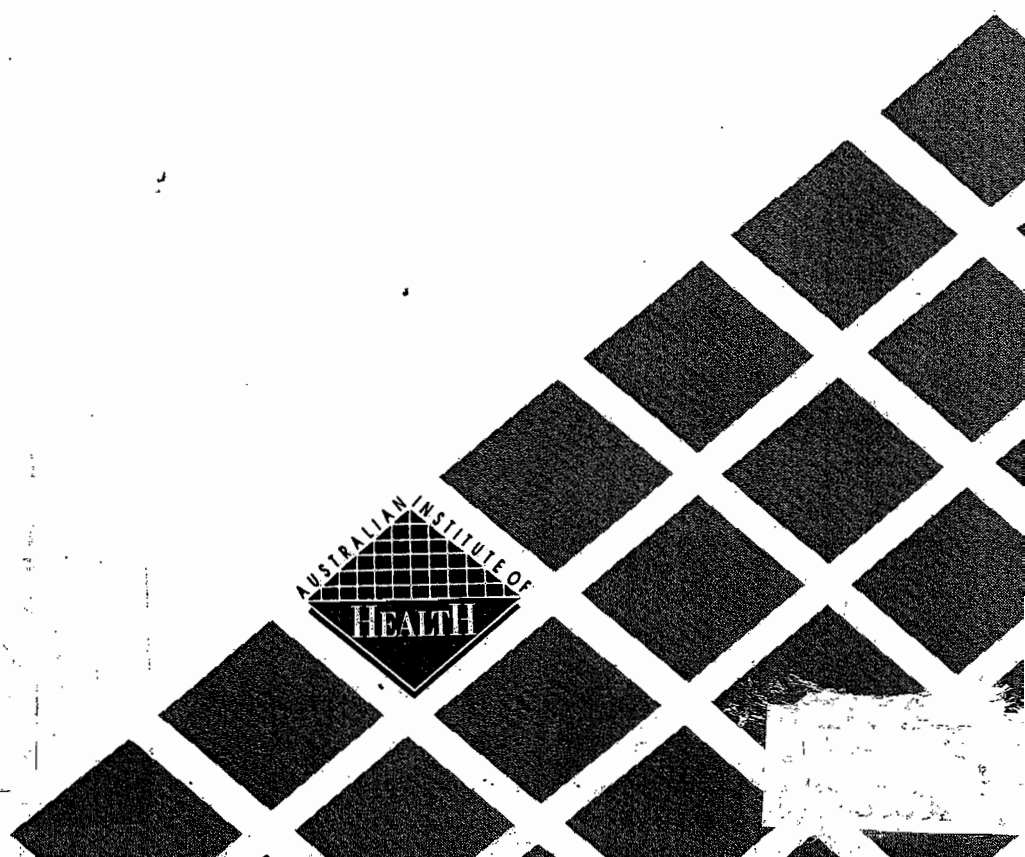
Health expectancies in Australia 1981 and 1988

Colin Mathers



AUSTRALIAN INSTITUTE OF HEALTH

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Explanatory note:

Note 3 Operating profit prior year adjustments and abnormal items 1990 comparative bracketed figures denote debit

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Contents

List of tables v

List of figures ix

Summary xi

1 Introduction 1

2 Health expectancies for Australians in 1988 7

3 Trends for Australians, 1981 to 1988 11

4 Survival curves for Australians 15

5 Health expectancies for States and Territories, 1988 19

6 Trends for States and Territories, 1981 to 1988 25

7 Discussion and conclusions 29

References 43

Appendixes

A Data sources and definitions 47
A.1 ABS surveys of disability and handicap, 1981 and 1988 47
A.2 Definitions of disability and handicap 47
A.3 Calculations of prevalence rates 49
A.4 Graduation of prevalence rates by single years of age 51
A.5 Life tables for Australia and States and Territories 52

B The Sullivan method for calculating health expectancies 55

C Standard errors of health expectancies 63

D Unabridged health expectancy tables for Australia 67

E Abridged health expectancy tables for Australia and States and Territories 81

Table 16: Prevalence of all disabling conditions, males by age group and sex, Australia, 1981 and 1988 30

Table 17: Prevalence of all disabling conditions, females by age group and sex, Australia, 1981 and 1988 31

Table 18: Percentage change in prevalence rate of disabling conditions, from 1981 to 1988, Australia 32

Table 19: Disability-free life expectancy at birth and at age 65 - most recent value for each country or region for which the Sullivan method has been used 34

Table 20: Trends in disability-free life expectancy at birth and at age 65 - for countries for which time series have been published 35

Table A.1: Benchmark figures for total Australian population, Disabled and Aged Persons Survey, 1981 49

Table A.2: Root mean squared relative differences for 1988 population estimates compared with sample survey estimates 50

Table A.3: Adjustment of population estimates for persons aged 85-94 years, 1981 51

Table A.4: Estimated total population (disabled and non-disabled), Australia, 1981 51

Table A.5: Comparison of prevalence of disability in Australia in 1988 from survey estimates and graduated rates 52

Table A.6: Difference between health expectancies based on graduated and ungraduated rates 52

Table B.1: Expectation of remaining life for individuals aged 70 and over: two functional statuses, United States, 1984 58

Table B.2: Correction factors for bias introduced into health expectancy estimates by life table abridgement, 1988 62

Table C.1: Average relative standard deviation of prevalence rate estimates for 19 age groups, by sex and State or Territory, 1988 66

Table D.1: Male health expectancies, Australia, 1981 68

Table D.2: Female health expectancies, Australia, 1981 70

List of Tables

Table 1: Life expectancy at selected ages, 1895 to 1988 1

Table 2: Prevalence of disability and handicap by age and sex, 1981 and 1988 4

Table 3: Health expectancy at birth and at age 65 by sex, Australia, 1988 7

Table 4: Disability-free life expectancy, by age and sex, Australia, 1988 8

Table 5: Health expectancy by age and sex, Australia, 1988 9

Table 6: Ninety-five per cent confidence intervals for health expectancies, Australia, 1988 9

Table 7: Health expectancy at birth, by sex, Australia, 1981 and 1988 11

Table 8: Health expectancy at age 65, by sex, Australia, 1981 and 1988 14

Table 9: Health expectancies at birth, by sex, State and Territory, 1988 19

Table 10: Health expectancies at age 65, by sex, State and Territory, 1988 20

Table 11: Deviation of health expectancies at birth from national average, by sex, State and Territory, 1988 20

Table 12: Deviation of health expectancies at age 65 from national average, by sex, State and Territory, 1988 22

Table 13: Increase in health expectancies at birth, by sex, State and Australia, 1981 to 1988 25

Table 14: Increase in health expectancies at age 65, by sex, State and Australia, 1981 to 1988 28

Table 15: Area of handicap by severity, handicapped persons aged five years or more, 1981 and 1988 29

Table D.3: Male health expectancies, Australia, 1988 72
Table D.4: Female health expectancies, Australia, 1988 74
Table D.5: Survival curves for males and females, Australia, 1981 76
Table D.6: Survival curves for males and females, Australia, 1988 78
Table E.1: Male health expectancies, New South Wales, 1981 82
Table E.2: Female health expectancies, New South Wales, 1981 83
Table E.3: Male health expectancies, Victoria, 1981 84
Table E.4: Female health expectancies, Victoria, 1981 85
Table E.5: Male health expectancies, Queensland, 1981 86
Table E.6: Female health expectancies, Queensland, 1981 87
Table E.7: Male health expectancies, South Australia, 1981 88
Table E.8: Female health expectancies, South Australia, 1981 89
Table E.9: Male health expectancies, Western Australia, 1981 90
Table E.10: Female health expectancies, Western Australia, 1981 91
Table E.11: Male health expectancies, Tasmania, 1981 92
Table E.12: Female health expectancies, Tasmania, 1981 93
Table E.13: Male health expectancies, Australia, 1981 94
Table E.14: Female health expectancies, Australia, 1981 95
Table E.15: Male health expectancies, New South Wales, 1988 96
Table E.16: Female health expectancies, New South Wales, 1988 97
Table E.17: Male health expectancies, Victoria, 1988 98
Table E.18: Female health expectancies, Victoria, 1988 99
Table E.19: Male health expectancies, Queensland, 1988 100
Table E.20: Female health expectancies, Queensland, 1988 101
Table E.21: Male health expectancies, South Australia, 1988 102

Table E.22: Female health expectancies, South Australia, 1988 103

Table E.23: Male health expectancies, Western Australia, 1988 104

Table E.24: Female health expectancies, Western Australia, 1988 105

Table E.25: Male health expectancies, Tasmania, 1988 106

Table E.26: Female health expectancies, Tasmania, 1988 107

Table E.27: Male health expectancies, Northern Territory, 1988 108

Table E.28: Female health expectancies, Northern Territory, 1988 109

Table E.29: Male health expectancies, Australian Capital Territory, 1988 110

Table E.30: Female health expectancies, Australian Capital Territory, 1988 111

Table E.31: Male health expectancies, Australia, 1988 112

Table E.32: Female health expectancies, Australia, 1988 113

Table E.33: Standard errors of health expectancies, Australian States, 1981 114

Table E.34: Standard errors of health expectancies Australian States, 1988 116

List of Figures

Figure 1: Graduated prevalence of severe handicap, all handicap and disability by age and sex, Australia, 1981 and 1988 6

Figure 2: Health expectancies at birth, males and females, Australia, 1988 7

Figure 3: Health expectancies at age 65, males and females, Australia ,1988 8

Figure 4: Total life expectancy and expected years of disability by age and sex, Australia, 1988 10

Figure 5: Health expectancies at birth, males and females, Australia, 1981 and 1988 12

Figure 6: Health expectancies at age 65, males and females, Australia, 1981 and 1988 13

Figure 7: Survival curves for Australian males and females, 1988 16

Figure 8: Disability-free survival curves, 1981 and 1988 17

Figure 9: Severe-handicap-free survival curves, 1981 and 1988 18

Figure 10: Deviation of State and Territory health expectancies at birth from Australian averages, 1988 21

Figure 11: Deviation of State and Territory health expectancies at age 65 from Australian averages, 1988 23

Figure 12: Increase in disability-free life expectancy by State from 1981 to 1988 26

Figure 13: Increase in severe-handicap-free life expectancy by State from 1981 to 1988 27

Figure A.1: Ungraduated and graduated prevalence rates of disability and severe handicap, 1981 53

Figure A.2: Ungraduated and graduated prevalence rates of disability and severe handicap, 1988 54

Figure B.1: Transitions in the multistate life table 56

Figure B.2: Transition probabilities for United States population aged 70 years and over, 1984-1986 59

Figure B.3: Projected population prevalence of dependency in United States population aged 70 years or more 60

Summary

The average life expectancy of Australians is increasing, but are Australians living longer, active and healthy lives or suffering more illness and disability? Similar questions to this have been addressed in Canada, England and Wales and the United States using a composite health indicator, a generalisation of total life expectancy to include information on the prevalence of disability.

In its simplest form, the health expectancy index takes overall life expectancy and breaks it down into years of disabled life and years of disability-free life. It provides a measure of health that is independent of the age structure of the population and is expressed in units (years of life) that are conceptually simple and meaningful in terms of individual experience.

This report provides estimates of health expectancies for Australians. Data on the prevalence of disability and handicap were derived from population surveys conducted by the Australian Bureau of Statistics in 1981 and 1988. These surveys relied on respondents' personal assessments of impairments and disabilities and on limitations or need for assistance in carrying out various specified activities of daily living.

In 1988, total life expectancy at birth was 73.1 years for Australian males and 79.5 years for Australian females. Disability-free life expectancy at birth was 58.4 years for males and 63.4 years for females. The difference between these is the expectation at birth of years of disability: 14.7 years for men and 16.0 years for women. Of the years of disability, 12.1 are years of handicap and 3.2 are years of severe handicap for males. Females experience more years of handicap from birth (14.0) and 6.0 of these are years of severe handicap, almost double that for males.

The proportion of remaining life spent free of disability drops rapidly with increasing age to below 50 per cent at around age 60 for both men and women. At age 65, disability-free life expectancy is 6.7 years for men and 8.6 years for women, compared with 8.1 and 10.1 years of disability respectively.

Disability-free life expectancy in 1988 significantly exceeded the Australian average for Queensland females (+1.4 years), South Australian males (+1.7 years) and females (+0.9 years) and ACT males (+3.2 years). Disability-free life expectancy was significantly lower than the national average for Northern Territorians of both sexes (reflecting their substantially lower total life expectancy) and for Tasmanian females.

From 1981 to 1988, life expectancy at birth increased by 2.3 years for males and 1.0 years for females. In contrast, disability-free life expectancy decreased by 0.8 years for males and 1.6 years for females. For both males and females, expected years of disability increased by close to 2.5 years (a 20 per cent increase), reflecting the substantial increases in reported prevalence of disability. Most of these increases were concentrated in the areas of mild and moderate handicap. Severe handicap expectancy also increased, but to a much lesser degree than expected years of disability, by 0.3 years (or 10 per cent) for males and 0.8 years (or 15 per cent) for females.

Total life expectancy at age 65 increased by 0.9 years for men and 0.6 years for women, whereas handicap expectancy increased by 2.4 years, almost three

times the increase in total life expectancy. Whereas severe handicap expectancy increased by around 15 per cent for both men and women, this represented only one third of the increase in total life expectancy for men but slightly more than 100 per cent of the increase in total life expectancy for women. Disability-free life expectancy at age 65 decreased by 15 per cent for both men and women.

Disability-free life expectancy decreased significantly for all States with the exception of Queensland and Western Australia. In contrast to the national pattern, disability-free life expectancy remained almost unchanged in Western Australia and actually increased by 0.9 and 1.6 years for Queensland males and females respectively.

