disease	**5,325**	**2,277**	**3,048**	-	317	378	701	881	-	157	353	760	1,779
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**20,311**	**11,680**	**8,631**	61	606	1,768	5,282	3,964	62	407	1,334	3,730	3,099
	Asthma	**16,854**	**7,748**	**9,106**	5,699	756	532	571	191	4,662	2,542	705	875	322
	Other chronic respiratory diseases	**10,584**	**5,088**	**5,496**	78	204	419	2,076	2,312	-	90	592	1,857	2,958
Digestive disorders	Peptic ulcer disease	**1,590**	**788**	**802**	-	48	169	288	282	-	6	226	162	409
	Cirrhosis of the liver	**3,672**	**2,492**	**1,180**	30	8	1,050	1,075	329	-	13	518	368	280
	Appendicitis	**163**	**101**	**62**	15	26	36	4	20	11	28	13	4	6
	Intestinal obstruction	**1,056**	**431**	**626**	5	8	71	144	203	15	42	80	138	350
	Diverticulitis	**568**	**211**	**356**	-	2	37	62	110	-	-	15	108	233
	Gallbladder and bile duct disease	**678**	**232**	**446**	-	7	29	96	99	1	50	86	146	164
	Pancreatitis	**485**	**271**	**215**	-	4	72	101	94	-	5	29	61	120
	Inflammatory bowel disease	**2,857**	**1,241**	**1,616**	85	594	393	146	23	101	840	471	173	31
	Vascular insufficiency bowel	**880**	**424**	**457**	-	-	1	243	179	-	-	7	131	318
	Other digestive diseases	**2,631**	**1,102**	**1,529**	-	39	225	520	319	-	-	114	562	852
Genitourinary disorders	Nephritis and nephrosis	**5,260**	**2,582**	**2,678**	30	103	269	793	1,388	21	53	242	492	1,869
	Benign prostatic hypertrophy	**3,401**	**3,401**	**-**	-	1	285	2,260	856	-	-	-	-	-
	Incontinence	**2,792**	**759**	**2,034**	-	1	358	327	72	10	968	852	126	77
	Infertility	**4,176**	**1,640**	**2,535**	-	1,088	552	-	-	-	1,638	897	-	-
	Other genitourinary diseases	**2,982**	**1,081**	**1,900**	-	52	130	326	573	3	73	470	296	1,059
Skin diseases	Eczema	**641**	**281**	**360**	67	82	84	39	9	112	148	77	21	2
	Skin diseases	**2,040**	**919**	**1,121**	86	314	226	180	113	143	348	259	194	177

Appendix table 7 (continued) Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Musculoskeletal diseases	Rheumatoid arthritis	**4,754**	**1,311**	**3,443**	-	51	506	589	165	-	180	1,494	1,325	443
	Osteoarthritis	**10,882**	**4,847**	**6,036**	-	90	1,376	2,538	843	-	12	907	3,331	1,786
	Chronic back pain	**1,166**	**586**	**581**	5	100	267	139	74	3	113	211	134	120
	Slipped disc	**578**	**334**	**244**	2	83	185	58	5	5	49	144	42	4
	Occupational overuse syndrome (RSI)	**855**	**37**	**818**	-	3	24	10	-	3	83	601	130	1
	Other musculoskeletal diseases	**2,413**	**1,040**	**1,373**	56	264	254	314	152	55	288	197	374	459
Congenital abnormalities	Anencephaly	**61**	**61**	**-**	61	-	-	-	-	-	-	-	-	-
	Spina bifida	**405**	**220**	**185**	194	27	-	-	-	185	-	-	-	-
	Congenital heart disease	**2,164**	**1,319**	**845**	1,128	54	133	-	4	602	167	50	11	14
	Cleft lip & palate	**69**	**25**	**44**	25	-	-	-	-	44	-	-	-	-
	Anorectal atresia	**9**	**5**	**3**	5	-	-	-	-	3	-	-	-	-
	Oesophageal atresia	**38**	**2**	**37**	2	-	-	-	-	37	-	-	-	-
	Other digestive congenital anomalies	**118**	**13**	**105**	13	-	-	-	-	105	-	-	-	-
	Renal agenesis	**208**	**148**	**61**	116	-	24	-	8	61	-	-	-	-
	Other urogenital congenital anomalies	**516**	**407**	**109**	373	27	-	-	8	109	-	-	-	-
	Abdominal wall defect	**88**	**14**	**74**	14	-	-	-	-	74	-	-	-	-
	Down syndrome	**2,229**	**1,057**	**1,172**	908	27	66	57	-	1,011	27	47	86	-
	Other chromosomal disorders	**2,070**	**1,204**	**867**	1,204	-	-	-	-	867	-	-	-	-
	Other congenital anomalies	**3,436**	**2,315**	**1,120**	2,265	26	24	-	-	1,063	58	-	-	-
Oral health	Caries	**8,192**	**4,002**	**4,190**	823	1,155	1,147	659	218	785	1,156	1,174	682	392
	Periodontal disease	**657**	**313**	**344**	-	33	126	116	37	-	34	129	121	59
	Edentulism	**574**	**168**	**406**	-	14	76	70	8	-	17	238	122	30
	Other oral conditions	**31**	**16**	**15**	-	-	-	10	6	-	-	-	-	15
Ill-defined conditions	SIDS	**459**	**335**	**123**	335	-	-	-	-	123	-	-	-	-
	Chronic fatigue syndrome	**1,000**	**277**	**723**	-	70	176	31	-	-	251	398	57	17

Appendix table 7 (continued) Disability-adjusted life years (DALYs) by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Unintentional injuries	Road traffic accidents	**11,503**	**8,329**	**3,174**	391	5,019	2,047	713	158	222	1,450	749	543	210
	Other transport accidents	**2,141**	**1,773**	**367**	134	949	493	171	26	94	143	71	42	17
	Poisoning	**1,110**	**462**	**647**	16	249	108	74	16	6	160	387	81	13
	Falls	**4,889**	**2,522**	**2,366**	448	690	402	487	495	321	232	184	484	1,144
	Fires	**570**	**447**	**123**	93	155	144	48	7	26	26	50	16	6
	Drowning	**962**	**812**	**150**	178	245	316	57	16	92	27	2	29	-
	Sports injuries	**151**	**126**	**25**	32	64	10	18	1	9	16	-	-	-
	Natural and environmental factors	**282**	**162**	**121**	44	9	71	29	8	62	24	8	25	1
	Machinery accidents	**624**	**570**	**54**	14	256	244	55	2	4	17	29	4	-
	Suffocation and foreign bodies	**450**	**288**	**162**	65	110	51	42	20	30	53	44	-	35
	Surgical/medical misadventure	**489**	**235**	**254**	32	41	46	93	23	31	59	30	56	78
	Adverse effects of drugs in therapeutic use	**413**	**324**	**89**	-	93	203	17	11	-	4	51	19	14
	Cutting and piercing accidents	**311**	**230**	**81**	25	149	43	11	1	12	39	20	10	1
	Striking and crushing accidents	**1,131**	**845**	**286**	303	242	213	80	6	131	78	46	18	13
	Other unintentional injuries	**2,414**	**1,786**	**627**	227	781	469	235	74	124	131	173	96	103
Intentional injuries	Self-inflicted injuries	**12,475**	**9,346**	**3,129**	29	4,612	3,561	977	166	30	1,428	1,307	317	47
	Homicide and violence	**1,962**	**1,416**	**545**	105	783	407	102	19	13	284	190	51	7
	Other intentional injuries	**33**	**32**	**1**	-	31	1	-	-	-	1	-	-	-
	Total	**653,141**	**338,409**	**314,732**	**29,072**	**53,113**	**67,917**	**115,613**	**72,694**	**21,381**	**45,359**	**63,491**	**88,223**	**96,247**
	Proportion of total (%)	**100**	**100**	**100**	**9**	**16**	**20**	**34**	**21**	**7**	**14**	**20**	**28**	**31**
	Communicable, maternal neonatal and nutritional conditions	**24,920**	**12,077**	**12,843**	5,604	984	1,925	1,785	1,779	4,753	2,268	1,663	1,258	2,901
	Non-communicable diseases	**586,312**	**296,626**	**289,686**	21,330	37,650	57,163	110,618	69,865	15,422	38,948	58,488	85,171	91,656
	Injuries	**41,910**	**29,707**	**12,203**	2,138	14,479	8,830	3,210	1,050	1,207	4,173	3,340	1,794	1,690

Summary table of disability-adjusted life years (DALYs), by age, sex and cause, Victoria, 2001

				Males, by age group (years)					Females, by age group (years)				
Broad disease group	Persons	Males	Females	0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infections and parasitic diseases	7,608	3,811	3,797	398	502	1,441	888	582	555	951	657	627	1,007
Respiratory Infections	7,187	3,300	3,887	642	416	418	764	1,060	599	608	481	538	1,662
Maternal conditions	397	-	397	-	-	-	-	-	-	292	105	-	-
Neonatal conditions	7,622	4,297	3,325	4,297	-	-	-	-	3,325	-	-	-	-
Nutritional disorders	2,105	669	1,436	268	66	65	133	137	274	417	420	93	232
Cancer	135,152	71,141	64,011	592	1,581	11,849	38,954	18,165	373	2,098	15,660	28,248	17,632
Other neoplasms	2,519	1,146	1,372	37	99	185	358	468	107	80	258	385	542
Diabetes mellitus	29,183	15,315	13,868	175	496	5,450	7,017	2,177	169	381	4,180	5,818	3,320
Other endocrine and metabolic disorders	8,243	4,927	3,316	755	486	958	1,843	885	387	227	330	1,165	1,208
Mental disorders	94,417	46,390	48,027	4,408	25,421	12,665	3,429	467	2,477	23,376	17,074	4,570	530
Neurological and sense disorders	75,153	34,790	40,363	1,560	2,112	5,094	13,564	12,460	1,414	1,914	3,841	12,306	20,887
Cardiovascular diseases	115,053	60,389	54,664	121	1,488	9,869	26,332	22,579	220	1,188	4,567	16,821	31,868
Chronic respiratory diseases	47,749	24,516	23,233	5,838	1,565	2,718	7,929	6,466	4,723	3,038	2,631	6,462	6,379
Digestive disorders	14,581	7,293	7,288	135	736	2,084	2,678	1,659	129	984	1,559	1,854	2,763
Genitourinary disorders	18,611	9,464	9,147	30	1,246	1,594	3,706	2,889	34	2,732	2,461	914	3,006
Skin diseases	2,681	1,200	1,481	152	397	310	219	122	255	496	336	214	180
Musculoskeletal diseases	20,648	8,154	12,494	63	592	2,613	3,648	1,239	66	724	3,555	5,335	2,814
Congenital abnormalities	11,411	6,791	4,620	6,307	159	248	57	20	4,160	252	97	97	14
Oral health	9,453	4,498	4,955	823	1,202	1,349	855	269	785	1,207	1,541	925	496
Unintentional injuries	27,440	18,912	8,528	2,003	9,053	4,861	2,130	865	1,164	2,460	1,843	1,425	1,635
Intentional injuries	14,470	10,795	3,675	135	5,426	3,969	1,079	185	43	1,712	1,497	368	55
Miscellaneous	1,459	613	846	335	70	176	31	-	123	251	398	57	17
Total	**653,141**	**338,409**	**314,732**	**29,072**	**53,113**	**67,917**	**115,613**	**72,694**	**21,381**	**45,389**	**63,491**	**88,223**	**96,247**