Although Australian health expectancies show greater declines than time series available for other countries, the overall picture from the international data is of rising total life expectancy and stationary or falling health expectancies.

The relative importance of changes in perception and awareness of disability and health versus changes in the underlying prevalence of chronic illness is still an open question, for Australia and other countries. However, all the gains in increased years of life are increased years of perceived disability and handicap, with a consequent demand for social and health services. People may be living longer but in worse health, they may have higher expectations of good health, or they may be adjusting behaviour more by restricting activity. In any case, they have, in all probability, increased their use of health services.

The recent improvements in life expectancy at older ages have led to renewed arguments that this is due to the improved survival of seriously and chronically ill people, leading to a greater burden of disability and an expansion of morbidity. In contrast, primary prevention of disease should reduce the incidence of illness. Those who do fall ill should have less severe illness. This leads to increasing life expectancy and increasing health expectancy.

The lack of improvement in Australian health expectancies in the 1980s may largely reflect changes in societal perceptions of disability, handicap, rising expectations of good health and, to some extent, the successes of secondary prevention. If significant advances in primary prevention occur in the future, we may hope to see falling incidence of chronic and disabling conditions and improving health expectancies.

1 Introduction

Death rates have declined remarkably in Australia and other developed countries in recent decades. The overall age-adjusted death rates for Australian males and females decreased by 34 per cent and 37 per cent respectively between 1968 and 1988 (D'Espaignet et al 1991). Over the same 20 year period, death rates for males and females aged 85 years or more decreased by 30 per cent and 32 per cent respectively. This is in marked contrast to earlier decades of the 20th century, when death rates at younger ages declined at a substantially greater rate than those at older ages.

This has resulted in increasing average life expectancies in Australia, at older ages as well as at birth. Relative increases in life expectancy at age 60 are now outpacing increases in life expectancy at birth. For example, from 1965-67 to 1988, life expectancy for females at age 60 rose 17 per cent, and 25 per cent at age 80, compared to just seven per cent at birth. For males, the figures are 20 per cent, 21 per cent and eight per cent respectively (Table 1.). This is very different to what happened in earlier decades of the twentieth century, when gains for children and young adults exceeded those for older people. For example, from the last decade of the 19th century to 1966, life expectancy for males aged 60 rose nine per cent, compared to 32 per cent at birth.

Table 1: Life expectancy at selected ages, 1895 to 1988

	Period				
Sex/age (years)	*1891-1900*	*1920-22*	*1946-48*	*1965-67*	*1988*
Male					
0	51.06	59.15	66.07	67.63	73.08
20	42.81	46.99	49.64	49.98	54.40
40	27.65	30.05	31.23	31.44	35.76
60	13.99	15.08	15.36	15.27	18.36
80	5.00	5.00	5.36	5.51	6.65
Female					
0	54.76	63.31	70.63	74.15	79.45
20	45.72	50.03	53.47	56.00	60.43
40	30.49	33.14	34.91	36.85	41.03
60	15.86	17.17	18.11	19.52	22.81
80	5.49	5.61	6.02	6.72	8.41

Source: Commonwealth Bureau of Census and Statistics (1961,1973)
Australian Bureau of Statistics 3302.0

These recent improvements in mortality and life expectancy at older ages have prompted considerable debate about associated trends in morbidity and disability. For example, Verbrugge (1989) has asked:

> 'Have the longevity gains increased the number and percentage of very ill, frail people, who require protracted and expensive medical care and whose well-being is severely compromised? If so, is the price for more years of life too high for society and also for many individuals?'

Fries (1980, 1989) has taken the opposite view that the most important cause of the mortality declines is decreasing disease incidence, resulting in the

delayed onset of chronic disease and the consequent compression of morbidity into a shorter period prior to the end of life. This argument is supported by evidence that the dramatic declines in heart disease mortality in the last two decades are due to decreases in the incidence of heart attacks (Martin et al 1989; Blackburn 1989). Other authors have taken a middle position: that the recent mortality declines may have resulted in more unhealthy people, but with less severe illness and disability. Manton (1982, 1989) has argued that both of the factors mentioned above, namely the saving of frail lives and declines in disease incidence, have had some role in causing the mortality decline.

There is clearly a need for composite health indicators which combine information not only on the overall length of life but also on the quality of life. Such indicators can be used not only to examine whether increases in life expectancy are being accompanied by increases in morbidity and disability, but also as performance indicators to monitor and plan health service provision and health promotion.

One such composite measure of health status, the disability-free life expectancy, was pioneered by Sullivan (1971) and is being increasingly applied in a number of countries (Colvez and Blanchet 1981; Wilkins and Adams 1983a,b; Katz et al 1983; Bebbington 1988; Crimmins et al 1989; Graham and Davis 1990). This measure takes overall life expectancy and breaks it down into years of disability-free life and years of disabled life. The Sullivan method is a straightforward extension to the conventional life table and similarly provides a measure of health that is independent of the age structure of the population and so is suitable for examining long-term trends and comparing population groups. It also shares the advantage of the conventional life expectancy index of being expressed in terms of years of life — a measure that is meaningful in terms of individual experience. Furthermore, the limitations of the life expectancy index are well understood (Sullivan 1971; Wilkins and Adams 1983a,b), although the relationship between the Sullivan method and more recently developed multistate life table methods are less well known (see Appendix B).

The Sullivan method applies the age-specific prevalence rates of disability in the population to the person-years of life lived (between the relevant ages) as shown in the conventional life table (see Appendix B). This gives the person-years of life lived with disability and free of disability at each age. The sum of all person-years of life lived in a given state of health (or disability) is then divided by the initial number of survivors to give the average number of years expected to be spent in each state of health or disability. Indexes, such as these, which give estimates of life expectancy in each of two or more states of health, are more generally known as health expectancy indexes. One particular form of disability-free life expectancy is also referred to as active life expectancy (Katz et al 1983).

It must be emphasised that health expectancies, like life expectancies, are hypothetical values derived from a period or cross-sectional life table. They are the values which would occur if an imaginary birth cohort were subject at all ages to the age-specific mortality and disability rates experienced by the population during the chosen period (of one year, for example). Since the age-specific rates may change considerably over the life span of any real birth cohort in the population, cross-sectional health expectancies may not reflect the life experience of cohorts born in any specific period. These indexes are

intended primarily for comparing the cross-sectional health status of different populations at the same period, or for comparing the cross-sectional health status of the same population in different periods (Robine and Michel 1990).

This report provides estimates of life expectancy for Australians in a number of disability states; these are generally referred to below as health expectancies. Data on the prevalence of disability and handicap among Australians were derived from population surveys conducted by the Australian Bureau of Statistics (ABS) in 1981 and 1988. These survey data are described further in Appendix A. Detailed results of the surveys and information on survey methods are given in relevant ABS publications (ABS Cat No 4343.0, 4118.0).

The ABS developed survey methods for identifying disabled and handicapped persons using the conceptual framework embodied in the International Classification of Impairments Disabilities and Handicaps (ICIDH) developed by the World Health Organization (WHO 1980). The conceptual framework of ICIDH is shown in Box 1.

Box 1: ICIDH conceptual model for disease, disability and handicap

Disease —> Impairment —> Disability —> Handicap

where

Impairments: are 'concerned with abnormalities of body structure and appearance and with organ or system function, resulting from any cause; in principle, impairments represent disturbances at the organ level.'

Disabilities : are 'reflecting the consequences of impairments in terms of functional performance and activity by the individual; disabilities thus represent disturbances at the level of the person.'

Handicaps: are 'concerned with the disadvantages experienced by the individual as a result of impairments and disabilities; handicaps thus reflect interaction with and adaptation to the individual's surroundings.'

Source: Manton 1982
World Health Organization 1980

Impairments refer to the loss or abnormality of psychological, physiological or anatomical function. Disabilities refer to the incapacity to perform basic self-care functions. Handicaps refer to the restrictions that impairments and disabilities place on the performance of basic social roles and on interaction with one's environment.

Handicap is a measure of social disadvantage resulting from disability or impairment. Thus the presence or absence of handicap and its level of severity are consequences of the interaction between the underlying impairment (ie medical condition), individual behaviour and attitudes, and the resources and social opportunities and restrictions available to the individual (Badley 1987; Chamie 1989). Thus, the same level of impairment might produce different levels of disability and handicap because of different social expectations about

the functional capacity of the elderly (Manton 1982), for example, expectations about the ability of the elderly to fulfil labour force roles.

The ABS surveys classified persons as not disabled, disabled or handicapped on the basis of self-reported answers to a standard survey instrument. Handicapped persons were further classified according to severity of handicap. Those handicapped persons who stated that they required personal help or supervision in activities relating to self care, mobility or verbal communication were classified as severely handicapped.

The 1988 Survey of Disabled and Aged Persons (ABS Cat No 4188.0) estimated that 15.6 per cent of Australians (2.5 million) are disabled and that, of this group, 83 per cent (2.1 million) are handicapped. The 1981 Survey of Handicapped Persons (ABS Cat No 4343.0) estimated that 8.6 per cent of Australians were handicapped. Between 1981 and 1988, the number of people identified as handicapped in the two surveys increased by over 50 per cent (or 859,400 people). The prevalence of handicap rose in all age groups, but most of the increase occurred in the mild or moderate handicap groups (Table 2). Most of the increase in the prevalence of severe handicap occurred in the 85 years and over age group.

Table 2: Prevalence of disability and handicap by age and sex, 1981 and 1988

	Per cent of population		
Age group	*Severely handicapped*	*Handicapped*	*Disabled*
1981			
0-14 years	1.1	3.7	5.3
15-34	1.2	3.2	6.8
35-59	3.3	9.7	15.8
60-84	12.0	27.0	36.7
85 and over	50.7	59.8	63.6
Total	3.5	8.6	13.2
1988			
0-14 years	1.5	5.2	6.0
15-34	1.4	5.4	7.1
35-59	3.2	13.2	15.9
60-84	12.2	37.9	44.9
85 and over	61.9	80.6	82.9
Total	4.0	13.0	15.6

Source: Australian Bureau of Statistics 4118.0

The significant increase in levels of reported handicap between 1981 and 1988 results in statistically significant decreases in handicap-free and disability-free life expectancy as reported in Chapter 3. When considering these changes over time in prevalence rates of disability and handicap and in health expectancies, the following points should be kept in mind:

1. The definitions of disability and handicap were applied in the same way in the 1981 and 1988 surveys. However, this definition relies on self-reported assessments which may change in line with changing community attitudes towards, and perceptions of, disability and handicap. In relation to this, it should be noted that 65 per cent of disabled people were classified as handicapped in 1981, compared to 84 per cent in 1988. The possible role of changes of perception of disability and handicap is discussed further in Chapter 7, section 7.3.

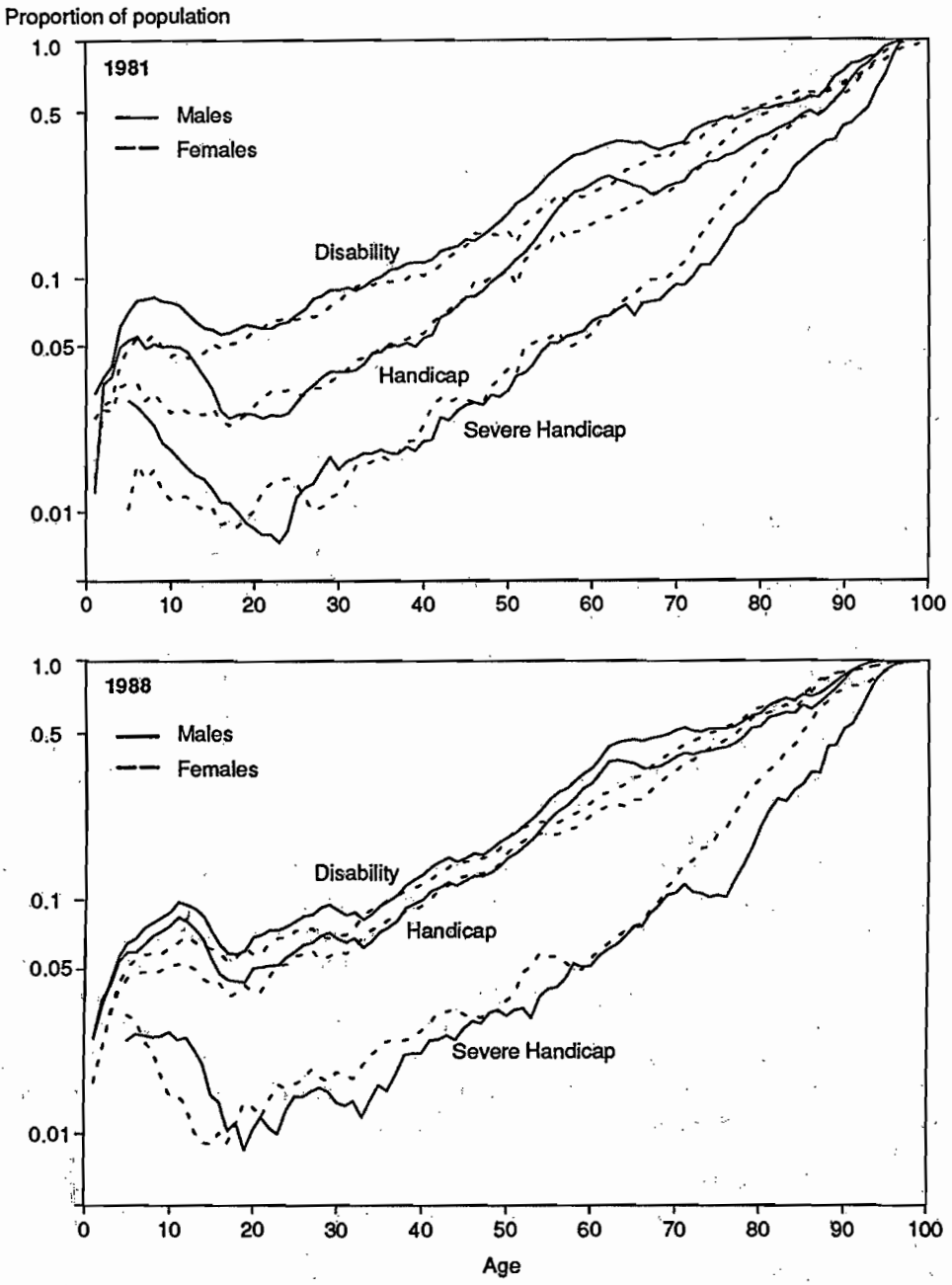
2. As discussed earlier, health expectancies combine cross-sectional data for all age groups in the population at a given time period and hence do not take possible cohort effects into account. Care must be taken not to interpret health expectancies as the actual (or future) experience of cohorts alive at the given period.
3. The Sullivan method uses cross-sectional disability prevalence data. As shown in Appendix B, this can underestimate life expectancy with disability if the age-specific probability of becoming disabled is increasing in the population. This happens because the prevalence of disability at a given age in the population reflects past probabilities of becoming disabled at each younger age.
4. Health expectancy estimates in this report are derived from the results of sample surveys and hence are subject to sampling variability. The resultant uncertainties in the estimates are summarised by the standard errors given in Appendix E, Tables 33 and 34. These were calculated using the methods outlined in Appendix C.
5. Other sources of non-sampling error may have resulted in underestimation of the prevalence of disability or handicap. For example, people may have been reluctant to report certain conditions because of their sensitive nature (eg alcohol and drug related conditions, mental disorders) or because of their intermittent and seasonal nature (eg asthma, epilepsy).

Differentials in health expectancies by age, sex, State and Territory and over time should all be interpreted with caution in light of the above comments. It should also be remembered that health expectancies are measures incorporating personal and social responses to impairment and hence should not be interpreted simplistically as measures of population morbidity. Increases in the incidence and prevalence of diseases and impairments causing disability and handicap are one possible factor in the increasing levels of reported disability and handicap, as are changes in personal and social responses to impairment. These factors are discussed further in Chapter 7.

Figure 1 shows age-specific prevalence rates for disability, handicap and severe handicap for Australian males and females in 1981 and 1988. These rates have been graduated as described in Appendix A and are used to derive health expectancies for Australian men and women in 1981 and 1988. The prevalence of severe handicap in the Australian population rises dramatically with age. However, almost 50 per cent of severely handicapped Australians (326,700 persons) are less than 65 years old. There are more severely handicapped females than males in all adult age groups and the prevalence of severe handicap rises faster with age in females than that in males.

Chapters 2 and 3 of this report examine health expectancies for Australian males and females. They concentrate on health expectancies at birth and at age 65 as summarising the experience of the entire population at all ages and of the elderly. Complete tabulations of health expectancies at all ages are given in Appendix D. Chapter 4 presents these results in graphical form as 'survival' curves. Chapters 5 and 6 examine State and Territory differentials in health expectancies. Tabulations of health expectancies at State and Territory level are provided in this report primarily for use at the individual State and Territory level, rather than for comparison between States.

Figure 1: Graduated prevalence of severe handicap, all handicap and disability by age and sex, Australia, 1981 and 1988



Source: Australian Institute of Health

2 Health expectancies for Australians in 1988

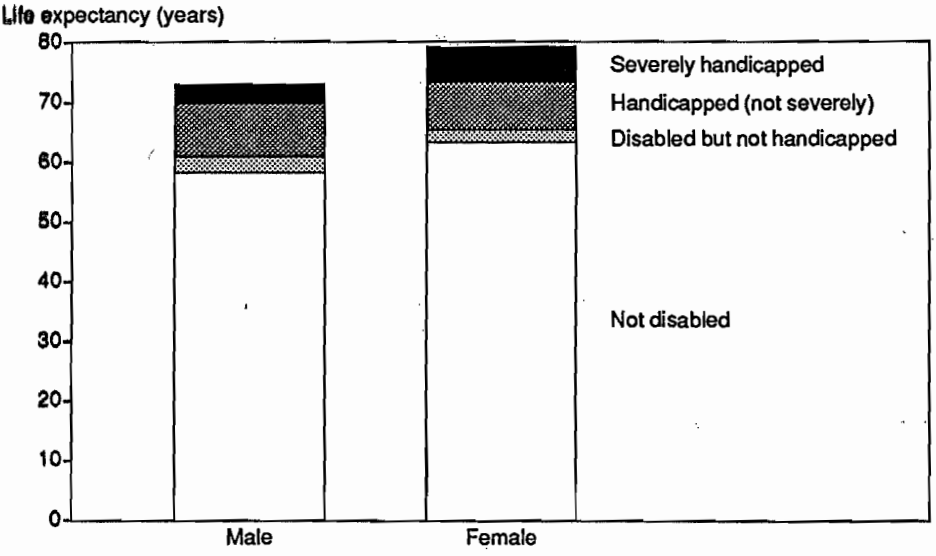
In 1988, total life expectancy at birth was 73.1 years for Australian males and 79.5 years for Australian females. Disability-free life expectancy at birth was 58.4 years for males and 63.4 years for females (Table 3). The difference between these two sets of figures is the expectation at birth of years of disability: 14.7 years for men and 16.0 years for women. In other words, for both men and women, 80 per cent of life will be lived without disability on average, if death rates and disability prevalence rates at all ages remain constant at their 1988 levels.

Table 3: Health expectancy at birth and at age 65 by sex, Australia, 1988

Health state	*Males (years)*	*Females (years)*	*Total (years)*
At birth			
Severely handicapped	3.2	6.0	4.6
Handicapped	12.1	14.0	13.0
Disabled	14.7	16.0	15.4
Not disabled	58.4	63.4	60.9
Total life expectancy	73.1	79.5	76.3
At age 65			
Severely handicapped	2.2	5.0	3.6
Handicapped	6.7	9.1	7.9
Disabled	8.1	10.1	9.1
Not disabled	6.7	8.6	7.6
Total life expectancy	14.8	18.7	16.7

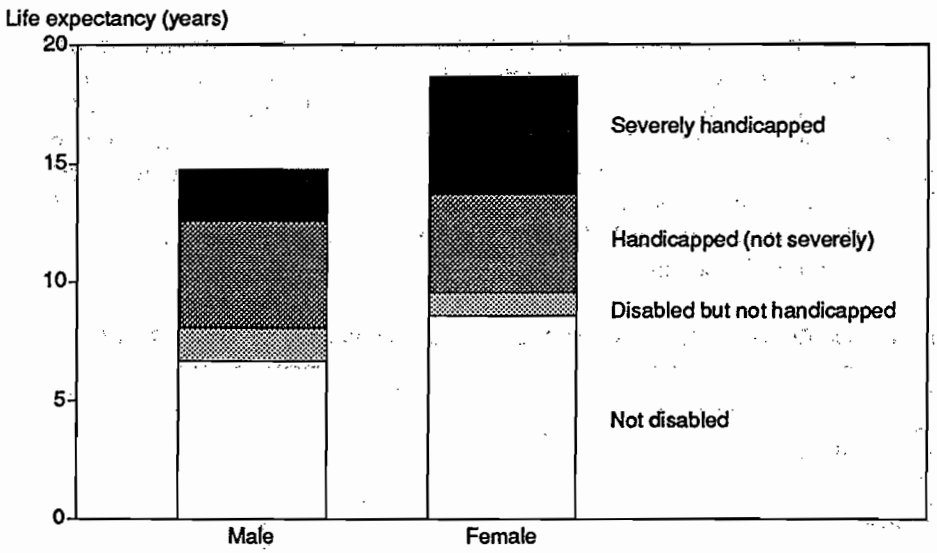
Of the years of disability, 12.1 are years of handicap and 3.2 are years of severe handicap for males. Females experience more years of handicap from birth (14.0) and 6.0 of these are years of severe handicap, almost double that for males (Figure 2). Men have a lower life expectancy at birth than women and also a lower expectation of years of disability, handicap and severe handicap.

Figure 2: Health expectancies at birth, males and females, Australia 1988



Source: Australian Institute of Health

Figure 3: Health expectancies at age 65, males and females, Australia 1988



Source: Australian Institute of Health

Similar patterns are evident for health expectancies at age 65 (Table 3 and Figure 3), although the proportion of remaining life spent free of disability is much lower at 45 per cent for men and 46 per cent for women. The proportion of remaining life spent free of disability drops rapidly with increasing age and drops below 50 per cent at around age 60 for both men and women (Table 4).

Table 4: Disability-free life expectancy, by age and sex, Australia, 1988

	Life expectancy remaining		*Disability-free life expectancy*		*Expectation of years of disability*	
Sex/age	*Years*	*Per cent*	*Years*	*Per cent*	*Years*	*Per cent*
Males						
0	73.1	100	58.4	80	14.7	20
15	59.1	100	45.2	76	13.9	24
30	45.2	100	32.1	71	13.1	29
45	31.1	100	19.4	62	11.7	38
60	18.4	100	8.9	48	9.5	52
65	14.8	100	6.7	45	8.1	55
75	8.9	100	3.3	37	5.6	63
Females						
0	79.5	100	63.4	80	16.0	20
15	65.3	100	49.8	76	15.5	24
30	50.7	100	36.1	71	14.6	29
45	36.3	100	23.0	63	13.3	37
60	22.8	100	11.7	51	11.1	49
65	18.7	100	8.6	46	10.1	54
75	11.4	100	3.7	32	7.7	68

Although total life expectancies of females significantly exceed those of males at all ages, the sex differentials for health expectancies are much lower and decrease more rapidly with age. Indeed, life expectancy free of severe handicap is only 1.3 years greater for women at age 65 and becomes approximately equal for men and women at age 75 (Table 5 and Figure 4).

Table 5: Health expectancy by age and sex, Australia, 1988

		Health expectancy (years)		
Sex/age	*Total life expectancy remaining*	*Free of severe handicap*	*Free of handicap*	*Free of disability*
Males				
0	73.1	69.9	61.0	58.4
15	59.1	56.1	47.7	45.2
30	45.2	42.3	34.4	32.1
45	31.1	28.5	21.4	19.4
60	18.4	16.0	10.5	8.9
65	14.8	12.5	8.0	6.7
75	8.9	6.8	3.9	3.3
Females				
0	79.5	73.4	65.5	63.4
15	65.3	59.4	51.8	49.8
30	50.7	45.0	37.8	36.1
45	36.3	30.9	24.5	23.0
60	22.8	17.8	12.9	11.7
65	18.7	13.8	9.6	8.6
75	11.4	6.7	4.2	3.7

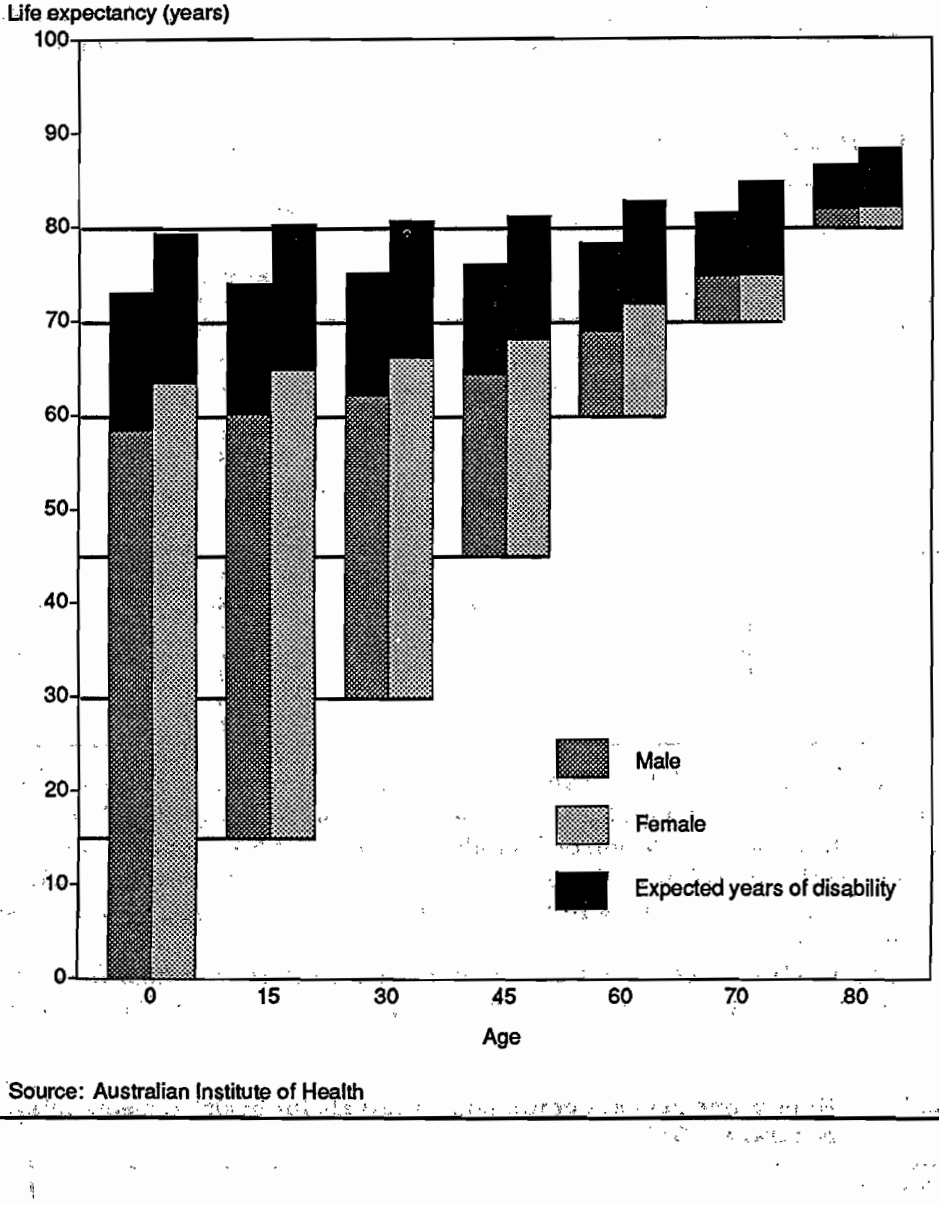
It must be emphasised that health expectancies at any given age are average estimates for the entire population, including persons already disabled at the given age. Thus the expectation of disability-free life at age 65 for a person who is not disabled at age 65 would be higher than the estimates given here, which average the experience of persons who are free of disability at age 65 and those who are disabled at age 65.