Appendix table 8 Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**303**	**145**	**158**	8	43	41	31	22	6	68	39	24	21
	Syphilis	**16**	**8**	**8**	-	3	3	2	-	-	6	2	-	-
	Chlamydia	**12,579**	**1,686**	**10,892**	5	1,255	389	35	2	43	5,633	4,232	783	201
	Gonorrhoea	**912**	**711**	**201**	-	438	246	26	1	1	94	86	17	3
	STDs (other)	**5,504**	**-**	**5,504**	-	-	-	-	-	19	2,250	2,604	503	128
	HIV/AIDS	**143**	**129**	**14**	-	53	72	4	-	-	7	7	-	-
	Diarrhoea	**968,644**	**479,394**	**489,250**	177,150	124,080	72,078	63,841	42,244	136,751	174,108	87,607	79,122	11,662
	Tetanus	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Poliomyelitis	**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-
	Vaccine preventable cluster	**987**	**468**	**519**	166	138	106	46	12	175	135	144	53	12
	Meningitis	**921**	**488**	**432**	222	128	85	49	4	153	137	73	45	24
	Septicaemia	**3,147**	**1,678**	**1,469**	78	112	290	652	546	59	109	241	457	603
	Arbovirus Infections	**398**	**204**	**194**	2	65	90	41	6	4	47	104	33	6
	Hepatitis A	**510**	**370**	**140**	40	200	100	25	5	10	55	40	20	15
	Hepatitis B	**227**	**146**	**81**	15	102	24	5	-	15	54	10	2	-
	Hepatitis C	**4,619**	**2,868**	**1,751**	55	1,242	1,297	226	48	12	869	719	114	37
Acute respiratory infections	Lower respiratory tract infections: pneumonia	**28,710**	**15,366**	**13,344**	5,561	1,906	3,411	2,804	1,683	1,988	2,916	2,877	1,933	3,630
	Lower respiratory tract infections: other	**493,804**	**242,958**	**250,846**	51,566	62,770	64,042	50,656	13,923	34,030	69,584	73,676	51,221	22,336
	Upper respiratory tract infections	**8,527,336**	**4,136,961**	**4,390,375**	1,272,520	1,299,529	1,080,814	405,395	78,702	1,305,979	1,478,705	1,037,048	426,071	142,571
	Otitis media	**229,695**	**122,708**	**106,987**	85,502	22,239	10,537	3,223	1,206	64,055	18,735	12,458	8,316	3,423
Maternal conditions	Maternal haemorrhage	**8,157**	**-**	**8,157**	-	-	-	-	-	2	6,546	1,609	-	-
	Maternal sepsis	**422**	**-**	**422**	-	-	-	-	-	-	352	70	-	-
	Hypertension in pregnancy	**3,363**	**-**	**6,363**	-	-	-	-	-	3	5,004	1,356	-	-
	Obstructed labour	**2,553**	**-**	**2,553**	-	-	-	-	-	-	2,075	478	-	-
	Abortion	**16,809**	**-**	**16,809**	-	-	-	-	-	32	13,448	3,329	-	-
	Other maternal conditions	**10,156**	**-**	**10,156**	-	-	-	-	-	-	7,455	2,701	-	
Neonatal conditions	Birth trauma and asphyxia	**114**	**68**	**46**	68	-	-	-	-	46	-	-	-	-
	Low birth weight	**272**	**132**	**139**	132	-	-	-	-	139	-	-	-	-

Appendix table 8 (continued) Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Neonatal conditions (continued)	Neonatal infections	**2,346**	**1,360**	**987**	1,360	-	-	-	-	987	-	-	-	-
	Other conditions arising in the perinatal period	**39**	**20**	**20**	20	-	-	-	-	20	-	-	-	-
Nutritional disorders	Deficiency anaemia	**196,016**	**68,587**	**127,428**	32,714	11,039	10,963	10,368	3,504	33,655	37,362	40,082	10,806	5,523
Malignant neoplasia	Mouth and oropharynx cancers	**635**	**433**	**202**	-	20	120	212	81	-	9	50	79	64
	Oesophagus cancer	**285**	**179**	**106**	-	-	31	82	66	-	1	8	35	62
	Stomach cancer	**542**	**335**	**207**	1	5	47	169	113	-	1	31	86	89
	Bowel cancer	**3,607**	**1,943**	**1,664**	-	15	211	1,015	702	-	16	193	687	767
	Liver cancer	**255**	**178**	**77**	2	1	34	88	53	1	2	7	29	38
	Gallbladder cancer	**148**	**67**	**81**	-	-	11	30	26	-	-	11	38	32
	Pancreas cancer	**549**	**269**	**280**	-	1	34	139	95	-	1	23	80	175
	Lung cancer	**2,148**	**1,371**	**777**	1	3	89	769	509	-	-	88	368	322
	Bone and connective tissue cancer	**69**	**34**	**35**	1	4	7	15	6	2	7	7	12	8
	Melanoma	**1,894**	**1,021**	**873**	1	82	278	411	249	2	105	295	300	172
	Non-melanoma skin cancers	**91,372**	**52,082**	**39,290**	-	563	11,317	27,893	12,309	-	691	11,985	16,014	10,601
	Breast cancer	**3,310**	**18**	**3,292**	-	1	3	9	5	-	68	1,151	1,429	644
	Cervix cancer[a]	**155**	**-**	**155**	-	-	-	-	-	-	25	52	41	37
	Corpus uteri cancer[a]	**415**	**-**	**415**	-	-	-	-	-	-	3	81	248	83
	Ovary cancer[a]	**396**	**-**	**396**	-	-	-	-	-	2	36	105	146	108
	Prostate cancer	**3,060**	**3,060**	**-**	-	-	163	1,712	1,185	-	-	-	-	-
	Testis cancer	**145**	**145**	**-**	1	89	50	4	1	-	-	-	-	-
	Bladder cancer	**1,010**	**768**	**242**	-	8	58	358	344	-	5	25	89	122
	Kidney cancer	**638**	**388**	**249**	2	-	82	193	112	7	6	52	95	89
	Brain cancer	**365**	**221**	**144**	15	25	53	87	40	16	16	23	52	36
	Thyroid cancer	**230**	**53**	**177**	-	14	17	14	7	-	42	76	46	13
	Lymphoma	**1,102**	**593**	**509**	14	46	128	249	156	6	44	122	186	151
	Multiple myeloma	**323**	**188**	**135**	-	-	30	80	79	-	-	8	52	74
	Leukaemia	**629**	**374**	**255**	32	20	39	137	146	26	20	38	73	98

Appendix table 8 (continued) Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Larynx cancer	**165**	**143**	**23**	-	-	23	88	31	-	-	4	10	8
	Eye cancer	**55**	**36**	**19**	5	2	6	14	9	2	1	5	5	5
Benign neoplasia	Uterine myoma	**49**	**-**	**49**	-	-	-	-	-	-	6	42	-	-
	Benign brain tumour	**482**	**185**	**298**	4	20	50	88	22	6	22	106	110	54
Diabetes mellitus	Type 1	**527**	**296**	**231**	87	101	55	39	14	77	70	41	30	13
	Type 2	**15,086**	**7,851**	**7,235**	-	94	3,348	3,941	467	-	94	2,351	3,305	1,485
Endocrine and metabolic disorders	Haemolytic anaemia	**39**	**27**	**12**	27	-	-	-	-	12	-	-	-	-
	Other non-deficiency anaemia	**3,102**	**1,508**	**1,594**	80	97	181	631	520	57	306	293	486	453
	Cystic fibrosis	**21**	**11**	**10**	11	-	-	-	-	10	-	-	-	-
	Haemophilia	**3**	**3**	**-**	3	-	-	-	-	-	-	-	-	-
Mental disorders	Alcohol dependence and harmful use	**22,857**	**16,118**	**6,739**	38	9,283	5,263	1,326	207	37	5,198	1,438	66	-
	Heroin or polydrug use and dependence	**698**	**518**	**180**	-	487	25	5	1	-	167	9	4	-
	Benzodiazepine dependence and harmful use	**3,703**	**1,951**	**1,751**	-	1,022	839	91	-	-	740	917	94	-
	Cannabis dependence and harmful use	**13,653**	**10,521**	**3,132**	-	9,666	855	-	-	32	2,838	262	-	-
	Stimulant dependence	**1,688**	**1,169**	**519**	-	1,151	18	-	-	-	408	110	-	-
	Psychoses	**793**	**439**	**354**	-	430	6	2	1	1	207	137	8	1
	Depression	**146,823**	**56,818**	**90,005**	1,546	20,559	25,950	8,363	401	2,382	31,157	42,102	13,452	911
	Bipolar affective disorder	**998**	**480**	**518**	-	466	9	4	1	3	401	102	6	6
	Panic disorder	**3,088**	**1,024**	**2,064**	3	499	422	89	10	51	1,116	777	114	7
	Agoraphobia	**2,111**	**584**	**1,527**	23	379	158	22	1	35	918	521	50	2
	Social phobia	**4,217**	**1,913**	**2,303**	218	1,243	340	101	11	332	1,607	339	20	6
	Generalised anxiety disorder	**7,970**	**2,880**	**5,090**	115	1,275	1,192	260	38	108	1,801	2,320	731	129
	Obsessive compulsive disorder	**823**	**315**	**508**	2	158	130	23	2	2	245	183	62	16
	Post-traumatic stress disorder	**2,475**	**1,160**	**1,315**	62	879	173	38	8	69	915	309	19	3
	Separation anxiety disorder	**2,713**	**986**	**1,727**	986	-	-	-	-	1,727	-	-	-	-
	Borderline personality disorder	**5,233**	**2,873**	**2,360**	-	1,496	1,150	205	22	16	1,493	660	155	35

Appendix table 8 (continued) Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Mental disorders (continued)	Anorexia nervosa	**355**	**33**	**322**	-	33	-	-	-	96	227	-	-	-
	Bulimia nervosa	**571**	**-**	**571**	-	-	-	-	-	16	555	-	-	-
	Attention deficit hyperactivity disorder	**5,586**	**3,668**	**1,918**	3,535	133	-	-	-	1,854	64	-	-	-
	Autism	**193**	**174**	**19**	174	-	-	-	-	19	-	-	-	-
Neurological and sense disorders	Alzheimer and other dementias	**11,719**	**4,508**	**7,211**	-	3	43	1,081	3,382	-	5	22	1,116	6,069
	Epilepsy	**1,333**	**700**	**633**	-	-	15	329	356	181	140	108	111	92
	Parkinson's disease	**1,153**	**700**	**453**	-	-	15	329	356	-	-	14	195	244
	Multiple sclerosis	**140**	**63**	**78**	2	33	26	1	-	3	30	34	11	-
	Motor-neuron disease	**121**	**58**	**63**	-	-	10	24	24	-	-	6	34	23
	Huntington's disease	**27**	**13**	**14**	-	4	7	3	-	-	2	7	5	1
	Muscular dystrophy	**7**	**7**	**-**	7	-	-	-	-	-	-	-	-	-
	Glaucoma	**511**	**200**	**311**	-	-	4	85	111	-	-	1	107	203
	Cataract	**13,615**	**5,342**	**8,273**	19	42	301	2,152	2,829	12	23	268	2,923	5,048
	Refraction errors	**18,639**	**8,018**	**10,621**	484	803	1,185	2,914	2,632	462	805	1,213	3,075	5,067
	Age-related macular degeneration	**2,448**	**892**	**1,555**	-	-	-	134	759	-	-	-	148	1,408
	Other causes of vision loss	**5,096**	**2,244**	**2,851**	109	76	408	808	843	104	75	418	861	1,395
	Hearing loss	**50,515**	**32,525**	**17,990**	-	1,073	4,300	20,247	6,905	-	907	3,427	9,844	3,812
Cardiovascular diseases	Rheumatic heart disease	**448**	**178**	**270**	-	6	27	90	54	8	14	40	112	97
	Ischaemic heart disease	**21,427**	**11,885**	**9,542**	3	92	2,326	5,422	4,041	1	42	981	3,727	4,790
	Stroke	**6,937**	**3,466**	**3,471**	7	65	443	1,283	1,668	-	72	262	1,011	2,126
	Inflammatory heart disease	**773**	**512**	**261**	1	35	117	210	148	15	13	38	95	100
	Hypertensive heart disease	**132**	**76**	**56**	-	5	11	34	26	1	2	5	21	26
	Non-rheumatic valvular disease	**1,371**	**867**	**504**	4	35	163	453	212	14	19	62	210	198
	Aortic aneurysm	**2,012**	**1,472**	**541**	-	32	145	777	517	-	11	45	212	273
	Peripheral vascular disease	**855**	**507**	**348**	1	13	98	258	137	1	15	64	140	127