Table 6 gives 95 per cent confidence intervals for Australian health expectancies in 1988, based on the standard error estimates given in Appendix E, Table 34.

Table 6: Ninety-five per cent confidence intervals for health expectancies, Australia, 1988

Health state	*Males (years)*	*Females (years)*
At birth		
Severely handicapped	3.14 - 3.22	5.92 - 6.12
Handicapped	11.95 - 12.19	13.84 - 14.12
Disabled	14.55 - 14.83	15.85 - 16.17
Not disabled	58.15 - 58.63	63.20 - 63.68
At age 65		
Severely handicapped	2.15 - 2.29	4.85 - 5.07
Handicapped	6.48 - 6.80	8.91 - 9.23
Disabled	7.89 - 8.25	9.97 - 10.29
Not disabled	6.58 - 6.82	8.45 - 8.71

Figure 4: Total life expectancy and expected years of disability by age and sex, Australia 1988



Source: Australian Institute of Health

3 Trends for Australians, 1981 to 1988

Comparisons of health expectancies calculated for the 1981 and 1988 Australian population show how the health expectancies of the imaginary life table population would evolve if it is successively subjected to the cross-sectional death rates and disability prevalence rates of the Australian population in 1981 and 1988. These changes should not be interpreted as reflecting the life experience of Australians alive in 1981 and 1988 (see Chapter 1).

Changes in Australian health expectancies between 1981 and 1988 reflect the rising proportion of Australians who reported themselves as having limitations in functions and activities of daily living. The role of reporting changes is discussed in Chapter 7.

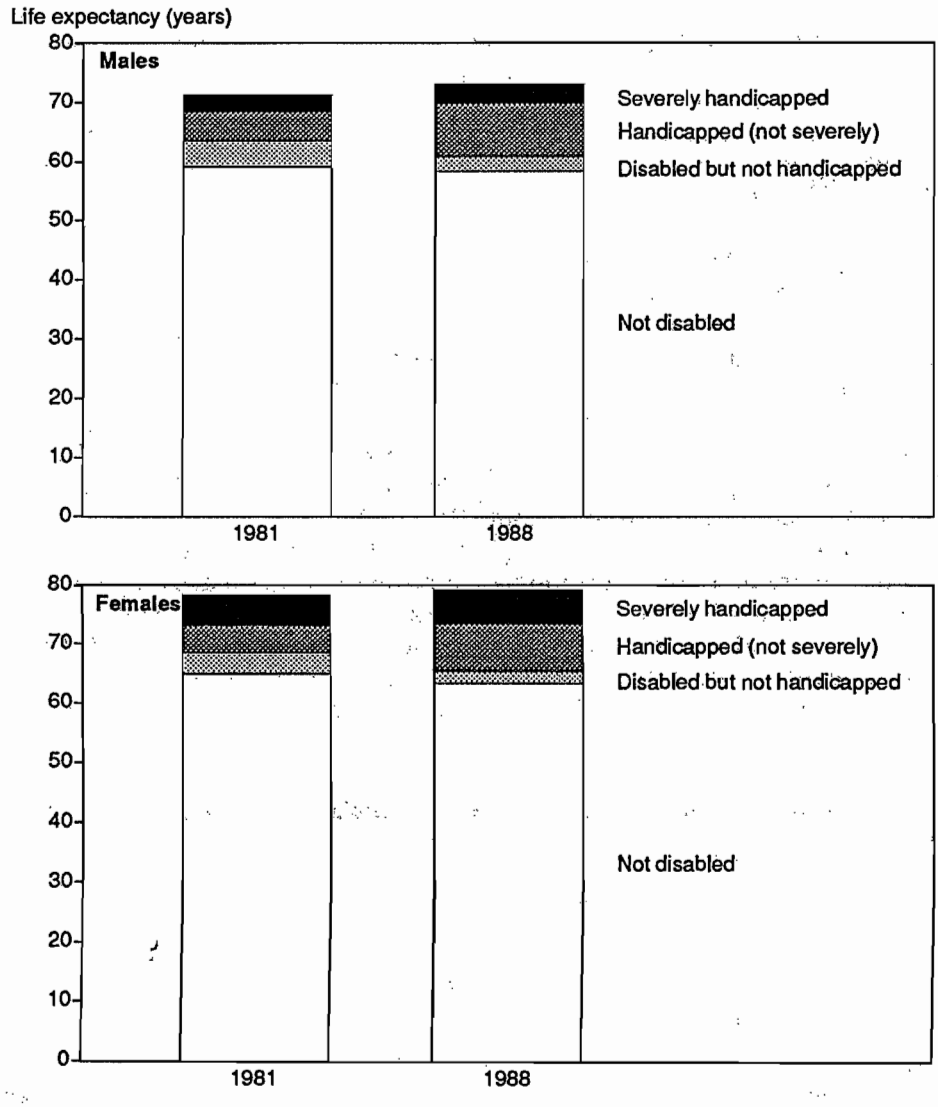
Over the years 1981 to 1988, life expectancy at birth increased by 2.3 years for males and 1.0 years for females. In contrast, disability-free life expectancy decreased by 0.8 years for males and 1.6 years for females (Figure 5 and Table 7). For both males and females, expected years of disability increased by close to 2.5 years (a 20 per cent increase), reflecting the substantial increases in reported prevalence of disability (Table 2).

Most of the increases in expected years of disability at birth were concentrated in the areas of mild and moderate handicap (3.9 years or 80 per cent increase for males and 3.4 years or 74 per cent increase for females). In contrast, expected years of disability without handicap decreased. Severe handicap expectancy also increased, but to a much lesser degree than expected years of disability, by 0.3 years (or 10 per cent) for males and 0.8 years (or 15 per cent) for females.

Table 7: Health expectancy at birth, by sex, Australia, 1981 and 1988

Health expectancy (years)	*Males*	*Females*	*Total*
Life expectancy			
1981	71.4	78.4	74.9
1988	73.1	79.5	76.3
Change: 1981-1988	+1.7	+1.0	+1.4
Severe handicap expectancy			
1981	2.9	5.2	4.0
1988	3.2	6.0	4.6
Change: 1981-1988	+0.3	+0.8	+0.6
Handicap expectancy			
1981	7.8	9.8	8.8
1988	12.1	14.0	13.0
Change: 1981-1988	+4.2	+4.2	+4.2
Disability expectancy			
1981	12.2	13.4	12.8
1988	14.7	16.0	15.4
Change: 1981-1988	+2.5	+2.6	+2.6
Disability-free expectancy			
1981	59.2	65.0	62.1
1988	58.4	63.4	60.9
Change: 1981-1988	-0.8	-1.6	-1.2

Figure 5: Health expectancies at birth, males and females, Australia 1981 and 1988

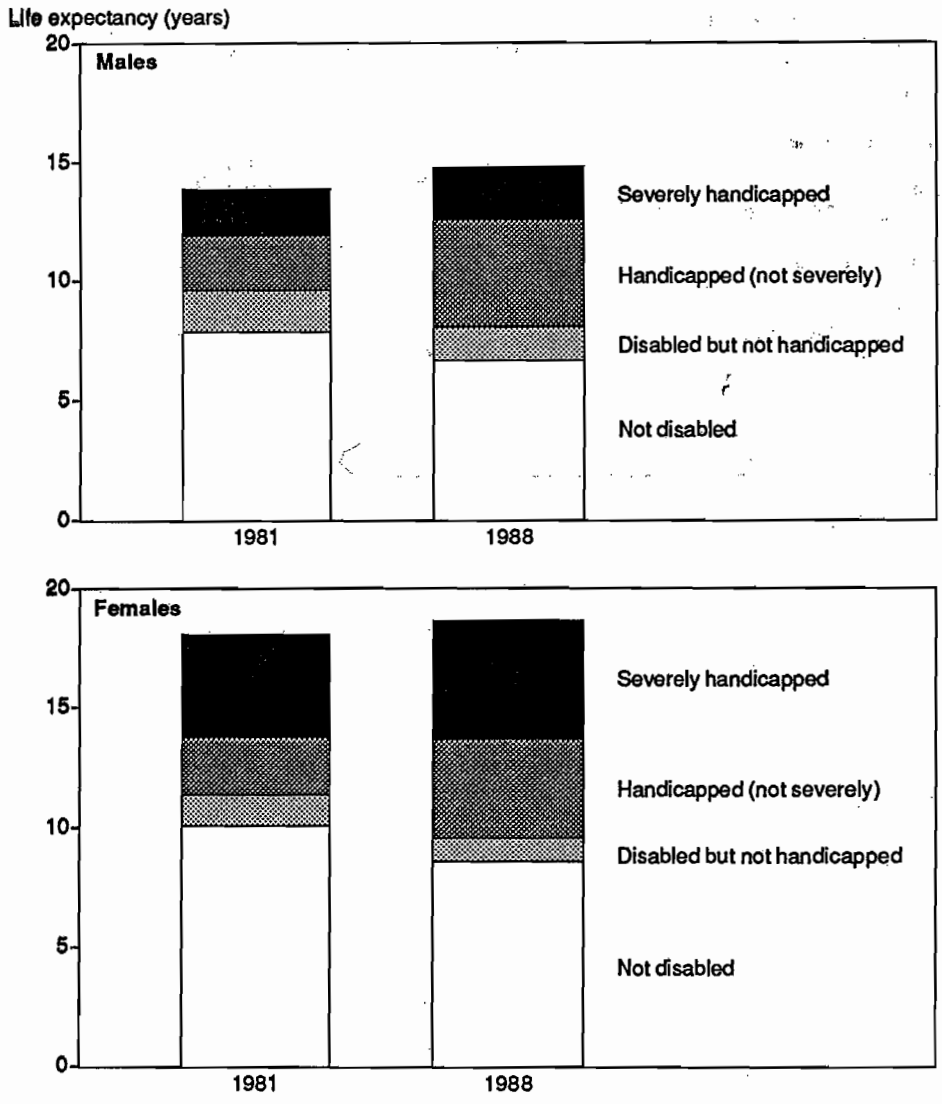


Source: Australian Institute of Health

Health expectancies at age 65 showed very similar trends (Figure 6 and Table 8). Total life expectancy at age 65 increased by 0.9 years for men and 0.6 years for women, whereas handicap expectancy increased by 2.4 years, almost three times the increase in total life expectancy. Severe handicap expectancy increased by around 15 per cent for both men and women. This represented only one third of the increase in total life expectancy for men but slightly more than 100 per cent of the increase in total life expectancy for women. Disability-free life expectancy at age 65 decreased by 15 per cent for both men and women.

All changes in life and health expectancies shown in Tables 7 and 8 are statistically significant at the p=0.001 level or less.

Figure 6: Health expectancies at age 65, males and females, Australia 1981 and 1988



Source: Australian Institute of Health

Table 8: Health expectancy at age 65, by sex, Australia, 1981 and 1988

Health expectancy (years)	*Males*	*Females*	*Total*
Life expectancy			
1981	13.9	18.1	16.0
1988	14.8	18.7	16.8
Change: 1981-1988	+0.9	+0.6	+0.8
Severe handicap expectancy			
1981	2.0	4.3	3.1
1988	2.2	5.0	3.6
Change: 1981-1988	+0.3	+0.7	+0.5
Handicap expectancy			
1981	4.3	6.7	5.5
1988	6.7	9.1	7.9
Change: 1981-1988	+2.4	+2.4	+2.4
Disability expectancy			
1981	6.0	8.0	7.0
1988	8.1	10.1	9.1
Change: 1981-1988	+2.1	+2.1	+2.1
Disability-free expectancy			
1981	7.9	10.1	9.0
1988	6.7	8.6	7.6
Change: 1981-1988	-1.2	-1.5	-1.4

4 Survival curves for Australians

Traditional survival curves derived from life tables give the probability of survival to any given age (represented by the horizontal axis of the graph) for an imaginary cohort of 100,000 males or females to which the currently observed mortality rates at various ages (in a given calendar year or years) are applied. Life table survival curves are an excellent way of visually summarising current mortality rates and relating them to duration of life, while removing the effects of population age structure due to differences in birth cohort sizes and prior survival.

It is possible to generalise the survival curves to refer to the probability of survival in various health states at each age (see Appendix B for details). Figure 7 shows survival curves for Australian males and females in 1988 for the following health states:

1. free of disability
2. free of handicap
3. free of severe handicap
4. alive.