Appendix table 8 (continued) Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**5,627**	**3,257**	**2,370**	-	151	542	1,526	1,038	-	96	343	708	1,223
	Asthma	**20,729**	**9,982**	**10,747**	8,088	606	410	655	222	6,075	2,445	638	1,065	524
Digestive disorders	Peptic ulcer disease	**25,482**	**13,104**	**12,378**	-	2,226	5,467	5,244	168	-	257	8,184	1,845	2,092
	Cirrhosis of the liver	**186**	**140**	**46**	0	10	74	49	6	0	14	19	9	3
	Appendicitis	**6,412**	**3,224**	**3,188**	824	1,449	642	252	57	641	1,548	711	224	64
	Intestinal obstruction	**7,076**	**3,283**	**3,793**	173	281	742	1,273	814	95	329	914	1,294	1,161
	Diverticulitis	**4,653**	**2,088**	**2,565**	1	47	431	1,028	581	1	14	384	1,315	851
	Gallbladder and bile duct disease	**11,159**	**3,061**	**8,098**	11	256	1,090	1,284	420	24	1,865	3,223	2,418	568
	Pancreatitis	**2,063**	**1,116**	**947**	11	154	453	343	155	12	170	252	307	206
	Inflammatory bowel disease	**778**	**378**	**400**	26	168	116	56	13	27	202	118	39	14
	Vascular insufficiency bowel	**349**	**133**	**216**	4	14	32	47	36	2	16	51	67	80
Genitourinary disorders	Nephritis and nephrosis	**790**	**416**	**375**	12	42	81	96	184	8	29	54	54	230
	Benign prostatic hypertrophy	**6,981**	**6,981**	**-**	-	1	326	3,969	2,685	-	-	-	-	-
	Incontinence	**3,432**	**991**	**2,441**	-	1	351	459	181	11	1,088	990	191	160
	Infertility	**9,010**	**3,413**	**5,597**	1	1,837	1,575	-	-	-	3,030	2,567	-	-
	Other genitourinary diseases[a]	**38,137**	**-**	**38,137**	-	-	-	-	-	319	7,796	23,610	5,814	599
Skin diseases	Eczema	**9,067**	**4,031**	**5,035**	919	1,138	1,181	600	192	1,544	2,050	1,079	312	51
	Skin diseases	**18,224**	**8,962**	**9,262**	855	5,215	1,395	1,143	354	2,527	3,298	1,753	1,161	522
Musculoskeletal diseases	Rheumatoid arthritis	**1,758**	**548**	**1,211**	-	15	170	266	97	-	50	472	503	186
	Osteoarthritis	**11,160**	**4,415**	**6,745**	-	58	885	2,270	1,203	-	15	800	3,200	2,730
	Chronic backpain	**1,700,136**	**878,955**	**821,181**	7,524	152,604	406,597	212,160	100,069	4,672	171,273	321,024	203,095	121,117
	Slipped disc	**20,640**	**11,897**	**8,743**	43	2,451	6,278	2,752	373	115	1,433	4,902	1,978	315
	Occupational overuse syndrome (RSI)	**1,684**	**233**	**1,452**	-	20	151	62	-	6	147	1,067	230	1
	Other musculoskeletal diseases	**790,714**	**390,729**	**399,985**	35,649	147,055	124,908	66,740	16,377	40,298	132,587	151,890	47,332	27,878

Appendix table 8 (continued) Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Congenital abnormalities	Spina bifida	**15**	**7**	**8**	7	-	-	-	-	8	-	-	-	-
	Congenital heart disease	**515**	**274**	**241**	274	-	-	-	-	241	-	-	-	-
	Cleft lip & palate	**160**	**106**	**54**	106	-	-	-	-	54	-	-	-	-
	Anorectal atresia	**17**	**10**	**7**	10	-	-	-	-	7	-	-	-	-
	Oesophageal atresia	**14**	**4**	**11**	4	-	-	-	-	11	-	-	-	-
	Other digestive congenital anomalies	**61**	**31**	**30**	31	-	-	-	-	30	-	-	-	-
	Renal agenesis	**25**	**16**	**9**	16	-	-	-	-	9	-	-	-	-
	Other urogential congenital anomalies	**1,621**	**1,355**	**266**	1,355	-	-	-	-	266	-	-	-	-
	Abdominal wall defect	**22**	**12**	**10**	12	-	-	-	-	10	-	-	-	-
Oral health	Caries[b]	**2,143,245**	**1,028,539**	**1,114,706**	122,945	172,477	171,304	436,272	125,541	117,240	172,710	175,345	451,527	197,885
	Periodontal disease[c]	**311,721**	**148,582**	**163,140**	-	15,654	59,185	55,008	18,735	-	15,916	60,568	57,102	29,554
	Edentulism	**8,108**	**2,537**	**5,571**	-	131	887	1,229	291	-	154	2,539	1,911	966
Ill-defined conditions	Chronic fatigue syndrome	**1,095**	**317**	**778**	-	81	202	34	-	-	277	439	63	-
Unintentional injuries	Road traffic accidents	**27,666**	**16,725**	**10,941**	2,225	8,966	3,832	1,328	374	1,065	5,193	2,954	1,231	497
	Other transport accidents	**4,644**	**3,037**	**1,608**	688	1,380	693	221	54	414	675	366	109	44
	Poisoning	**7,586**	**3,895**	**3,691**	1,310	1,385	816	261	124	1,065	1,319	792	322	192
	Falls	**97,257**	**48,140**	**49,117**	16,331	13,416	8,104	5,303	4,987	12,400	7,952	7,657	8,752	12,356
	Fires	**6,153**	**3,701**	**2,452**	922	1,478	927	290	84	661	814	603	285	89
	Drowning	**115**	**85**	**30**	29	26	18	7	5	9	11	6	5	-
	Sports injuries	**845**	**679**	**166**	169	382	114	13	1	47	88	26	4	1
	Natural and environmental factors	**2,712**	**1,540**	**1,172**	366	515	393	196	70	275	305	288	185	120
	Machinery accidents	**4,381**	**3,857**	**525**	103	1,645	1,537	519	54	51	221	183	52	18
	Suffocation and foreign bodies	**742**	**412**	**330**	97	73	82	67	93	78	45	66	63	80
	Surgical/medical misadventure	**30,729**	**15,407**	**15,322**	857	1,651	3,007	6,405	3,486	591	2,311	4,443	4,923	3,054
	Adverse effects of drugs in therapeutic use	**11,865**	**5,145**	**6,720**	239	460	837	1,996	1,613	202	785	1,277	2,029	2,427
	Cutting and piercing accidents	**27,744**	**19,048**	**8,697**	2,918	8,951	5,091	1,755	333	1,536	3,332	2,616	894	318

Appendix table 8 (continued) Incidence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Unintentional injuries (continued)	Striking and crushing accidents	**46,675**	**33,778**	**12,897**	8,449	15,900	7,137	1,959	333	4,400	4,094	2,652	1,079	673
	Other unintentional injuries	**71,682**	**44,449**	**27,233**	8,089	18,138	11,886	4,759	1,576	6,194	7,861	6,858	3,788	2,532
Intentional injuries	Self-inflicted injuries	**11,101**	**4,400**	**6,700**	73	2,583	1,541	166	38	122	3,681	2,544	304	49
	Homicide and violence	**14,569**	**10,949**	**3,620**	317	7,618	2,619	351	44	159	2,075	1,154	184	48
	Other intentional injuries	**1,144**	**958**	**186**	26	723	174	30	4	12	111	51	10	3

a Not computed in males

b Prevalence estimates relate to total decayed missing and filled teeth, not to people with decayed teeth.

c Periodontal disease with pockets 6 mm or more deep

Appendix table 9 Prevalence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Infectious and parasitic diseases	Tuberculosis	**152**	**73**	**79**	4	22	21	16	11	3	34	20	12	11
	Diarrhoea	**8,151**	**4,033**	**4,119**	1,517	1,031	601	532	353	1,178	1,446	729	660	106
	Septicaemia	**262**	**140**	**122**	7	9	24	54	46	5	9	20	38	50
	Arbovirus Infections	**133**	**68**	**65**	1	22	30	14	2	1	16	35	11	2
	Hepatitis A	**57**	**42**	**16**	4	22	11	3	1	1	6	5	2	2
	Hepatitis B	**9,691**	**4,970**	**4,721**	765	1,551	1,592	842	220	671	1,407	1,480	826	337
	Hepatitis C	**153,619**	**91,947**	**61,673**	203	11,329	39,725	30,926	9,764	62	7,563	25,734	19,185	9,129
Malignant neoplasia	Mouth and oropharynx cancers	**2,414**	**1,686**	**728**	-	38	238	655	755	-	16	91	271	350
	Oesophagus cancer	**410**	**237**	**173**	-	-	52	117	67	-	3	23	82	65
	Stomach cancer	**980**	**589**	**391**	2	11	106	319	150	-	3	80	178	131
	Bowel cancer	**12,680**	**6,927**	**5,753**	-	59	817	3,766	2,285	-	64	767	2,570	2,351
	Liver cancer	**290**	**198**	**92**	4	2	60	98	35	3	6	22	29	30
	Gallbladder cancer	**213**	**105**	**109**	-	-	23	52	29	-	-	19	56	34
	Pancreas cancer	**349**	**179**	**171**	-	1	29	101	48	-	1	26	63	80
	Lung cancer	**2,736**	**1,656**	**1,080**	2	5	137	1,058	455	-	-	167	617	296
	Bone and connective tissue cancer	**852**	**383**	**469**	29	87	88	136	43	39	122	92	129	87
	Melanoma	**5,930**	**4,805**	**1,124**	5	425	1,443	1,995	937	1	65	182	181	696
	Non-melanoma skin cancers	**3,857**	**2,233**	**1,624**	-	22	454	1,189	569	-	27	471	651	475
	Breast cancer [a]	**16,040**	**-**	**16,040**	-	-	-	-	-	-	345	5,842	7,118	2,735
	Cervix cancer [a]	**741**	**-**	**741**	-	-	-	-	-	-	118	245	202	175
	Corpus uteri cancer [a]	**2,128**	**-**	**2,128**	-	-	-	-	-	-	18	477	1,354	278
	Ovary cancer [a]	**1,192**	**-**	**1,192**	-	-	-	-	-	8	148	428	437	170
	Prostate cancer	**13,531**	**13,531**	**-**	-	-	825	8,025	4,681	-	-	-	-	-
	Testis cancer	**707**	**707**	**-**	5	435	244	20	4	-	-	-	-	-
	Bladder cancer	**4,268**	**3,371**	**897**	-	42	300	1,806	1,223	-	23	119	408	346
	Kidney cancer	**2,734**	**1,640**	**1,094**	11	-	429	884	316	39	33	282	478	262
	Brain cancer	**780**	**465**	**315**	83	139	162	62	19	77	75	91	50	22
	Thyroid cancer	**1,080**	**235**	**845**	-	68	83	60	23	-	210	380	210	45

Appendix table 9 (continued) Prevalence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Malignant neoplasia (continued)	Lymphoma	**4,592**	**2,492**	**2,100**	68	225	597	1,057	544	29	217	567	781	506
	Multiple myeloma	**1,218**	**708**	**510**	-	-	132	326	249	-	-	36	228	247
	Leukaemia	**1,644**	**916**	**729**	100	35	122	438	220	82	31	122	259	235
	Larynx cancer	**664**	**573**	**90**	-	-	118	363	93	-	-	20	43	27
	Eye cancer	**263**	**172**	**91**	24	10	34	67	36	8	7	28	27	21
Benign neoplasia	Uterine myoma	**311**	**-**	**311**	-	-	-	-	-	-	101	211	-	-
	Benign brain tumour	**933**	**359**	**574**	8	40	100	172	39	13	42	207	216	96
Diabetes mellitus	Type 1	**20,872**	**11,117**	**9,756**	610	2,916	4,259	2,659	672	563	2,498	3,497	2,260	938
	Type 2	**234,284**	**120,429**	**113,856**	-	-	27,178	68,926	24,325	-	80	23,238	48,310	42,228
Endocrine and metabolic disorders	Haemolytic anaemia	**375**	**316**	**59**	76	126	95	19	-	8	20	23	9	-
	Other non-deficiency anaemia	**776**	**377**	**399**	20	24	45	158	130	14	77	73	122	113
	Cystic fibrosis	**726**	**427**	**299**	140	144	97	38	8	122	103	54	16	4
	Haemophilia	**189**	**189**	**-**	31	60	58	32	7	-	-	-	-	-
Mental disorders	Alcohol dependence and harmful use	**192,043**	**133,945**	**58,098**	67	50,888	62,069	18,271	2,650	41	31,862	22,502	3,436	255
	Heroin or polydrug use and dependence	**11,371**	**8,136**	**3,235**	9	4,148	3,275	634	70	55	1,703	1,205	231	41
	Benzodiazepine dependence and harmful use	**13,994**	**7,660**	**6,334**	-	2,993	4,035	620	11	-	2,323	3,398	614	-
	Cannabis dependence and harmful use	**52,290**	**40,052**	**12,239**	117	33,232	6,691	12	-	32	10,135	2,072	-	-
	Stimulant dependence	**5,790**	**4,002**	**1,788**	-	3,602	400	-	-	-	1,235	541	12	-
	Psychoses	**21,872**	**12,497**	**9,375**	2	3,237	6,204	2,515	538	1	1,816	4,434	2,350	773
	Depression	**126,556**	**52,850**	**73,706**	764	15,185	25,380	10,186	1,335	1,147	21,293	35,117	13,949	2,200
	Bipolar affective disorder	**20,338**	**9,771**	**10,566**	-	3,100	5,008	1,436	228	3	3,209	5,096	1,802	456
	Panic disorder	**40,106**	**8,855**	**31,251**	5	2,483	4,692	1,488	187	110	8,345	15,336	6,224	1,236
	Agoraphobia	**39,625**	**12,082**	**27,542**	60	3,436	5,718	2,437	431	67	7,627	13,346	5,277	1,225
	Social phobia	**98,309**	**42,062**	**56,247**	775	14,536	17,794	7,471	1,485	1,135	20,894	23,189	8,729	2,300
	Generalised anxiety disorder	**111,089**	**40,898**	**70,191**	290	10,091	19,728	9,146	1,644	260	13,092	32,418	18,790	5,631