The survival curves for the various disability states have been calculated by applying the proportion of the population at exact age x in the relevant health state to the number of persons surviving at exact age x from the mortality life table (see Appendixes B and D). The area between the mortality curve, the top-most curve in each graph, and a given morbidity curve indicates the years of expectation with a given disability state. Thus, in Figure 7, the area under the disability-free curve gives the years of life free of disability. The areas between the successive curves above represent the years of life in the following health states respectively:

1. disabled but not handicapped
2. handicapped but not severely handicapped
3. severely handicapped.

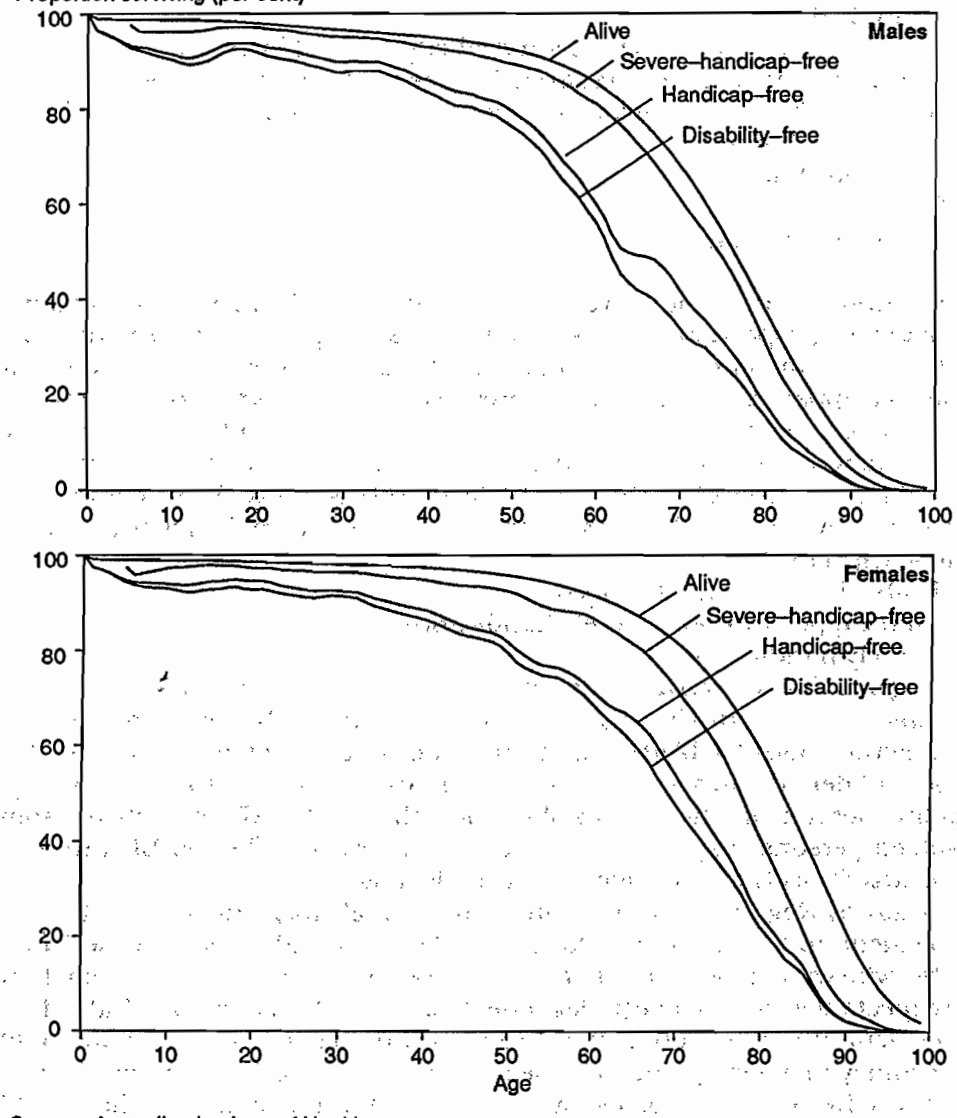
The generalised survival curves differ from the mortality curve in that it is possible for individuals to make transitions in both directions between disabled and non-disabled health states. Interpretation of the conventional life table and derived survival curves is simplified by the fact that only a single unidirectional transition is possible from 'alive' to 'dead'. In contrast, some disabled persons may at a later stage in life cease to be disabled (refer to Appendix B, section 3 for more detailed discussion).

A study by Rogers et al (1989) found surprisingly high transition rates from 'dependent' to 'independent' status at older ages. Individuals in the United States who were dependent at age 70 could expect to live half their remaining life expectancy in an active (independent) status (ie by a recovery). Individuals dependent at age 90 could expect to live 80 per cent of their remaining life expectancy in a dependent state (see Table B.1). Thus, the disability survival curves plotted in this chapter should be interpreted as averages for the life table population and some individuals in this population will make more than one transition between the health states bordering the survival curve.

Figure 7 illustrates that the proportion of men surviving free of disability decreases at a faster rate than that for women in the age range 55 to 65 years.

However, at older ages the proportion of women disabled increases at a faster rate until around age 90 where the numbers of women surviving disability-free and severe-handicap-free are similar to those of men in the same health states. The other striking feature of these survival curves is the larger area between the 'alive' and 'severe-handicap-free' survival curves for women than men from age 40 onwards reflecting the larger number of years of life lived by women in a state of severe handicap.

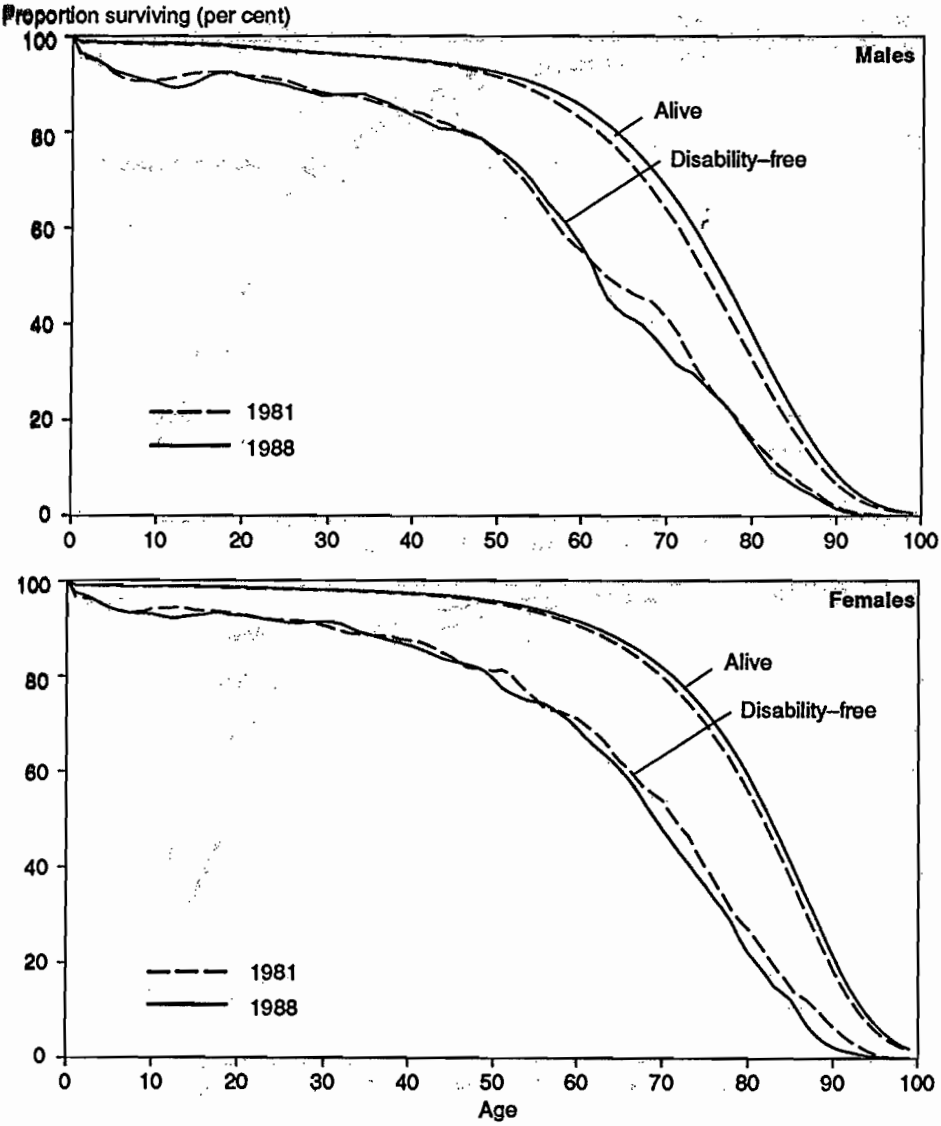
Figure 7: Survival curves for Australian males and females, 1988



Source: Australian Institute of Health

Figure 8 compares the disability-free survival curves for men and women in 1981 and 1988. The outward shift of the 'alive' curve for both males and females reflects the increase in life expectancy at all ages (see Table 7). The inward shift for female survival free of disability illustrates the decrease in disability-free survival at all ages. Years of disabled life have increased due to outward shifts at both boundaries. In contrast, the increase in male years of disabled life has been mainly due to the improvements in overall life expectancy. The male survival curve free of disability has remained almost the same except for persons in the age range 60 to 70 years where it has shifted inwards.

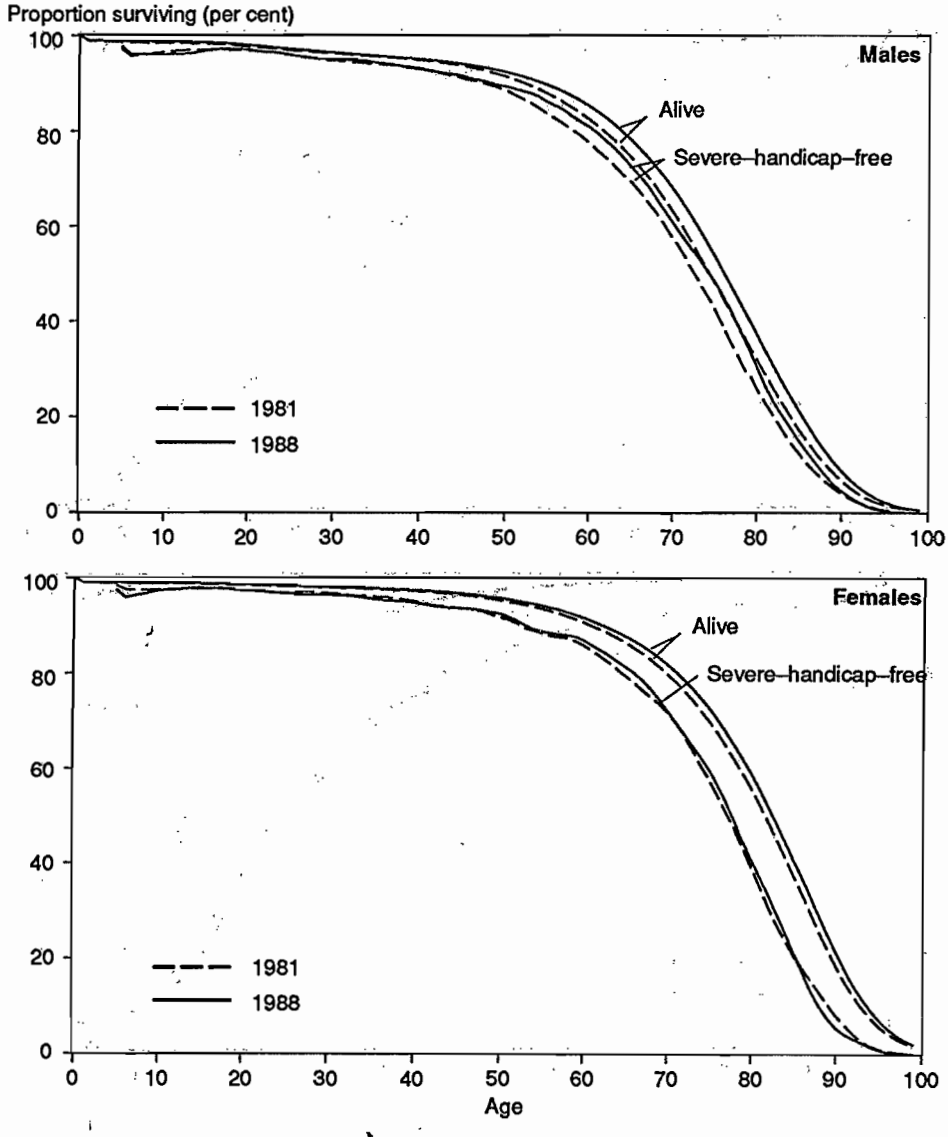
Figure 8: Disability-free survival curves, 1981 and 1988



Source: Australian Institute of Health

Figure 9 compares survival free of severe handicap for men and women in 1981 and 1988. The severe handicap curve for males has shifted outwards almost the same amount as the 'alive' curve. Thus, while overall life expectancy at birth has increased by 2.3 years, expectation of severe handicap has remained almost constant at around three years. In contrast, female survival free of severe handicap has remained largely unchanged while the 'alive' curve has shifted outwards. Thus, female life expectancy at birth has increased by 1.0 years while expectation of severe handicap has increased by 0.8 years (Table 7).