Appendix table 9 (continued) Prevalence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Mental disorders (continued)	Obsessive compulsive disorder	**12,046**	**4,538**	**7,509**	3	1,075	2,303	1,003	153	3	1,665	3,584	1,701	556
	Post-traumatic stress disorder	**48,084**	**22,252**	**25,832**	133	8,784	9,607	3,186	543	161	8,915	11,780	4,052	923
	Separation anxiety disorder	**9,913**	**3,604**	**6,309**	3,604	-	-	-	-	6,309	-	-	-	-
	Borderline personality disorder	**31,622**	**17,161**	**14,461**	-	6,333	8,575	2,030	223	16	7,253	5,551	1,336	305
	Anorexia nervosa	**1,651**	**262**	**1,389**	-	225	36	-	-	191	1,198	-	-	-
	Bulimia nervosa	**2,266**	**-**	**2,266**	-		-	-	-	-	2,172	94	-	-
	Attention deficit hyperactivity disorder	**29,044**	**14,992**	**14,052**	11,826	3,166	-	-	-	12,718	1,333		-	-
	Autism	**14,316**	**12,777**	**1,539**	2,617	3,783	3,743	2,082	552	291	442	447	253	105
Neurological and sense disorders	Alzheimer and other dementias	**40,298**	**15,352**	**24,946**	-	7	186	4,159	11,000	-	19	207	4,326	20,394
	Epilepsy	**16,796**	**8,738**	**8,058**	1,041	2,204	2,455	1,945	1,093	828	1,845	2,101	1,727	1,557
	Parkinson's disease	**7,723**	**4,073**	**3,650**	-	-	68	1,596	2,409	-	-	94	1,232	2,324
	Multiple sclerosis	**2,788**	**1,297**	**1,491**	6	263	672	297	59	9	278	665	428	111
	Motor-neuron disease	**138**	**68**	**70**	-	-	15	29	24	-	-	9	38	23
	Huntington's disease	**332**	**161**	**171**	-	14	74	60	13	-	15	66	67	23
	Muscular dystrophy	**133**	**133**	**-**	98	35		-	-	-	-	-	-	-
	Glaucoma	**1,349**	**605**	**744**	-	-	1	356	248	-	-	-	319	425
	Cataract	**13,121**	**5,217**	**7,903**	37	42	302	2,158	2,678	24	23	269	2,929	4,659
	Refraction errors	**57,528**	**25,113**	**32,415**	1,235	3,242	4,023	8,934	7,679	1,181	3,246	4,116	9,435	14,437
	Age-related macular degeneration	**11,977**	**4,195**	**7,782**	-	-	-	615	3,580	-	-	-	512	7,270
	Other causes of vision loss	**16,131**	**7,080**	**9,051**	422	392	1,120	2,485	2,661	403	387	1,146	2,628	4,487
	Hearing loss	**546,568**	**323,605**	**222,963**	-	8,773	50,589	171,868	92,375	-	8,159	33,746	103,499	77,559
Cardiovascular diseases	Rheumatic heart disease	**2,287**	**926**	**1,361**	-	27	110	403	386	20	65	174	431	671
	Ischaemic heart disease	**45,051**	**23,227**	**21,824**	-	141	2,461	9,671	10,954	-	136	1,317	6,305	14,067
	Stroke	**33,664**	**14,049**	**19,615**	190	500	2,970	5,811	4,577	-	1,239	4,611	7,130	6,635
	Inflammatory heart disease	**4,814**	**3,103**	**1,710**	6	163	634	1,458	842	82	167	267	531	664
	Hypertensive heart disease	**920**	**474**	**447**	0	24	65	238	147	7	14	44	138	244
	Non-rheumatic valvular disease	**5,113**	**3,019**	**2,094**	9	97	523	1,457	933	70	152	263	656	953
	Aortic aneurysm	**168**	**123**	**45**	-	3	12	65	43	-	1	4	18	23
	Peripheral vascular disease	**5,360**	**3,140**	**2,220**	12	128	840	1,686	474	13	142	570	1,002	494

Appendix table 9 (continued) Prevalence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Chronic respiratory diseases	Chronic obstructive pulmonary disease	**59,249**	**34,147**	**25,102**	-	1,369	6,739	17,372	8,668	-	769	5,248	9,397	9,688
	Asthma	**335,790**	**146,068**	**189,722**	33,485	51,180	35,801	19,968	5,634	33,315	58,667	53,873	30,549	13,318
Digestive disorders	Peptic ulcer disease	**48,044**	**24,276**	**23,768**	-	4,622	10,823	8,599	232	-	542	17,095	3,105	3,025
	Cirrhosis of the liver	**2,144**	**1,573**	**571**	-	42	274	772	484	-	49	217	210	95
	Appendicitis	**247**	**124**	**123**	32	56	25	10	2	25	60	27	9	2
	Intestinal obstruction	**1,666**	**532**	**1,134**	10	16	84	201	221	5	19	169	526	414
	Diverticulitis	**1,345**	**513**	**832**	0	13	51	298	151	0	1	79	352	400
	Gallbladder and bile duct disease	**644**	**177**	**467**	1	15	63	74	24	1	108	186	140	33
	Pancreatitis	**119**	**64**	**55**	1	9	26	20	9	1	10	15	18	12
	Inflammatory bowel disease	**17,421**	**7,879**	**9,542**	882	4,418	2,014	515	50	971	5,747	2,351	415	58
	Vascular insufficiency bowel	**452**	**170**	**282**	0	1	35	79	55	0	1	41	116	124
Genitourinary disorders	Nephritis and nephrosis	**3,964**	**2,336**	**1,627**	161	508	739	640	287	116	369	498	369	276
	Benign prostatic hypertrophy	**37,769**	**37,769**	**-**	-	15	3,317	24,637	9,800	-		-	-	-
	Incontinence	**111,820**	**25,392**	**86,428**	-	1	3,890	12,183	9,317	16	9,974	32,837	26,509	17,092
	Infertility	**24,782**	**9,791**	**14,991**	-	6,185	3,606	-	-	-	9,227	5,764	-	-
Skin diseases	Eczema	**37,988**	**16,722**	**21,266**	4,416	4,405	4,611	2,536	753	5,644	8,825	5,133	1,421	244
	Other skin diseases	**93,537**	**41,950**	**51,587**	4,602	15,981	10,621	7,789	2,957	6,592	17,622	14,235	8,857	4,280
Musculoskeletal diseases	Rheumatoid arthritis	**18,524**	**5,128**	**13,396**	-	53	1,157	2,680	1,238	-	190	3,415	6,430	3,361
	Osteoarthritis	**88,424**	**36,846**	**51,578**	-	163	5,299	17,378	14,006	-	24	3,346	18,947	29,261
	Chronic backpain	**18,632**	**9,632**	**8,999**	82	1,672	4,456	2,325	1,097	51	1,877	3,518	2,226	1,327
	Slipped disc	**7,540**	**4,354**	**3,186**	27	1,162	2,393	707	65	80	682	1,861	508	55
	Occupational overuse syndrome (RSI)	**5,179**	**549**	**4,630**	-	20	321	208	-	-	778	3,055	797	-
Congenital abnormalities	Spina bifida	**961**	**426**	**535**	95	135	118	63	15	108	164	148	85	30
	Congenital heart disease	**28,605**	**15,524**	**13,080**	13,596	803	708	418	-	9,739	1,708	1,126	508	-
	Cleft lip & palate	**6,468**	**4,240**	**2,228**	4,240	-	-	-	-	2,228	-	-	-	-

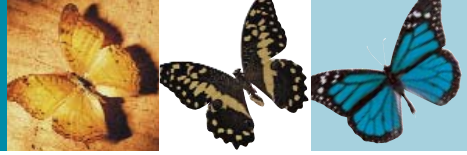
Appendix table 9 (continued) Prevalence, by age, sex and cause, Victoria, 2001

Broad disease group	Cause	Persons	Males	Females	Males, by age group (years)					Females, by age group (years)				
					0-14	15-34	35-54	55-74	75+	0-14	15-34	35-54	55-74	75+
Congenital abnormalities (continued)	Anorectal atresia	**154**	**90**	**64**	90	-	-	-	-	64	-	-	-	-
	Oesophageal atresia	**178**	**42**	**136**	42	-	-	-	-	136	-	-	-	-
	Other digestive congenital anomalies	**31**	**16**	**15**	16	-	-	-	-	15	-	-	-	-
	Renal agenesis	**49**	**24**	**25**	18	-	6	-	-	20	-	5	-	-
	Other urogential congenital anomalies	**449**	**264**	**185**	22	18	144	70	11	23	12	97	42	11
	Abdominal wall defect	**257**	**133**	**123**	133	-	-	-	-	123	-	-	-	-
Oral health	Caries	**1,905,631**	**931,004**	**974,626**	191,510	268,666	266,839	153,322	50,666	182,623	269,028	273,134	158,643	91,198
	Periodontal disease	**289,532**	**137,930**	**151,602**	-	14,754	55,705	51,105	16,366	-	15,009	57,051	53,384	26,158
	Edentulism	**294,467**	**84,218**	**210,249**	-	540	13,121	42,558	27,999	-	295	36,321	94,084	79,549
Ill-defined conditions	Chronic fatigue syndrome	**2,743**	**797**	**1,946**	-	202	506	89	-	-	693	1,097	157	-

a Not computed in males

b Prevalence estimates relate to total decayed missing and filled teeth, not to people with decayed teeth.

c Periodontal disease with pockets 6 mm or more deep



References

ABS, 1993, 'Disability and disabling conditions. Cat. no. 4433.0', Canberra: Australian Bureau of Statistics

ABS, 1996a, 'National Health Survey', Canberra: Australian Bureau of Statistics

ABS, 1996b, 'National Nutrition Survey.' Canberra: Australian Bureau of Statistics

ABS, 1996c, 'Women's Safety Survey, Australia', Canberra: Australian Bureau of Statistics

ABS, 1998, 'Mental health and wellbeing profile of adults, Australia 1997. Cat. no. 4326.0', Canberra: Australian Bureau of Statistics

ABS, 1999a, 'Disability, Ageing and Carers: summary of findings, Australia 1998. Cat. no. 4430.0', Canberra: Australian Bureau of Statistics

ABS, 1999b, 'Mental health and wellbeing: user's guide. Cat. no. 4327.0.' Canberra: Australian Bureau of Statistics.

ABS, 2002, 'National Health Survey: summary of results. Cat. no. 4364.0', Canberra: Australian Bureau of Statistics

Adams, C, Slack-Smith, L, Larson, A & O'Grady, M, 2003, 'Edentulism and associated factors in people 60 years and over from urban, rural and remote Western Australia', *Australian Dental Journal*, **48**, 10-14.

Aguero-Torres, H, Fratiglioni, L, Guo, Z, Viitanen, M & Winblad, B, 1999, 'Mortality from dementia in advanced age: a 5-year follow-up study of incident dementia cases', *Journal of Clinical Epidemiology*, **52**, 737-43.

Ahern, MJ & Smith, MD, 1997, 'Rheumatoid arthritis', *Medical Journal of Australia*, **166**, 156-61.

AIHW, 1999, '1998 National Drug Strategy Household Survey: first results. AIHW Cat. no. PHE 15', Canberra: Australian Institute of Health and Welfare (Drug Statistics Series)

AIHW, 2003, 'National diabetes register: statistical profile, December 2001. Cat. No. CVD 24 (Diabetes Series No. 4)', Canberra: Australian Institute of Health and Welfare

Amin, J, Heath, T & Morrell, S, 1999, 'Hepatitis A in Australia in the 1990s: future directions in surveillance and control', *Communicable Disease Intelligence*, **23**, 113-20.

ANCAHRD, 1998, 'Estimates and Projections of the Hepatitis C Virus Epidemic in Australia', Canberra: Australian National Council on AIDS, Hepatitis C and Related Diseases, Hepatitis C Sub-Committee

Angst, J & Preisig, M, 1995, 'Course of a clinical cohort of unipolar, bipolar and schizoaffective patients. Results of a prospective study from 1959 to 1985', *Schweizer Archiv fur Neurologie und Psychiatrie*, **146**, 5-16.

Angst, J & Sellaro, R, 2000, 'Historical perspectives and natural history of bipolar disorder', *Biological Psychiatry*, **48**, 445-57.

Angst, J, Sellaro, R, Stassen, HH & Gamma, A, 2005, 'Diagnostic conversion from depression to bipolar disorders: results of a long-term prospective study of hospital admissions', *Journal of Affective Disorders*, **84**, 149-57.

Baltutis, L & Morgan, M, 1998, 'The changing role of dental auxiliaries: a literature review', *Australian Dental Journal*, **43**, 354-8.

Barendregt, J & Bonneux, L, 1998, 'Degenerative disease in an aging population. Models and conjecture', Enschede: Febodruk. PhD thesis.

Barendregt, JJ, Van Oortmarssen, GJ, Vos, T & Murray, CJ, 2003, 'A generic model for the assessment of disease epidemiology: the computational basis of DisMod II', *Population Health Metrics*, **1**, 4.

Barnard, PD, 1993, 'National Oral Health Survey of Australia. 1987-88', Canberra: AGPS

Bauman, A, Mitchell, CA, Henry, RL, Robertson, CF, Abramson, MJ, Comino, EJ, Hensley, MJ & Leeder, SR, 1992a, 'Asthma morbidity in Australia: an epidemiological study', *Medical Journal of Australia*, **156**, 827-31.

Bauman, A, Young, L, Peat, JK, Hunt, J & Larkin, P, 1992b, 'Asthma under-recognition and under-treatment in an Australian community', *Australian & New Zealand Journal of Medicine*, **22**, 36-40.

Bebbington, P & Ramana, R, 1995, 'The epidemiology of bipolar affective disorder', *Social Psychiatry and Psychiatric Epidemiology*, **30**, 279-92.

Benito-Leon, J, Bermejo-Pareja, F, Rodriguez, J, Molina, JA, Gabriel, R & Morales, JM, 2003, 'Prevalence of PD and other types of Parkinsonism in three elderly populations of central Spain', *Movement Disorders*, **18**, 267-74.

Bijl, RV, De Graaf, R, Ravelli, A, Smit, F & Vollebergh, WA, 2002, 'Gender and age-specific first incidence of DSM-III-R psychiatric disorders in the general population. Results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS)', *Social Psychiatry and Psychiatric Epidemiology*, **37**, 372-9.

Bland, RC, Newman, SC & Orn, H, 1997, 'Age and remission of psychiatric disorders', *Canadian Journal of Psychiatry*, **42**, 722-9.

Bonita, R, Solomon, N & Broad, JB, 1997, 'Prevalence of stroke and stroke-related disability. Estimates from the Auckland stroke studies', *Stroke*, **28**, 1898-902.

Brennan, DS & Spencer, AJ, 2004, 'Disability weights for the burden of oral disease in South Australia', *Population Health Metrics*, **2**, 7.

Brennan, DS, Spencer, AJ & Slade, GD, 2001, 'Prevalence of periodontal conditions among public-funded dental patients in Australia', *Australian Dental Journal*, **46**, 114-21.

Britt, H, Sayer, GP, Miller, GC, Charles, J, Scahill, S, Horn, F & Bhasale, A, 1999, 'BEACH - Bettering the evaluation and care of health: a study of general practice activity, six-month interim report. AIHW cat. no. GEP 1.' Canberra: Australian Institute of Health and Welfare (General Practice Series no. 1)

Bronnimann, S & Burrows, B, 1986, 'A prospective study of the natural history of asthma. Remission and relapse rates', *Chest*, **90**, 480-4.

Bronnum-Hansen, H, Davidsen, M & Thorvaldsen, P, 2001, 'Long-term survival and causes of death after stroke', *Stroke*, **32**, 2131-6.

Bronnum-Hansen, H, Jorgensen, T, Davidsen, M, Madsen, M, Osler, M, Gerdes, LU & Schroll, M, 2001, 'Survival and cause of death after myocardial infarction: the Danish MONICA study', *Journal of Clinical Epidemiology*, **54**, 1244-50.

Brooks, PM & March, LM, 1995, 'New insights into osteoarthritis', *Medical Journal of Australia*, **163**, 367-9.

Brown, WJ, Dobson, AJ, Bryson, L & Byles, JE, 1999, 'Women's Health Australia: on the progress of the main cohort studies', *Journal of Women's Health & Gender Based Medicine*, **8**, 681-8.

Bull, FC, Armstrong, TP, Dixon, T, Ham, S, Neiman, A & Pratt, M, 2004, 'Physical inactivity'. In *'Comparative Quantification of Health Risks, Global and Regional Burden of Disease Attributable to Selected Major Risk Factors'*, Vol. 1 (Eds, Ezzati, M, Lopez, AD, Rodgers, A & Murray, CJL) World Health Organization, Geneva, pp. 729-881.

Byrne, E, 1992, 'RSI revisited', *Medical Journal of Australia*, **156**, 372-3.

Chancellor, AM, Slattery, JM, Fraser, H, Swingler, RJ, Holloway, SM & Warlow, CP, 1993, 'The prognosis of adult-onset motor neuron disease: a prospective study based on the Scottish Motor Neuron Disease Register', *Journal of Neurology*, **240**, 339-46.

Chiarelli, P, Brown, W & McElduff, P, 1999, 'Leaking urine: prevalence and associated factors in Australian women', *Neurourology and Urodynamics*, *18*, 567-77.

Ciompi, L, 1980, 'Three lectures in Schizophrenia. The Natural History of Schizophrenia in the Long Term.' *British Journal of Psychiatry*, 413-420.

Claveria, LE, Duarte, J, Sevillano, MD, Perez-Sempere, A, Cabezas, C, Rodriguez, F & de Pedro-Cuesta, J, 2002, 'Prevalence of Parkinson's disease in Cantalejo, Spain: a door-to-door survey', *Movement Disorders*, **17**, 242-9.

Coale, AJ & Guo, G, 1989, 'Revised regional model life tables at very low levels of mortality', *Population Index*, **55**, 613-43.

Cohen, AJ, Anderson, HR, Ostro, B, Pandey, KD, Krzyzanowski, M, Künzli, N, Gutschmidt, K, Pope, CA, Romieu, I, Samet, JM & Smith, KR, 2004, 'Urban air pollution'. In '*Comparative quantification of health risks: conceptual framework and methodological issues*', Vol. 2 (Eds, Ezzati, M, Lopez, AD, Rodgers, A & Murray, CJL) World Health Organization, Geneva, 1353-433.

Cohen, ML, Arroyo, JF, Champion, GD & Browne, CD, 1992, 'In search of the pathogenesis of refractory cervicobrachial pain syndrome. A deconstruction of the RSI phenomenon', *Medical Journal of Australia*, **156**, 432-6.

Colagiuri, S, Colagiuri, R & Ward, J, 1998, 'National diabetes strategy and implementation plan'. Canberra: Diabetes Australia.'

Corrada, M, Brookmeyer, R & Kawas, C, 1995, 'Sources of variability in prevalence rates of Alzheimer's disease', *International Journal of Epidemiology*, **24**, 1000-5.

Cowie, MR, Wood, DA, Coats, AJ, Thompson, SG, Poole-Wilson, PA, Suresh, V & Sutton, GC, 1999, 'Incidence and aetiology of heart failure; a population-based study', *European Heart Journal,* **20**, 421-8.

DASETT, 1988, 'The economic impact of sport and recreation - regular physical activity. Technical Paper 2', Canberra: Department of Arts, Sports, the Environment, Tourism and Territories

Davies, M, Hobbs, F, Davis, R, Kenkre, J, Roalfe, AK, Hare, R, Wosornu, D & Lancashire, RJ, 2001, 'Prevalence of left-ventricular systolic dysfunction and heart failure in the Echocardiographic Heart of England Screening study: a population based study', *Lancet*, **358**, 439-44.

Davies, MJ, Spencer, AJ & Slade, GD, 1997, 'Trends in dental caries experience of school children in Australia-1977 to 1993', *Australian Dental Journal*, **42**, 389-94.

de Rijk, MC, Breteler, MM, Graveland, GA, Ott, A, Grobbee, DE, van der Meche, FG & Hofman, A, 1995, 'Prevalence of Parkinson's disease in the elderly: the Rotterdam Study', *Neurology*, **45**, 2143-6.

Degenhardt, L, Rendle, V, Hall, W, Gilmour, S & Law, M, 2004, 'Estimating the number of current regular heroin users in NSW and Australia 1997-2002', Sydney: National Drug and Alcohol Research Centre, University of New South Wales

Deyo, RA, Loeser, JD & Bigos, SJ, 1990, 'Herniated lumbar intervertebral disk', *Annals of Internal Medicine*, **112**, 598-603.

DHS, 1999a, 'Victorian Burden of Disease Study: Morbidity', Melbourne: Epidemiology Section, Department of Human Services.

DHS, 1999b, 'Victorian Burden of Disease Study: Mortality', Melbourne: Epidemiology Section, Department of Human Services.

DHS, 2002a, 'Surveillance of notifiable infectious diseases in Victoria 2001', Melbourne: Department of Human Services, Victoria

DHS, 2002b, 'Victorian Population Health Survey 2001', Melbourne: Department of Human Services, Victoria

DHS, 2003, 'Victorian Population Health Survey 2002', Melbourne: Department of Human Services, Victoria

DSRU/AIHW, 1997, 'Oral health of public-funded dental patients', Adelaide: AIHW Dental Statistics and Research Unit

DSRU/AIHW, 1999, 'The Adelaide Dental Study of Nursing Homes', Adelaide: AIHW Dental Statistics and Research Unit

DSRU/AIHW, 2002, 'Caries experience of public dental patients, Research Report No. 10', Adelaide: AIHW Dental Statistics and Research Unit

Dunstan, DW, Zimmet, PZ, Welborn, TA, Cameron, AJ, Shaw, J, de Courten, M, Jolley, D, & McCarty, DJ, 2002a, 'The Australian Diabetes, Obesity and Lifestyle Study (AusDiab) - methods and response rates', *Diabetes Research and Clinical Practice*, **57**, 119-29.

Dunstan, DW, Zimmet, PZ, Welborn, TA, De Courten, MP, Cameron, AJ, Sicree, RA, Dwyer, T, Colagiuri, S, Jolley, D, Knuiman, M, Atkins, R & Shaw, JE, 2002b, 'The rising prevalence of diabetes and impaired glucose tolerance: the Australian Diabetes, Obesity and Lifestyle Study', *Diabetes Care*, **25**, 829-34.

Einfeld, SL & Tonge, BJ, 1996a, 'Population prevalence of psychopathology in children and adolescents with intellectual disability: I. Rationale and methods.' *Journal of Intellectual Disability Research*, **40 (Pt 2)**, 91-8.

Einfeld, SL & Tonge, BJ, 1996b, 'Population prevalence of psychopathology in children and adolescents with intellectual disability: II. Epidemiological findings.' *Journal of Intellectual Disability Research*, **40 (Pt 2)**, 99-109.

Ekbom, A, Helmick, CG, Zack, M, Holmberg, L & Adami, HO, 1992, 'Survival and causes of death in patients with inflammatory bowel disease: a population-based study', *Gastroenterology*, **103**, 954-60.

English, DR, Holman, CDJ, Milne, E, Winter, MG, Hulse, GK, Codde, JP, Bower, CI, Corti, B, de Klerk, N, Knuiman, MW, Kurinczuk, JJ, Lewin, GF & Ryan, GA, 1995, 'The quantification of drug caused morbidity and mortality in Australia', Canberra: Commonwealth Department of Human Services and Health

Errea, JM, Ara, JR, Aibar, C & de Pedro-Cuesta, J, 1999, 'Prevalence of Parkinson's disease in lower Aragon, Spain', *Movement Disorders*, **14**, 596-604.