Figure 9: Severe-handicap-free survival curves, 1981 and 1988



Source: Australian Institute of Health

5 Health expectancies for States and Territories 1988

This chapter summarises health expectancies at birth (Table 9) and at age 65 (Table 10) for the States and Territories in 1988. More detailed abridged health expectancy tables for the States and Territories are given in Appendix E (Tables E.15-E.30). The primary purpose of these tables is to provide State-specific estimates for health expectancies. If you wish to compare estimates for the States and Territories, it is important to take into account statistical errors (see below), and also to keep in mind the possible sources of non-sampling errors (see Chapter 1). The estimates for the Northern Territory should be treated with caution as the survey sample included no persons aged 75 years or more (this is taken into account in the calculation of standard errors).

Table 9: Health expectancies at birth, by sex, State and Territory, 1988

Health expectancy (years)	*NSW*	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Aust*
Life expectancy									
Males	72.6	73.6	73.3	73.6	73.8	72.5	64.8	74.4	73.1
Females	78.9	79.8	79.8	80.3	80.1	78.7	71.2	80.3	79.5
Severe handicap									
Males	3.0	3.7	2.9	3.2	2.9	3.0	2.9	3.4	3.2
Females	5.7	6.5	5.6	6.1	6.4	6.7	4.5	7.0	6.0
Handicap									
Males	11.5	13.0	11.9	11.8	12.8	12.5	10.8	9.0	12.1
Females	13.3	15.1	13.1	14.4	14.7	15.3	9.1	14.9	14.0
Disability									
Males	14.4	15.3	14.7	13.5	16.0	14.6	13.1	12.8	14.7
Females	15.5	16.9	15.0	16.0	17.0	17.4	14.7	18.0	16.0
Disability-free									
Males	58.2	58.2	58.7	60.1	57.8	57.9	51.6	61.6	58.4
Females	63.4	63.0	64.8	64.3	63.2	61.3	56.5	62.3	63.4

Table 11 summarises the deviations of State and Territory health expectancies at birth from the national averages. It also shows estimates of the statistical significance of these deviations. These estimates are conservative as they have been calculated assuming zero covariance between the State and Territory, and national estimates (see Appendix C). For example, disability-free life expectancy for South Australian females in 1988 was 0.9 years higher than the national average. The probability that this was due to chance sampling variation (ignoring non-sampling errors) is less than 0.01.

Total life expectancy at birth differs significantly from the Australian average for all States and Territories. These differences do not exceed one year (or around 1.4 per cent) except for males in the Australian Capital Territory and males and females in the Northern Territory (Figure 10). The 8.3 years lower life expectancy for the Northern Territory overall reflects the substantially poorer life expectancy of Aborigines. Latest estimates of Aboriginal life expectancy at birth in the Northern Territory are 53.2 years for males and 61.6 years for females in 1985, compared to 72.3 and 77.4 years for non-Aboriginal males

and females in the Northern Territory (Australian Institute of Health, unpublished, from data supplied by the Northern Territory Department of Health and Community Services).

Table 10: Health expectancies at age 65, by sex, State and Territory, 1988

Health expectancy (years)	*NSW*	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Aust*
Life expectancy									
Males	14.5	14.9	15.0	15.0	15.0	14.5	13.9	14.8	14.8
Females	18.3	18.9	19.2	19.0	19.0	18.4	16.8	18.9	18.7
Severe handicap									
Males	2.0	2.6	2.1	2.2	2.3	1.9	(a)	2.4	2.2
Females	4.7	5.0	4.9	5.3	5.7	5.4	(a)	5.8	5.0
Handicap									
Males	6.2	7.5	6.5	6.1	7.2	6.7	(a)	4.6	6.6
Females	8.4	9.8	8.5	9.4	9.8	10.5	(a)	10.2	9.1
Disability									
Males	7.7	8.7	8.0	7.1	9.1	8.0	(a)	6.5	8.1
Females	9.7	10.6	9.6	10.1	11.0	11.4	(a)	11.8	10.1
Disability-free									
Males	6.8	6.3	7.0	7.9	5.8	6.5	(a)	8.4	6.7
Females	8.6	8.3	9.6	9.0	8.0	7.0	(a)	7.0	8.6

(a) Sampled population did not include any persons aged 75 or more years (see Tables E.27 and E.28).

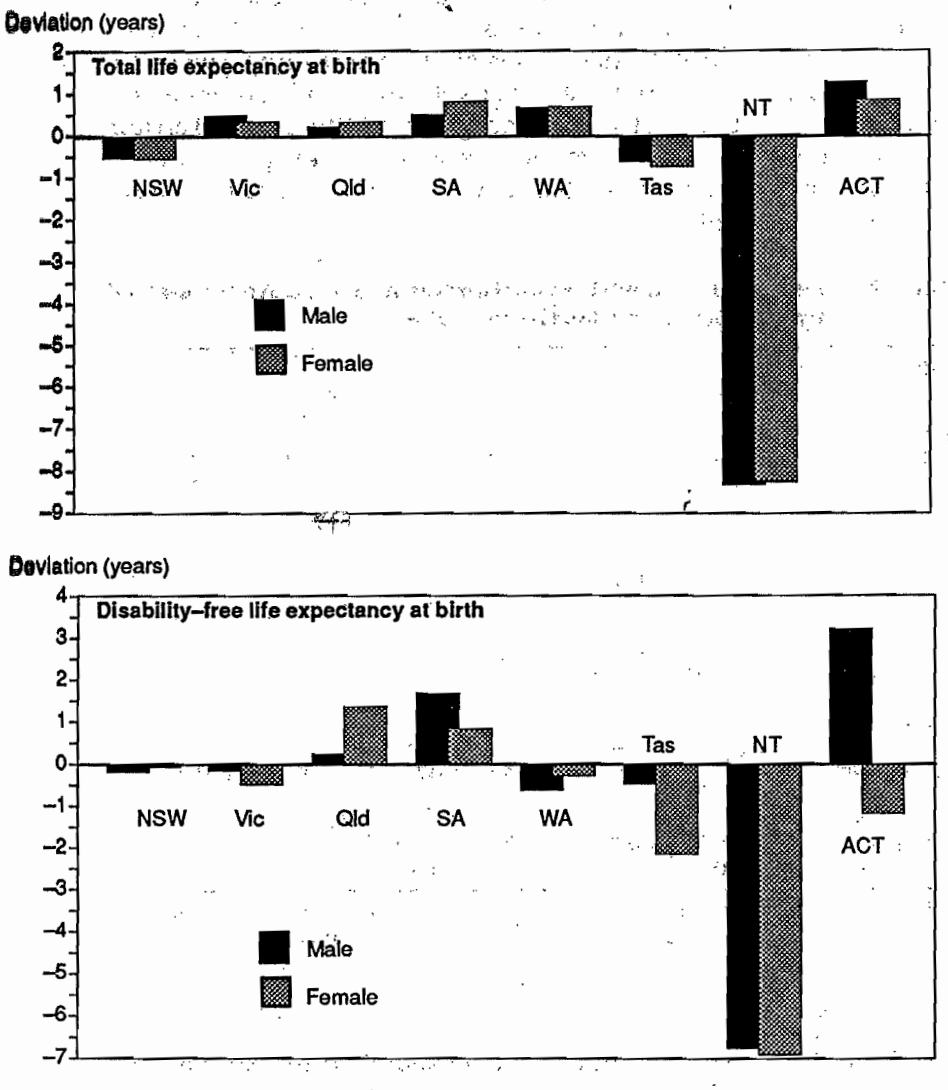
Table 11: Deviation of health expectancies at birth from national average, by sex, State and Territory, 1988

Health expectancy (years)	*NSW*	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*
Life expectancy								
Males	–0.5***	0.5***	0.2***	0.5***	0.7***	–0.6***	–8.3***	1.3***
Females	–0.5***	0.4***	0.3***	0.8***	0.7***	–0.7***	–8.3***	0.9***
Severe handicap								
Males	–0.2**	0.5***	–0.2***	–0.0	–0.2*	–0.2	–0.3	0.2
Females	–0.3*	0.4**	–0.4*	0.1	0.4*	0.6**	–1.5	0.9
Handicap								
Males	–0.6***	0.5***	–0.2	–0.2	0.8***	0.5	–1.3	–3.1***
Females	–0.7***	1.1***	–0.9***	0.4	0.7**	1.3***	–4.9***	–0.9
Disability								
Males	–0.3	0.2***	–0.0	–1.3***	1.3***	–0.1	–1.6	–1.9***
Females	–0.5*	0.8***	–1.0***	–0.0	1.0***	1.4***	–1.3	2.0*
Disability-free								
Males	–0.2	–1.2	0.3	1.7***	–0.6	–0.5	–6.8***	3.2***
Females	–0.1	–0.5	1.4***	0.9*	–0.3	–2.2***	–6.9**	–1.2

Note: Significance levels shown in this Table are upper bounds calculated assuming zero covariance between State or Territory and national estimates (refer text).

* $p < 0.01$
** $p < 0.001$
*** $p < 0.0001$

Figure 10: Deviation of State and Territory health expectancies at birth from Australian averages, 1988



Source: Australian Institute of Health

Disability-free life expectancy significantly exceeds the Australian average for Queensland females (+1.4 years), South Australian males (+1.7 years) and females (+0.9 years) and males (+3.2 years) in the Australian Capital Territory. For Queensland females, this arises from a significantly lower expectation of years of handicap and severe handicap, whereas for South Australian females it results from a significantly higher total life expectancy and for South Australian males a significantly higher life expectancy combined with a significantly higher expectation of disability without handicap. Males in the Australian Capital Territory have a significantly higher total life expectancy combined with a significantly lower expectation of years of moderate and mild handicap.

Disability-free life expectancy is significantly lower than the national average for both sexes in the Northern Territory (reflecting their substantially lower total life expectancy) and for Tasmanian females. The latter results from significantly higher expectation of years of handicap and severe handicap.

Table 12 summarises the deviations of State and Territory health expectancies at age 65 from the national averages. Total life expectancy at age 65 differs significantly from the Australian average for all States and Territories. These differences do not exceed 0.4 years (or less than three per cent) except for the Northern Territory, which is again lower due to the substantially poorer life expectancy of Aborigines.

Table 12: Deviation of health expectancies at age 65 from national average, by sex, State and Territory, 1988

Health expectancy (years)	*NSW*	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*
Life expectancy								
Males	–0.3***	0.2***	0.3***	0.3***	0.2***	–0.3***	–0.9***	0.0
Females	–0.4***	0.1***	0.4***	0.3***	0.3***	–0.3**	–1.9***	0.1
Severe handicap								
Males	–0.2**	0.4***	–0.1	0.0	0.1	–0.3***	1.7	0.2
Females	–0.3*	0.1	–0.0	0.3	0.8***	+0.5	–1.5	0.8
Handicap								
Males	–0.5**	0.8***	–0.2	–0.6*	0.6*	0.1	0.8	–2.1***
Females	–0.6***	0.7***	–0.6*	0.3	0.7*	1.4***	–3.8	1.1
Disability								
Males	–0.4	0.6*	–0.0	–0.9***	1.1***	–0.1	0.7	–1.6**
Females	–0.4	0.5	–0.6*	–0.0	0.9**	1.3***	–0.6	1.6
Disability–free								
Males	0.1	–0.5**	0.3	1.2***	–0.9***	–0.2	–1.6	1.7*
Females	–0.0	–0.3	1.0***	0.4	–0.5*	–1.6***	–1.3	–1.6**

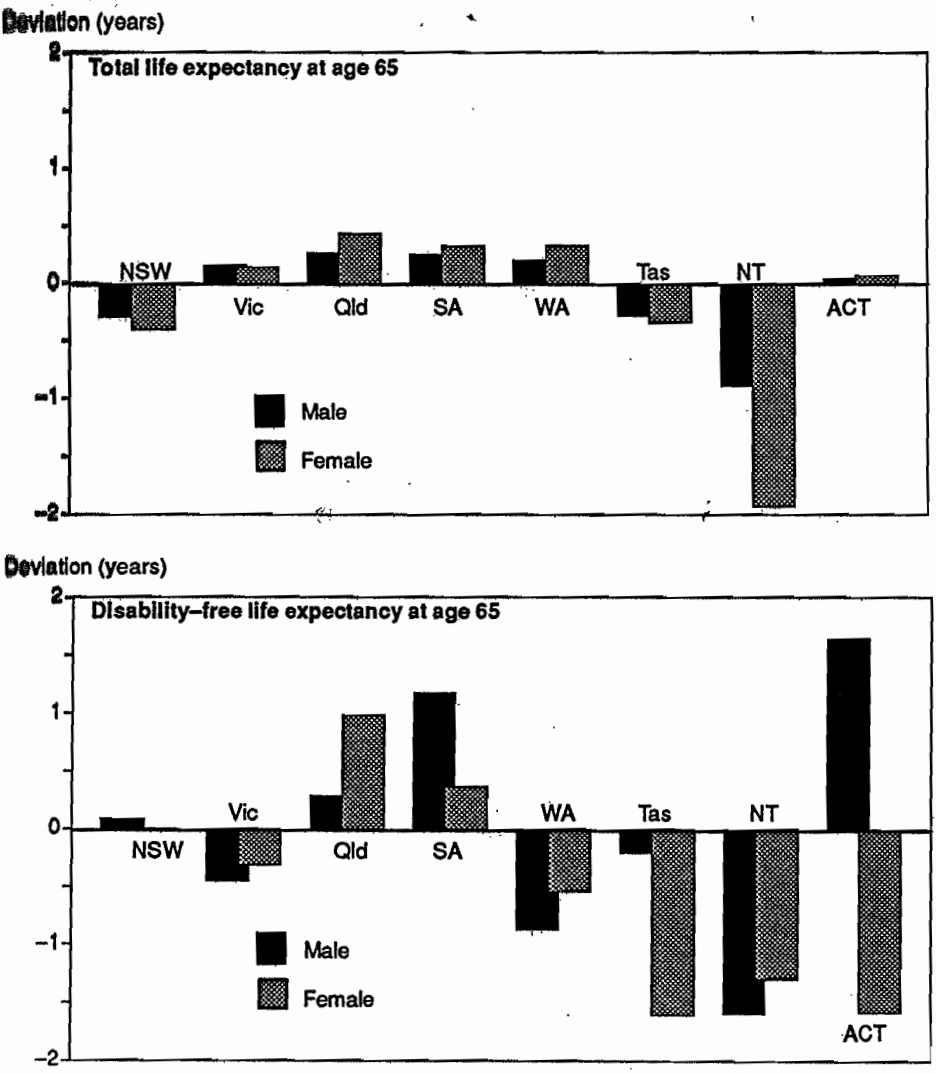
Note: Significance levels shown in this Table are upper bounds calculated assuming zero covariance between State or Territory and national estimates (refer text).

* $p < 0.01$
** $p < 0.001$
*** $p < 0.0001$

Disability-free life expectancy at age 65 significantly exceeds the Australian average for Queensland females, South Australian males and males in the Australian Capital Territory (Figure 11). This is very similar to the pattern for disability-free life expectancy at birth.

Disability-free life expectancy at age 65 is significantly lower than the national average for Victorian males, West Australian males and females, Tasmanian females and females in the Australian Capital Territory. For females in Western Australia and the Australian Capital Territory this reflects substantially higher expectations of severe handicap, whereas for Tasmanian females, Victorian males and West Australian males it reflects substantially higher expectations of mild and moderate handicap.

Figure 11: Deviation of State and Territory health expectancies at age 65 from Australian averages, 1988



Source: Australian Institute of Health

6 Trends for States and Territories, 1981 to 1988

This chapter summarises changes between 1981 and 1988 for health expectancies at birth (Table 13) and at age 65 (Table 14) for the six States. More detailed abridged health expectancy tables for the States for 1981 and 1988 are given in Appendix E (Tables E.1-E.26). The primary purpose of this chapter is to summarise State-specific trends for health expectancies. As described in Appendix A (section A.3), the survey population for 1981 had to be estimated for the States using a procedure which may have resulted in non-sampling errors of the order of one to two per cent in the health expectancy estimates. For this reason, extreme caution should be exercised in comparing trends between States.

Table 13: Increase in health expectancies at birth, by sex, State and Australia, 1981 to 1988

Health expectancy (years)	*NSW*	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*Aus*
Life expectancy							
Males	1.4***	1.7***	2.2***	1.4***	1.7***	2.6***	1.7***
Females	0.7***	1.4***	1.5***	0.8***	0.9***	1.1***	1.0***
Severe handicap							
Males	0.2**	1.2***	−0.4***	−0.1	−0.3*	−0.2*	0.3***
Females	0.8***	1.5***	0.2	0.5*	0.1	1.5***	0.9***
Handicap							
Males	4.1***	5.1***	3.4***	3.7***	3.6***	4.7***	4.2***
Females	4.3***	5.3***	2.3***	4.0***	2.3***	6.2***	4.1***
Disability							
Males	3.3***	2.7***	1.4***	1.1***	1.8*	3.5***	2.5***
Females	3.5***	3.3***	−0.1	2.8***	0.7	4.4***	2.6***
Disability-free							
Males	−1.8***	−1.0**	0.9*	0.3	−0.1	−0.9	−0.8***
Females	−2.9***	−1.9***	1.6***	−1.5***	0.2	−3.3***	−1.6***

Note: Significance levels shown in this Table are upper bounds calculated assuming zero covariance between estimates for 1981 and 1988 (refer text).

* $p < 0.01$
** $p < 0.001$
*** $p < 0.0001$

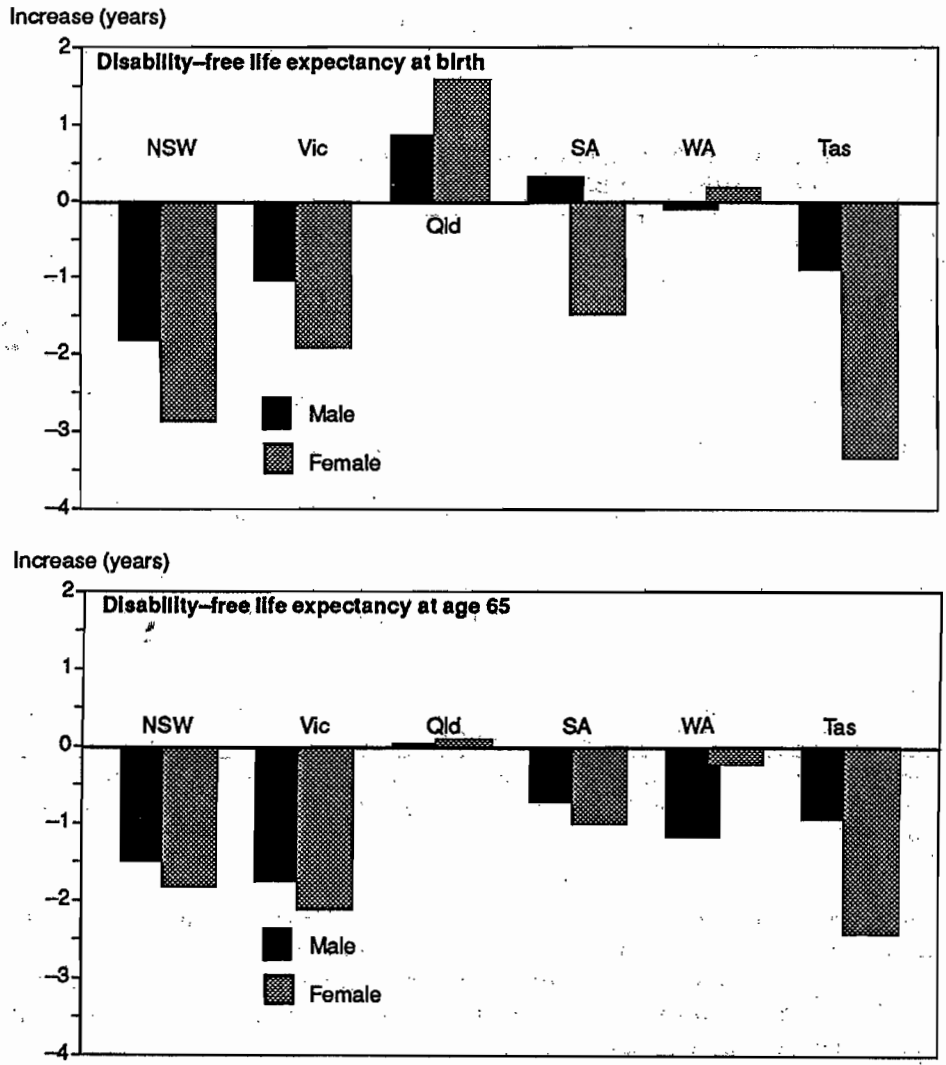
Table 13 summarises the change from 1981 to 1988 in State and Territory health expectancies at birth. It also shows estimates of the statistical significance of these changes. These significance levels are conservative as they have been calculated assuming zero covariance between the 1981 and 1988 health expectancies (see Appendix C).

Total life expectancy at birth and at age 65 increased significantly for both sexes in all States. Disability-free life expectancy decreased significantly for all States with the exception of Queensland and Western Australia. In contrast to the national pattern, disability-free life expectancy remained almost unchanged in Western Australia and actually increased by 0.9 and 1.6 years for

Queensland males and females respectively (Figure 12). Trends in disability-free life expectancy at age 65 showed a similar pattern with significant decreases for all States except for Queensland (no change) and Tasmanian females (small decline not significant).

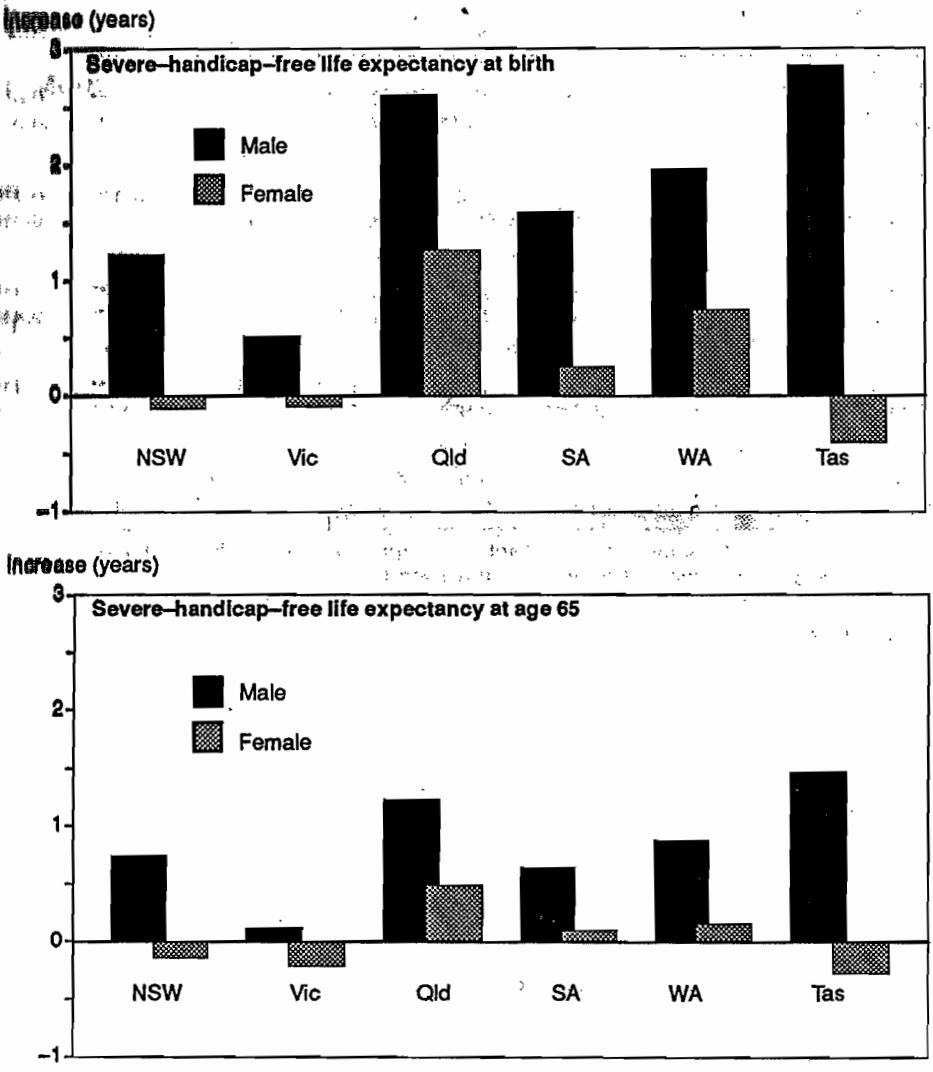
Severe-handicap free life expectancy increased significantly for males in all States, although the increase was much smaller in Victoria than in other States (Figure 13). For females, it declined in New South Wales, Victoria and Tasmania, reflecting significant increases in expectation of years of severe handicap, exceeding the overall gains in life expectancy.

Figure 12: Increase in disability–free life expectancy by State from 1981 to1988



Source: Australian Institute of Health

Figure 13: Increase in severe–handicap–free life expectancy by State from 1981 to1988



Source: Australian Institute of Health

Table 14: Increase in health expectancies at age 65, by sex, State and Australia, 1981 to 1988

Health expectancy (years)	*NSW*	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*Aus*
Life expectancy							
Males	0.8***	1.1***	1.0***	0.9***	0.8***	1.1***	0.9***
Females	0.4***	0.9***	1.0***	0.7***	0.5***	0.4**	0.6***
Severe handicap							
Males	0.0	1.0***	−0.2*	0.3	−0.1	−0.4**	0.2***
Females	0.5***	1.1***	0.5*	0.6*	0.4	0.6*	0.7***
Handicap							
Males	2.2***	3.5***	1.7***	2.1***	1.9***	2.3***	2.4***
Females	2.1***	3.6***	1.6***	2.2***	1.1**	3.8***	2.4***
Disability							
Males	2.3***	2.8***	1.0***	1.6***	2.0***	2.0***	2.1***
Females	2.2***	3.0***	0.9**	1.7***	0.8	2.8***	2.1***
Disability-free							
Males	−1.5***	−1.8***	0.0	−0.7*	−1.2***	−0.9*	−1.2***
Females	−1.8***	−2.1***	0.1	−1.0***	−0.2	−2.4***	−1.4***

Note: Significance levels shown in this Table are upper bounds calculated assuming zero covariance between estimates for 1981 and 1988 (refer text).

* $p < 0.01$
** $p < 0.001$
*** $p < 0.0001$

7 Discussion and conclusions

7.1 Methodological problems in measurement of disability and handicap

The decreases in disability-free and handicap-free life expectancy between 1981 and 1988 reflect the substantial increases in the reported prevalence of disability and handicap, particularly mild and moderate levels of handicap (Table 2). Although the 1981 and 1988 survey instruments identified disability and handicap in a consistent way, this was on the basis of personal (or proxy) responses to a series of questions about the presence of specific classes of impairments and disabilities, limitations and requirements for assistance in performing various specified activities (Appendix A).

As discussed in Chapter 1, self-assessment of limitations or need for assistance in relation to specified activities may change in line with changing community perceptions of disability and handicap. Changing attitudes may result in people being more aware of disabling conditions, or more willing to report such conditions and may also have affected how people interpreted 'need' and 'difficulty', concepts used to determine presence and severity of handicap. Another factor is changes in the availability of aids for disabled people, as use of an aid is a determinant of mild handicap.