Ezzati, M, Hoorn, SV, Rodgers, A, Lopez, AD, Mathers, CD & Murray, CJ, 2003, 'Estimates of global and regional potential health gains from reducing multiple major risk factors', *Lancet*, **362**, 271-80.

Fitzpatrick, AL, Kuller, LH, Ives, DG, Lopez, OL, Jagust, W, Breitner, JC, Jones, B, Lyketsos, C & Dulberg, C, 2004, 'Incidence and prevalence of dementia in the Cardiovascular Health Study', *Journal of the American Geriatric Society*, **52**, 195-204.

Franklin, G & Nelson, L, 1998, 'Chronic neurological disorders'. In 'Chronic disease epidemiology and control'(Eds, Brownson, R, Remington, P & Davis, J) American Public Health Association, Washington, DC, pp. 491-527.

Gare, BA & Fasth, A, 1992, 'Epidemiology of juvenile chronic arthritis in southwestern Sweden: a 5-year prospective population study', *Pediatrics*, **90**, 950-8.

Gergen, PJ, Mullally, DI & Evans, R, 3rd, 1988, 'National survey of prevalence of asthma among children in the United States, 1976 to 1980', *Pediatrics*, **81**, 1-7.

Gilchrist, PN, Ben-Tovim, DI, Hay, PJ, Kalucy, RS & Walker, MK, 1998, 'Eating disorders revisited. I: Anorexia nervosa', *Medical Journal of Australia*, **169**, 438-41.

Griffiths, AM, 1995, 'Inflammatory Bowel Disease', *Adolescent Medicine*, **6**, 351-368.

Grimwood, K, Anderson, VA, Bond, L, Catroppa, C, Hore, RL, Keir, EH, Nolan, T & Roberton, DM, 1995, 'Adverse outcomes of bacterial meningitis in school-age survivors', *Pediatrics*, **95**, 646-56.

Gu, K, Cowie, CC & Harris, MI, 1998, 'Mortality in adults with and without diabetes in a national cohort of the U.S. population, 1971-1993', *Diabetes Care*, **21**, 1138-45.

Guccione, AA, Felson, DT & Anderson, JJ, 1990, 'Defining arthritis and measuring functional status in elders: methodological issues in the study of disease and physical disability', *American Journal of Public Health*, **80**, 945-9.

Hakala, M, Nieminen, P & Koivisto, O, 1994, 'More evidence from a community based series of better outcome in rheumatoid arthritis. Data on the effect of multidisciplinary care on the retention of functional ability', *The Journal of Rheumatology*, **21**, 1432-7

Hammond, SR, McLeod, JG, Millingen, KS, Stewart-Wynne, EG, English, D, Holland, JT & McCall, MG, 1988, 'The epidemiology of multiple sclerosis in three Australian cities: Perth, Newcastle and Hobart', *Brain*, **111 (Pt 1)**, 1-25.

Harding, CM, Brooks, GW, Ashigawa, T, Strauss, JS & Breier, A, 1987, 'The Vermont Longitudinal Study of persons with severe mental illness, 1: Methodology, study sample, and overall status 32 years later.' *American Journal of Psychiatry*, **144**, 718-726.

Harris, EC & Barraclough, B, 1998, 'Excess mortality of mental disorder', *British Journal of Psychiatry*, **173**, 11-53.

Harris, M, Eastman, R & Cowie, C, 1993, 'Symptoms of sensory neuropathy in adults with NIDDM in the U.S. population', *Diabetes Care*, **16**, 1446-52.

Harrison, G, Hopper, K, Craig, T, Laska, E, Siegel, C & Wanderling, J, 2001, 'Recovery from psychotic illness: a 15- and 25-year international follow-up study.' *British Journal of Psychiatry*, **178**, 506-517.

Harvey, RJ, Skelton-Robinson, M & Rossor, MN, 2003, 'The prevalence and causes of dementia in people under the age of 65 years', *Journal of Neurology, Neurosurgery and Psychiatry*, **74**, 1206-9.

Hauser, E, Toifl, K, Mad, A & Bittner, R, 1993, 'The incidence of Duchenne muscular dystrophy in eastern Austria. The controversy regarding CK screening', *Wiener Klinische Wochenschrift*, **105**, 433-6.

Hauser, WA, Annegers, JF & Rocca, WA, 1996, 'Descriptive epidemiology of epilepsy: contributions of population-based studies from Rochester, Minnesota.' *Mayo Clinic Proceedings*, **71**, 576-86.

Helgason, L, 1990, 'Twenty years' follow-up of first psychiatric presentation for schizophrenia: what could have been prevented?' *Acta Psychiatrica Scandinavica*, **81**, 231-235.

Helme, RD, LeVasseur, SA & Gibson, SJ, 1992, 'RSI revisited: evidence for psychological and physiological differences from an age, sex and occupation matched control group', *Australian & New Zealand Journal of Medicine*, **22**, 23-9.

Hendriksen, C, Kreiner, S & Binder, V, 1985, 'Long term prognosis in ulcerative colitis based on results from a regional patient group from the county of Copenhagen', *Gut*, **26**, 158-63.

Hill, DJ, White, VM & Scollo, MM, 1998, 'Smoking behaviours of Australian adults in 1995: trends and concerns', *Medical Journal of Australia*, **168**, 209-13.

Hill, JC & Schoener, EP, 1996, 'Age-dependent decline of attention-deficit hyperactivity disorder', *American Journal of Psychiatry*, **153**, 1143-6.

Hobbs, MS, Jamrozik, KD, Hockey, RL, Alexander, HM, Beaglehole, R, Dobson, AJ, Heller, RF, Jackson, R & Stewart, AW, 1991, 'Mortality from coronary heart disease and incidence of acute myocardial infarction in Auckland, Newcastle and Perth', *Medical Journal of Australia*, **155**, 436-42.

Hofman, A, Rocca, WA, Brayne, C, Breteler, MM, Clarke, M, Cooper, B, Copeland, JR, Dartigues, JF, da Silva Droux, A, Hagnell, O & et al., 1991, 'The prevalence of dementia in Europe: a collaborative study of 1980-1990 findings. Eurodem Prevalence Research Group', *International Journal of Epidemiology*, **20**, 736-48.

Hoofnagle, JH, 1997, 'Hepatitis C: the clinical spectrum of disease', *Hepatology*, **26**, 15S-20S.

Huber, G, Gross, G, Schuttler, R & Linz, M, 1980, 'Longitudinal Studies of Schizophrenic Patients', *Schizophrenia Bulletin*, **6**, 592-605.

Hy, LX & Keller, DM, 2000, 'Prevalence of AD among whites: a summary by levels of severity', *Neurology*, **55**, 198-204.

Jaaskelainen, J, 1986, 'Seemingly complete removal of histologically benign intracranial meningioma: late recurrence rate and factors predicting recurrence in 657 patients. A multivariate analysis', *Surgical Neurology*, **26**, 461-9.

Jablensky, A, McGrath, J, Herrman, H, Castle, D, Gureje, O, Morgan, V & Korten, A, 1999, 'National Survey of Mental Health and Wellbeing Report 4: People living with psychotic illness: an Australian study 1997-98.' Canberra: Commonwealth of Australia

James, WPT, Jackson-Leach, R, Mhurchu, CN, Kalamara, E, Shayeghi, M, Rigby, NJ, Nishida, C & Rodgers, A, 2004, 'Overweight and obesity (high body mass index)'. In '*Comparative Quantification of Health Risks, Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*', Vol. 1 (Eds, Ezzati, M, Lopez, AD, Rodgers, A & Murray, CJL) World Health Organization, Geneva, pp. 497-596.

Jones, G, Nguyen, T, Sambrook, PN, Lord, SR, Kelly, PJ & Eisman, JA, 1995, 'Osteoarthritis, bone density, postural stability, and osteoporotic fractures: a population based study', *The Journal of Rheumatology*, **22**, 921-5.

Jorm, AF, Korten, AE & Henderson, AS, 1987, 'The prevalence of dementia: a quantitative integration of the literature', *Acta Psychiatrica Scandinavica*, **76**, 465-79.

Judd, LL, 1997, 'The clinical course of unipolar major depressive disorders', *Archives of General Psychiatry*, **54**, 989-91.

Kaldor, J, Shugg, D, Young, B, Dwyer, T & Wang, YG, 1993, 'Non-melanoma skin cancer: ten years of cancer-registry-based surveillance', *International Journal of Cancer*, **53**, 886-91.

Kaldor, JM, Plant, AJ, Thompson, SC, Longbottom, H & Rowbottom, J, 1996, 'The incidence of hepatitis B infection in Australia: an epidemiological review', *Medical Journal of Australia*, **165**, 322-6.

Keel, PK, Mitchell, JE, Miller, KB, Davis, TL & Crow, SJ, 1999, 'Long-term outcome of bulimia nervosa', *Archives of General Psychiatry*, **56**, 63-9.

Keller, MB, 1994, 'Dysthymia in clinical practice:course, outcome and impact on the community', *Acta Psychiatr Scand Supplement*, **383**, 24-34.

Kerr, C, Morrell, S, Salkeld, G, Corbett, S, Taylor, R & Webster, F, 1996, 'Best estimates of the magnitude of health effects of occupational exposure to hazardous substances', Canberra: National Institute of Occupational Health and Safety

Kirchhoff, M, Davidsen, M, Bronnum-Hansen, H, Hansen, B, Schnack, H, Eriksen, LS, Madsen, M & Schroll, M, 1999, 'Incidence of myocardial infarction in the Danish MONICA population 1982-1991', *International Journal of Epidemiology*, **28**, 211-8.

Kis, B, Schrag, A, Ben-Shlomo, Y, Klein, C, Gasperi, A, Spoegler, F, Schoenhuber, R & Pramstaller, PP, 2002, 'Novel three-stage ascertainment method: prevalence of PD and Parkinsonism in South Tyrol, Italy', *Neurology*, **58**, 1820-5.

Kuopio, AM, Marttila, RJ, Helenius, H & Rinne, UK, 1999, 'Changing epidemiology of Parkinson's disease in southwestern Finland', *Neurology*, **52**, 302-8.

Kurth, AA, Rau, S, Wang, C & Schmitt, E, 1996, 'Treatment of lumbar disc herniation in the second decade of life', *European Spine Journal*, **5**, 220-4.

Lancaster, JL, Hanafi, Z & Jackson, SR, 1999, 'Adult presentation of a tracheoesophageal fistula with co-existing laryngeal cleft', *The Journal of Laryngology and Otology*, **113**, 469-72.

Law, MG, Dore, GJ, Bath, N, Thompson, S, Crofts, N, Dolan, K, Giles, W, Gow, P, Kaldor, J, Loveday, S, Powell, E, Spencer, J & Wodak, A, 2003, 'Modelling hepatitis C virus incidence, prevalence and long-term sequelae in Australia, 2001', *International Journal of Epidemiology*, **32**, 717-24.

Law, MG, Lynskey, M, Ross, J & Hall, W, 2001, 'Back-projection estimates of the number of dependent heroin users in Australia', *Addiction*, **96**, 433-43.

Lawes, CMM, Vander Hoorn, S, Law, MR, Elliott, E, MacMahon, S & Rodgers, A, 2004a, 'High blood pressure'. In '*Comparative Quantification of Health Risks, Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*', Vol. 1 (Eds, Ezzati, M, Lopez, AD, Rodgers, A & Murray, CJL) World Health Organization, Geneva, pp. 281-389.

Lawes, CMM, Vander Hoorn, S, Law, MR & Rodgers, A, 2004b, 'High cholesterol'. In '*Comparative Quantification of Health Risks, Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*', Vol. 1 (Eds, Ezzati, M, Lopez, AD, Rodgers, A & Murray, CJL) World Health Organization, Geneva, pp. 391-496.

Lea, A, 1993, '*Management of incontinence*', Australian Institute of Health and Welfare, Canberra.

Lee, WM, 1997, 'Hepatitis B virus infection', *The New England Journal of Medicine*, **337**, 1733-45.

Leff, J, Sartorius, N, Jablensky, A, Korten, A & Ernberg, G, 1992, 'The International Pilot Study of Schizophrenia: five-year follow-up findings', *Psychological Medicine*, **22**, 131-45.

Leonard, H, Petterson, B, Bower, C & Sanders, R, 2003, 'Prevalence of intellectual disability in Western Australia.' *Paediatric and Perinatal Epidemiology*, **17**, 58-67.

Lewin, TJ & Carr, VJ, 1998, 'Rates of treatment of schizophrenia by general practitioners. A pilot study', *Medical Journal of Australia*, **168**, 166-169.

Lloyd, AR, Hickie, I, Boughton, CR, Spencer, O & Wakefield, D, 1990, 'Prevalence of chronic fatigue syndrome in an Australian population', *Medical Journal of Australia*, **153**, 522-8.

Lock, K, Pomerleau, J, Causer, L & McKee, M, 2004, 'Low fruit and vegetable consumption'. In *'Comparative Quantification of Health Risks, Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*', Vol. 1 (Eds, Ezzati, M, Lopez, AD, Rodgers, A & Murray, CJL) World Health Organization, Geneva, pp. 597-728.

March, LM, Schwarz, JM, Carfrae, BH & Bagge, E, 1998, 'Clinical validation of self-reported osteoarthritis', *Osteoarthritis Cartilage*, **6**, 87-93.

Marks, R, 1995a, 'The epidemiology of non-melanoma skin cancer: who, why and what can we do about it', *Journal of Dermatology*, **22**, 853-7.

Marks, R, 1995b, 'An overview of skin cancers. Incidence and causation', *Cancer*, **75**, 607-12.

Martinez, FD, Wright, AL, Taussig, LM, Holberg, CJ, Halonen, M & Morgan, WJ, 1995, 'Asthma and wheezing in the first six years of life. The Group Health Medical Associates', *The New England Journal of Medicine*, **332**, 133-8.

Mathers, C, Vos, T & Stevenson, C, 1999, ' *The burden of disease and injury in Australia. Cat No. PHE 17*', Australian Institute of Health and Welfare, Canberra.

Mathers, CD, Vos, T, Lopez, AD, Salomon, J & Ezzati, M, 2001, '*National Burden of Disease Studies: A Practical Guide. Edition 2.0. Global Program on Evidence for Health Policy*', World Health Organization, Geneva.

Matlin, SA, 2004, '*Global Forum Update on Research for Health 2005*', Global Forum for Health Research, Pro-Brook Publishing, London.

McCusker, EA, Casse, RF, Graham, SJ, Williams, DB & Lazarus, R, 2000, 'Prevalence of Huntington disease in New South Wales in 1996', *Medical Journal of Australia*, **173**, 187-90.

McDonald, SP & Russ, GR (Eds.) 2002, '*ANZDATA Registry 2002 Report'*, Australia and New Zealand Dialysis and Transplant Registry, Adelaide, South Australia.

McLeod, JG, Hammond, SR & Hallpike, JF, 1994, 'Epidemiology of multiple sclerosis in Australia. With NSW and SA survey results', *Medical Journal of Australia*, **160**, 117-22.

Melnick, JL, 1995, 'History and epidemiology of hepatitis A virus', *Journal of Infectious Diseases*, **171 Suppl 1**, S2-8.

Merlini, L, Stagni, SB, Marri, E & Granata, C, 1992, 'Epidemiology of neuromuscular disorders in the under-20 population in Bologna Province, Italy', *Neuromuscular Disorders*, **2**, 197-200.

Mitchell, P, Chapman, S & Smith, W, 1999, 'Smoking is a major cause of blindness', *Medical Journal of Australia*, **171**, 173-4.

Mitchell, P, Smith, W, Chey, T & Healey, PR, 1997, 'Open-angle glaucoma and diabetes: the Blue Mountains eye study, Australia', *Ophthalmology*, **104**, 712-8.

Mitchell, PB, Slade, T & Andrews, G, 2004, 'Twelve-month prevalence and disability of DSM-IV bipolar disorder in an Australian general population survey', *Psychological Medicine*, **34**, 777-85.

Miyamura, H, Eguchi, S & Asano, K, 1993, 'Long-term results of the intracardiac repair of tetralogy of Fallot: a follow-up study conducted over more than 20 years on 100 consecutive operative survivors', *Surgery Today*, **23**, 1049-52.

Mollison, LC, Jamrozik, KD & Plant, AJ, 1999, 'Australian doctors' beliefs and practice regarding Helicobacter pylori', *Medical Journal of Australia*, **170**, 354-7.

Morens, DM, Davis, JW, Grandinetti, A, Ross, GW, Popper, JS & White, LR, 1996, 'Epidemiologic observations on Parkinson's disease: incidence and mortality in a prospective study of middle-aged men', *Neurology*, **46**, 1044-50.

Moss, SE, Klein, R & Klein, BE, 1992, 'The prevalence and incidence of lower extremity amputation in a diabetic population', *Archives of Internal Medicine*, **152**, 610-6.

Mouzos, J, 1999, 'Femicide: An Overview of Major Findings', Trends and Issues in Criminal Justice. No. 124. Canberra: Australian Institute of Criminology

Mowat, D, Partington, M, Turner, G, Tonge, B, Einfeld, S, Gray, K & Taylor, D, unpublished, In '*The Australian child and adolescent developmental (ACAD) study: Genetic assessment of an epidemiological sample of young people with mental retardation*' Department of Medical Genetics, Sydney Children's Hospital.

Munoz, N, Bosch, FX, de Sanjose, S, Herrero, R, Castellsague, X, Shah, KV, Snijders, PJ & Meijer, CJ, 2003, 'Epidemiologic classification of human papillomavirus types associated with cervical cancer', *The New England Journal of Medicine*, **348**, 518-27.

Murray, CJ & Acharya, AK, 1997, 'Understanding DALYs (disability-adjusted life years)', *Journal of Health Economics*, **16**, 703-30.

Murray, CJ & Lopez, AD, 1999, 'On the comparable quantification of health risks: lessons from the Global Burden of Disease Study', *Epidemiology*, **10**, 594-605.

Murray, CJL, Lopez, AD, Mathers, CD & Stein, C, 2001, 'The Global Burden of Disease 2000 project: aims, methods and data sources', Cambridge: Harvard University.

Murray, CJL, Salomon, JA, Mathers, CD & Lopez, AD, 2002a, 'Preface'. In '*Summary measures of population health: concepts, ethics, measurement and applications*' (Eds, Murray, CJL, Salomon, JA, Mathers, CD & Lopez, AD) World Health Organization, Geneva.

Murray, CJL, Salomon, JA, Mathers, CD & Lopez, AD, 2002b, '*Summary measures of population health: concepts, ethics, measurement and applications*', World Health Organization, Geneva.

Murray, CJM & Lopez, AD, 1996, '*The Global Burden of Disease: A comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2016*', Harvard University Press, Cambridge.

Nelson, CB & Wittchen, HU, 1998, 'DSM-IV alcohol disorders in a general population sample of adolescents and young adults', *Addiction*, **93**, 1065-77.

Nelson, MR, Liew, D, Vos, T & Bertram, M, 2005, 'Epidemiological modelling of routine use of low-dose aspirin for the primary prevention of coronary heart disease and stroke in those aged 70 years and above', *Bmj (Clinical Research Ed.)*, **330**, 1306-11.

NHMRC, 1992, 'Is there a safe level of daily consumption of alcohol for men and women?' Canberra: National Health and Medical Research Council

NHMRC, 1997, 'The health effects of passive smoking', Canberra: National Health and Medical Research Council

NOHSC, 1998, 'Work-related traumatic fatalities in Australia, 1989 to 1992', Sydney: National Occupational Health and Safety Commission

Nollert, G, Fischlein, T, Bouterwek, S, Bohmer, C, Dewald, O, Kreuzer, E, Welz, A, Netz, H, Klinner, W & Reichart, B, 1997a, 'Long-term results of total repair of tetralogy of Fallot in adulthood: 35 years follow-up in 104 patients corrected at the age of 18 or older', *The Thoracic and Cardiovascular Surgeon*, **45**, 178-81.

Nollert, G, Fischlein, T, Bouterwek, S, Bohmer, C, Klinner, W & Reichart, B, 1997b, 'Long-term survival in patients with repair of tetralogy of Fallot: 36-year follow-up of 490 survivors of the first year after surgical repair', *Journal of the American College of Cardiology*, **30**, 1374-83.

NZMOH, 1999, 'The health of New Zealanders 1996/7', Wellington: New Zealand Ministry of Health

Oliveria, SA, Felson, DT, Reed, JI, Cirillo, PA & Walker, AM, 1995, 'Incidence of symptomatic hand, hip, and knee osteoarthritis among patients in a health maintenance organization', *Arthritis and Rheumatism*, **38**, 1134-41.

Partington, M, Mowat, D, Einfeld, S, Tonge, B & Turner, G, 2000, 'Genes on the X chromosome are important in undiagnosed mental retardation', *American Journal of Medical Genetics*, **92**, 57-61.

Patja, K, Iivanainen, M, Vesala, H, Oksanen, H & Ruoppila, I, 2000, 'Life expectancy of people with intellectual disability: a 35-year follow-up study.' *Journal of Intellectual Disability Research*, **44 (Pt 5)**, 591-9.

Peat, JK, Gray, EJ, Mellis, CM, Leeder, SR & Woolcock, AJ, 1994, 'Differences in airway responsiveness between children and adults living in the same environment: an epidemiological study in two regions of New South Wales', *The European Respiratory Journal*, **7**, 1805-13.

Peat, JK, Haby, M, Spijker, J, Berry, G & Woolcock, AJ, 1992, 'Prevalence of asthma in adults in Busselton, Western Australia', *Bmj (Clinical Research Ed.)*, **305**, 1326-9.

Peat, JK, Toelle, BG, Gray, EJ, Haby, MM, Belousova, E, Mellis, CM & Woolcock, AJ, 1995, 'Prevalence and severity of childhood asthma and allergic sensitisation in seven climatic regions of New South Wales', *Medical Journal of Australia,* **163**, 22-6.

Persson, PG, Bernell, O, Leijonmarck, CE, Farahmand, BY, Hellers, G & Ahlbom, A, 1996, 'Survival and cause-specific mortality in inflammatory bowel disease: a population-based cohort study', *Gastroenterology*, **110**, 1339-45.

Peters, L, Slade, T & Andrews, G, 1999, 'A comparison of ICD10 and DSM-IV criteria for post-traumatic stress disorder', *Journal of Traumatic Stress*, **12**, 335-43.

Peto, R, Lopez, AD, Boreham, J, Thun, M & Heath, C, Jr., 1992, 'Mortality from tobacco in developed countries: indirect estimation from national vital statistics', *Lancet*, **339**, 1268-78.

Picavet, HS & Hazes, JM, 2003, 'Prevalence of self-reported musculoskeletal diseases is high', *Annals of the Rheumatic Diseases*, **62**, 644-50.

Pincus, T, Brooks, RH & Callahan, LF, 1994, 'Prediction of long-term mortality in patients with rheumatoid arthritis according to simple questionnaire and joint count measures', *Annals of Internal Medicine*, **120**, 26-34.

Pope, CA, 3rd, Burnett, RT, Thun, MJ, Calle, EE, Krewski, D, Ito, K & Thurston, GD, 2002, 'Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution', *Journal of the American Medical Association*, **287**, 1132-41.

Prevoo, ML, van Gestel, AM, van T Hof MA, van Rijswijk, MH, van de Putte, LB & van Riel, PL, 1996, 'Remission in a prospective study of patients with rheumatoid arthritis. American Rheumatism Association preliminary remission criteria in relation to the disease activity score', *British Journal of Rheumatology*, **35**, 1101-5.

Pridmore, SA, 1990, 'Age of death and duration in Huntington's disease in Tasmania', *Medical Journal of Australia*, **153**, 137-9.

Rasmussen, C, 1996, 'Lumbar disc herniation: social and demographic factors determining duration of disease', *European Spine Journal*, **5**, 225-8.

Ridolfo, B & Stevenson, C, 2001, 'The quantification of drug-caused mortality and morbidity in Australia, 1998 (Drug Statistics.Series No. 7) AIHW cat. no. PHE29', Canberra: Australian Institute of Health and Welfare

Ritchie, K, Kildea, D & Robine, JM, 1992, 'The relationship between age and the prevalence of senile dementia: a meta-analysis of recent data', *International Journal of Epidemiology*, **21**, 763-9.

Roberts, GL, O'Toole, BI, Raphael, B, Lawrence, JM & Ashby, R, 1996, 'Prevalence study of domestic violence victims in an emergency department', *Annals of Emergency Medicine*, **27**, 741-53.

Robertson, CF, Dalton, MF, Peat, JK, Haby, MM, Bauman, A, Kennedy, JD & Landau, LI, 1998, 'Asthma and other atopic diseases in Australian children. Australian arm of the International Study of Asthma and Allergy in Childhood', *Medical Journal of Australia*, **16**8, 434-8.

Roche, AM, 1997, 'The shifting sands of alcohol prevention: rethinking population control approaches', *Australian and New Zealand Journal of Public Health*, **21**, 621-5.

Rose, G, 1992, '*The strategy of preventive medicine*', Oxford University Press, Oxford.

Sanders, AE, Slade, GD, Carter, KD & Stewart, JF, 2004, 'Trends in prevalence of complete tooth loss among Australians, 1979-2002', *Australian and New Zealand Journal of Public Health*, **28**, 549-54.

Sawyer, MM, Arney, FM, Baghurst, PA, Clark, JJ, Graetz, BW, Kosky, RJ, Nurcombe, B, Patton, GC, Prior, MR, Raphael, B, Rey, J, Whaites, LC & Zubrick, SR, 2000, 'The mental health of young people in Australia', Canberra: Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care

Senni, M, Rodeheffer, RJ, Tribouilloy, CM, Evans, JM, Jacobsen, SJ, Bailey, KR & Redfield, MM, 1999, 'Use of echocardiography in the management of congestive heart failure in the community', *Journal of the American College of Cardiology*, **33**, 164-70.

Shibuya, K & Murray, C, 1998, In '*Health dimensions of sex and reproduction: the global burden of sexually transmitted diseases, HIV, maternal conditions, perinatal disorders, and congenital anomalies.Global Burden of Disease and Injury Series*' (Eds, Murray, C & Lopez, A) The Harvard School of Public Health, Boston, pp. 399-428.

Simoca, I, Olarescu, AA, Jipescu, I & Lisievici, M, 1994, 'Postoperative outcome of intracranial meningiomas; long-term prognosis', *Romanian Journal of Neurology and Psychiatry*, **32**, 237-51.

Slade, GD & Spencer, AJ, 1994, 'Social impact of oral conditions among older adults', *Australian Dental Journal*, **39**, 358-64.

Slade, GD, Spencer, AJ & Roberts-Thomson, K, 1996, 'Tooth loss and chewing capacity among older adults in Adelaide', *Australian and New Zealand Journal of Public Health*, **20**, 76-82.

Solomon, DA, Keller, MB, Leon, AC, Mueller, TI, Shea, MT, Warshaw, M, Maser, JD, Coryell, W & Endicott, J, 1997, 'Recovery from major depression. A 10-year prospective follow-up across multiple episodes', *Archives of General Psychiatry*, **54**, 1001-6.

Spector, TD, Nandra, D, Hart, DJ & Doyle, DV, 1997, 'Is hormone replacement therapy protective for hand and knee osteoarthritis in women?: The Chingford Study', *Annals of the Rheumatic Diseases*, **56**, 432-4.

Spencer, AJ, Davies, M, Slade, G & Brennan, D, 1994, 'Caries prevalence in Australasia', *International Dental Journal*, **44**, 415-23.

Staples, M, Marks, R & Giles, G, 1998, 'Trends in the incidence of non-melanocytic skin cancer (NMSC) treated in Australia 1985-1995: are primary prevention programs starting to have an effect?' *International Journal of Cancer*, **78**, 144-8.

Steiner, HH, Herold-Mende, C, Bonsanto, M, Geletneky, K & Kunze, S, 1998, '[Prognosis of brain tumors: epidemiology, survival time and clinical course]', *Versicherungsmedizin*, **50**, 173-9.

Steinhausen, HC, Winkler, C & Meier, M, 1997, 'Eating disorders in adolescence in a Swiss epidemiological study', *The International Journal of Eating Disorders*, **22**, 147-51.

Stenstrom, R, Bernard, PA & Ben-Simhon, H, 1993, 'Exposure to environmental tobacco smoke as a risk factor for recurrent acute otitis media in children under the age of five years', International *Journal of Pediatric Otorhinolaryngology*, **27**, 127-36.

Stonnington, CM, Phillips, SF, Melton, LJ, 3rd & Zinsmeister, AR, 1987, 'Chronic ulcerative colitis: incidence and prevalence in a community', *Gut*, **28**, 402-9.

Stouthard, M, Essink-Bot, M, Bonsel, G, Barendregt, J & Kramers, P, 1997, 'Disability weights for diseases in the Netherlands', Rotterdam: Department of Public Health, Erasmus University

Strickland, D & Bertoni, JM, 2004, 'Parkinson's prevalence estimated by a state registry', *Movement Disorders*, **19**, 318-23.

Strober, M, Freeman, R & Morrell, W, 1997, 'The long-term course of severe anorexia nervosa in adolescents: survival analysis of recovery, relapse, and outcome predictors over 10-15 years in a prospective study', *The International Journal of Eating Disorders*, **22**, 339-60.

Sullivan, PF, 1995, 'Mortality in anorexia nervosa', *American Journal of Psychiatry*, **152**, 1073-4.

Sutcliffe, RL & Meara, JR, 1995, 'Parkinson's disease epidemiology in the Northampton District, England, 1992', *Acta Neurologica Scandinavica*, **92**, 443-50.

Taba, P & Asser, T, 2002, 'Prevalence of Parkinson's disease in Estonia', *Acta Neurologica Scandinavica*, **106**, 276-81.

Tandberg, E, Larsen, JP, Nessler, EG, Riise, T & Aarli, JA, 1995, 'The epidemiology of Parkinson's disease in the county of Rogaland, Norway', *Movement Disorders*, **10**, 541-9.

Tangsrud, SE & Halvorsen, S, 1989, 'Child neuromuscular disease in southern Norway. The prevalence and incidence of Duchenne muscular dystrophy', *Acta Paediatrica Scandinavica*, **78**, 100-3.

Tapp, RJ, Shaw, JE, de_Courten, MP, Dunstan, DW, Welborn, TA, Zimmet, PZ & 2003, 'Foot complications in Type 2 diabetes: an Australian population-based study.' *Diabetic Medicine: a Journal of the British Diabetic Association*, **20**, 105-13.

ten Have, M, Vollebergh, W, Bijl, R & Nolen, WA, 2002, 'Bipolar disorder in the general population in The Netherlands (prevalence, consequences and care utilisation): results from The Netherlands Mental Health Survey and Incidence Study (NEMESIS)', *Journal of Affective Disorders*, **68**, 203-13.

Thorvaldsen, P, Davidsen, M, Bronnum-Hansen, H & Schroll, M, 1999, 'Stable stroke occurrence despite incidence reduction in an aging population: stroke trends in the Danish monitoring trends and determinants in cardiovascular disease (MONICA) population', *Stroke*, **30**, 2529-34.

Thrift, AG, Dewey, HM, Macdonell, RA, McNeil, JJ & Donnan, GA, 2000, 'Stroke incidence on the east coast of Australia: the North East Melbourne Stroke Incidence Study (NEMESIS)', *Stroke*, **31**, 2087-92.

Tobias, M & Bonne, M, 07/12/2004, Modelling Diabetes: The mortality burden, http://www.moh.govt.nz/moh.nsf/0/0a6879dd6b0e9d0fcc256b76000c65b6?OpenDocument

Toelle, BG, Ng, K, Belousova, E, Salome, CM, Peat, JK & Marks, GB, 2004, 'Prevalence of asthma and allergy in schoolchildren in Belmont, Australia: three cross sectional surveys over 20 years', *Bmj (Clinical Research Ed.)*, **328**, 386-7.

Toelle, BG, Peat, JK, Salome, CM, Mellis, CM & Woolcock, AJ, 1992, 'Toward a definition of asthma for epidemiology', *The American Review of Respiratory Disease*, **146**, 633-7.

Uhlig, T, Kvien, TK, Glennas, A, Smedstad, LM & Forre, O, 1998, 'The incidence and severity of rheumatoid arthritis, results from a county register in Oslo, Norway', *The Journal of Rheumatology*, **25**, 1078-84.

Unal, B, Critchley, JA & Capewell, S, 2004, 'Explaining the decline in coronary heart disease mortality in England and Wales between 1981 and 2000', *Circulation*, **109**, 1101-7.

Van Asperen, PP, 1995, 'Towards a better understanding of childhood asthma', *Journal of Paediatrics and Child Health*, **31**, 272-5.

Vos, T, Haby, M, Barendregt, J, Kruishaar, M, Corry, J & Andrews, G, 2004, 'The burden of major depression avoidable by longer-term treatment strategies.' *Archives of General Psychiatry*, **61**, 1097-1103.

Vos, T, Haby, MM, Magnus, A, Mihalopoulos, C, Andrews, G & Carter, R, 2005, 'Assessing Cost-Effectiveness (ACE)-Mental Health: Helping policy makers prioritise and plan health services', *Australian and New Zealand Journal of Psychiatry,* **39**, 701-12.

Walter, M, Scholler, G, Moyzes, D, Hildebrandt, M, Neuhaus, R, Danzer, G & Klapp, BF, 2002, 'Psychosocial prediction of abstinence from ethanol in alcoholic recipients following liver transplantation', *Transplant Proceedings*, **34**, 1239-41.

Webb, S & Holman, D, 1992, 'A survey of infertility, surgical sterility and associated reproductive disability in Perth, Western Australia', *Australian Journal of Public Health*, **16**, 376-81.

Weih, LM, VanNewkirk, MR, McCarty, CA & Taylor, HR, 2000, 'Age-specific causes of bilateral visual impairment.' *Archives of Ophthalmology*, **118**, 264-9.

Weiss, TJ, Meffin, EM, Jones, RG & Jones, WR, 1992, 'Trends in causes and treatment of infertility at Flinders Medical Centre, Adelaide, 1976-1989', *Medical Journal of Australia*, **156**, 308-11.

Wellesley, DG, Hockey, KA, Montgomery, PD & Stanley, FJ, 1992, 'Prevalence of intellectual handicap in Western Australia: a community study', *Medical Journal of Australia*, **156**, 94-6.

Wensor, M, McCarty, CA & Taylor, HR, 1999, 'Prevalence and risk factors of myopia in Victoria, Australia', *Archives of Opthalmology*, **117**, 658-63.

Wensor, MD, McCarty, CA, Stanislavsky, YL, Livingston, PM & Taylor, HR, 1998, 'The prevalence of glaucoma in the Melbourne Visual Impairment Project.' *Ophthalmology*, **105**, 733-9.

Wermuth, L, Joensen, P, Bunger, N & Jeune, B, 1997, 'High prevalence of Parkinson's disease in the Faroe Islands', *Neurology*, **49**, 426-32.

Wermuth, L, von Weitzel-Mudersbach, P & Jeune, B, 2000, 'A two-fold difference in the age-adjusted prevalences of Parkinson's disease between the island of Als and the Faroe Islands', *European Journal of Neurology*, **7**, 655-60.

Wessely, S, 1995, 'The epidemiology of chronic fatigue syndrome', *Epidemiologic Reviews*, **17**, 139-51.

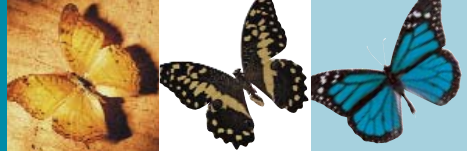
WHO, 1997, '*Obesity: Preventing and Managing the Global Epidemic*.' WHO, Geneva.

Wilson, D, Sanchez, L & Read, P, 1998, '*Hearing Impairment in an Australian Population*', Centre for Population Studies in Epidemiology, Department of Human Services, Adelaide.

Wilson, DH, Walsh, PG, Sanchez, L, Davis, AC, Taylor, AW, Tucker, G & Meagher, I, 1999, 'The epidemiology of hearing impairment in an Australian adult population', *International Journal of Epidemiology*, **28**, 247-52.

Woolcock, AJ, Peat, JK, Salome, CM, Yan, K, Anderson, SD, Schoeffel, RE, McCowage, G & Killalea, T, 1987, 'Prevalence of bronchial hyperresponsiveness and asthma in a rural adult population', *Thorax*, **42**, 361-8.

World Bank, 1993, ' *World Development Report: Investing in Health*', Oxford University Press., New York.



Notes

Notes

Notes

Notes

State Government Victoria
Department of Human Services