Severity of handicap was assessed on the basis of limitations in the three areas of self-care, mobility and communications. The prevalence rate of handicap in each of these areas increased substantially between 1981 and 1988 for all levels of severity of handicap (Table 15).

Table 15: Area of handicap by severity, handicapped persons aged five years or more, 1981 and 1988

	Severity of handicap			
	Severe	*Moderate*	*Mild*	*Total*
	Prevalence (per cent)			
1981				
Self-care	1.91	1.51	0.18	3.60
Mobility	2.98	1.33	1.79	6.10
Communications	0.51	0.20	1.02	1.72
1988				
Self-care	2.63	2.86	0.52	6.01
Mobility	3.66	2.96	4.20	10.81
Communication	0.72	0.27	1.78	2.77
	Per cent increase			
1981–1988				
Self-care	37.5	90.1	183.3	66.9
Mobility	22.9	122.8	133.9	77.3
Communications	42.5	40.3	74.0	60.9

Source: ABS 4118.0,4343.0

The proportion of the population severely handicapped in self-care activities and communications increased by around 40 per cent, nearly double the increase in the mobility area. In contrast, the proportion of the population moderately and mildly handicapped in the mobility area increased by over 100 per cent. The largest growth occurred in the prevalence rate of mild handicap in the self-care area, which increased from 1.8 per 1,000 population in 1981 to 5.2 per 1,000 population in 1988. Such persons had no difficulty in performing the activities without personal assistance or supervision, but used an aid when showering or bathing, dressing or eating a meal (Appendix A, section A.2). Increasing availability of and use of aids may thus have played a role in the increased prevalence of mild handicap.

Table 16: Prevalence of all disabling conditions, males by age group and sex, Australia, 1981 and 1988

	Prevalence per 1,000 persons					
	Age group					
	0-14	*15-34*	*35-54*	*55-64*	65-74	75+
Circulatory diseases						
1981	2.0	2.0	19.9	91.2	111.0	139.6
1988	1.3	1.0	14.4	101.7	144.6	172.5
Respiratory diseases						
1981	9.5	5.0	8.3	39.0	44.1	50.5
1988	20.8	5.6	9.5	40.4	64.3	54.7
Musculoskeletal diseases						
1981	5.9	21.4	54.4	112.9	126.4	162.1
1988	2.8	19.6	55.7	129.6	155.0	185.5
Nervous system diseases						
1981	8.7	8.3	10.2	24.1	30.5	46.2
1988	10.6	9.2	11.2	23.4	34.3	57.1
Sight loss						
1981	4.9	5.3	10.2	21.2	32.9	112.1
1988	2.9	6.4	7.5	17.0	45.6	110.7
Hearing loss						
1981	11.6	14.5	42.5	109.4	138.1	236.8
1988	10.7	12.5	40.2	120.4	189.8	306.4
Mental disorders						
1981	19.9	16.8	22.2	49.1	35.7	66.5
1988	21.9	20.6	21.1	38.4	58.0	70.9
Other physical conditions						
1981	14.7	13.3	30.6	68.9	84.7	142.3
1988	18.8	20.6	38.7	113.0	153.2	209.5
Total males(a)						
1981	63.3	69.7	145.1	329.3	372.7	500.5
1988	69.7	75.7	144.2	360.6	487.8	607.7

(a) Total may be less than sum of the components since a person may have more than one disabling condition.

Source: Australian Bureau of Statistics, unpublished data

The main causes of reported disabilities in older people were musculoskeletal diseases, hearing loss and circulatory diseases. In young adults, the leading causes of disabilities were mental disorders and musculoskeletal diseases; whereas in children, respiratory diseases were the leading cause (Tables 16 and 17).

The reported prevalence rate of disabling respiratory conditions in children doubled between 1981 and 1988 (Table 18). It also increased substantially for men aged 65-74 years and for women aged 35-64 years and 75 years or more. An important factor in these increases may have been the substantial apparent increases during the 1980s in asthma prevalence, particularly in children, and asthma mortality at all ages (van Asperen 1987; Jenkins et al 1988; Australian Institute of Health 1990). It is not yet clear to what extent asthma incidence is increasing as opposed to changes in diagnostic practices.

Table 17: Prevalence of all disabling conditions, females by age group and sex, Australia, 1981 and 1988

	Prevalence per 1,000 persons					
	Age group					
	0-14	*15-34*	*35-54*	*55-64*	*65-74*	*75+*
Circulatory diseases						
1981	1.7	3.8	19.3	57.4	113.3	188.4
1988	0.8	2.8	14.9	68.2	118.3	216.3
Respiratory diseases						
1981	6.1	6.8	7.8	15.6	23.4	15.5
1988	12.1	8.3	12.4	18.3	24.5	28.7
Musculoskeletal diseases						
1981	5.0	16.7	42.2	83.4	133.5	248.3
1988	6.1	18.9	59.3	109.7	168.5	297.0
Nervous system diseases						
1981	7.1	8.3	13.3	17.1	23.6	46.8
1988	6.5	10.5	11.6	17.9	21.6	58.0
Sight loss						
1981	3.2	4.3	5.8	14.6	37.8	161.4
1988	2.5	3.1	5.5	12.1	48.3	157.8
Hearing loss						
1981	11.4	10.2	21.5	46.4	87.9	224.9
1988	8.4	9.0	21.6	49.9	101.1	239.2
Mental disorders						
1981	9.0	18.8	38.1	51.0	55.0	126.4
1988	9.5	14.3	30.2	39.9	52.3	145.4
Other physical conditions						
1981	10.2	13.9	27.4	50.5	72.9	143.1
1988	15.5	17.3	32.3	69.1	130.5	236.2
Total females						
1981	42.6	66.9	126.4	220.8	338.5	541.6
1988	50.8	66.3	137.6	249.7	404.3	651.0

(a) Total may be less than sum of the components since a person may have more than one disabling condition.

Source: Australian Bureau of Statistics, unpublished data

The reported prevalence of disabling musculoskeletal conditions increased for females at all ages and for males aged 55 and more years, but declined for males aged less than 35 years (Table 18). McCallum (1990) suggested that the increase in public awareness of conditions such as osteoporosis, largely promoted by the popular media in the 1980s, may contribute to this. In addition, the increasing use of anti-inflammatory drugs to treat arthritic and other musculoskeletal condition, may have led to increased awareness and diagnosis of these conditions. The decline for younger males may reflect the decline in serious road injuries and fatalities in Australia in the 1970s and 1980s (Federal Office of Road Safety 1989).

The reported prevalence of disabling circulatory diseases increased for males and females aged 55 years or more, but decreased for those aged less than 55 years (Table 18). The prevalence of hearing loss similarly increased in older age groups but declined for younger age groups in both sexes. In contrast, the prevalence of sight loss declined for all age groups except 15-34 and 65-74 year old men and 65-74 year old women. The reported prevalence of mental disorders rose for women aged 75 or more and for men aged 65 or more but declined at most other ages.

Table 18: Percentage change in prevalence rate of disabling conditions(a), from 1981 to 1988, Australia

	Age group					
	0-14	*15-34*	*35-44*	*55-64*	*65-74*	*75+*
Males						
Circulatory diseases	-35.0	-47.2	-27.8	11.5	30.2	23.6
Respiratory diseases	119.5	11.8	13.7	3.6	45.8	8.3
Musculoskeletal diseases	-52.2	-8.5	2.5	14.9	22.6	14.5
Nervous system diseases	20.9	11.3	9.3	-2.8	12.5	23.7
Sight loss	-40.7	20.6	-26.3	-19.7	38.8	-1.3
Hearing loss	-8.0	-13.7	-5.3	10.1	37.4	29.4
Mental disorders	10.4	23.1	-5.1	-21.8	62.2	6.6
Other physical disorders	27.2	55.0	26.3	64.0	80.9	47.2
Total males(a)	10.0	8.5	-0.6	9.5	30.9	21.4
Females						
Circulatory diseases	-49.7	-27.4	-22.9	18.8	4.4	14.8
Respiratory diseases	97.6	22.4	59.5	16.9	4.7	84.9
Musculoskeletal diseases	23.0	13.1	40.5	31.6	26.2	19.6
Nervous system diseases	-8.0	25.9	-13.4	4.5	-8.4	23.9
Sight loss	-21.9	-28.8	-6.1	-16.9	27.8	-2.2
Hearing loss	-25.9	-11.2	0.3	7.5	15.0	6.4
Mental disorders	5.6	-23.5	-20.8	-21.6	-4.8	15.0
Other physical disorders	52.1	24.6	18.0	36.8	78.9	65.0
Total females(a)	19.4	-1.0	8.8	13.1	19.4	20.2

(a) Total may be less than sum of the components since a person may have more than one disabling condition.

Source: Australian Bureau of Statistics, unpublished data

McCallum (1990) suggested that public education campaigns, such as the International Year of the Disabled in 1981, might have increased public consciousness and medical practitioners' diagnosis of disability during the 1980s. The Program of Aids for Disabled People also began in 1981 and may have increased awareness of disability and handicap.

It is not possible to determine from the available data how much of the changes in Australian health expectancies are due to changes in reporting behaviour. Changes in the reported prevalence of disability and handicap vary considerably according to the type of disability, age and sex. For example, the prevalence of sight loss declined in males and females aged 75 or more years whereas that of hearing loss increased. Trends were not uniform for all States and Territories or by sex. For example, disability-free life expectancy at birth declined in all States except Queensland.

For these reasons, one should be cautious in attributing all trends to reporting behaviour changes. Further analysis is needed to ask more specific questions about different types of disabling conditions, different dimensions of handicap (eg mobility, ability to work etc), and also about trends in the underlying prevalence and incidence of disease and impairment. For example, it would be possible from the ABS survey data to analyse trends in the prevalence of mobility handicap of severity such that a person states they require assistance to walk 200 metres or up or down stairs.

However, even very specific dimensions of handicap such as this are associated with individual and societal perceptions of: (a) what level of mobility limitation requires or 'deserves' assistance; (b) what is thought to be an acceptable maximum level of effort needed to walk unaided; and, (c) what is an acceptable minimum level of facilitation provided by the built environment and the use of aids, even what is the threshold level at which something is labelled an 'aid' rather than a normal tool for assisting daily living.

These factors are inherent in the conceptualisation of handicap as the result of the interaction between impairment and the physical and social environment (Badley 1987; see also Box 1). Because of this, some authors have argued that handicap is most reliably measured in terms of personal assessment, in contrast to disease and impairment which are most reliably measured by clinical examination (Greenblum 1976; Badley 1987; Minaire 1990). Some dimensions of handicap (such as mobility and communication) could clearly be assessed by an independent examiner, but even so, the aspects of individual perception of and response to impairment discussed in the previous paragraph would still be operative as well as the similarly conditioned expectations and perceptions of the examiner.

There is clearly considerable work to be done in further developing definitions and instruments for the measurement of disability and handicap. Issues which need further exploration include:

- the dimensions of disability and handicap
- the use of clinical examination
- appropriate identification of short and long-term disability
- the duration of disability and its reversibility.

An International Research Network for the Interpretation of Observed Values of Health Life Expectancy (REVES) has been established (Robine and Blanchet 1990) and one of its aims is to address these methodological issues.

7.2 International comparisons

Australian health expectancies are broadly similar to those which have been calculated to other countries (Table 19). It is not possible to directly compare results for different countries, as the various estimates are based on different

data collection methods, different survey instruments and different definitions of disability. In spite of these limitations, disability-free life expectancy (DFLE) for France, England and Wales, the Netherlands, Quebec and Australia in the 1980s ranged from 58.4 years to 64.0 years for males and 60.7 to 68.7 years for females. DFLE at age 65 years for these countries ranged from 6.7 to 9.1 years for men and 8.6 to 9.9 years for women.

Table 19: Disability-free life expectancy at birth and at age 65 - most recent value for each country or region for which the Sullivan method has been used

	Males			*Females*		
	LE (years)	*DFLE (years)*	*DFLE/LE (%)*	*LE (years)*	*DFLE (years)*	*DFLE/LE (%)*
At birth						
Canada, 1978	70.8	59.2	83.6	78.3	62.8	80.2
France, 1982	70.7	61.9	87.6	78.9	67.2	85.2
United States, 1985	71.2	51.9	72.9	78.2	57.9	74.0
England and Wales, 1985	71.8	58.7	81.8	77.7	61.5	79.2
Netherlands, 1981-85	72.8	58.9	80.9	79.5	60.7	76.4
Quebec, 1987	72.1	64.0	88.8	79.5	68.7	86.4
Australia, 1988	73.1	58.4	79.9	79.5	63.4	79.7
At age 65						
Canada, 1978	14.4	8.2	56.9	18.7	9.9	52.9
France, 1982	14.3	9.1	63.6	18.5	9.9	53.5
United States, 1985	14.6	10.5	71.9	18.6	13.4	72.0
England and Wales, 1985	13.4	7.7	57.5	17.5	8.9	50.9
Netherlands, 1981-85	14.0	8.1	57.9	18.6	9.1	48.9
Australia, 1988	14.8	6.7	45.2	18.7	8.6	46.0

Source: Canada: Wilkins and Adams (1983b)
France: Robine, Brouard and Colvez (1987)
USA: McKinlay, McKinlay and Beaglehole (1989)
England and Wales: Bebbington (1988)
Quebec: Wilkins and Sauvageau (1988) as quoted by Robine (1989)
Australia: Table 2 of this report

In the United States, estimates of McKinlay et al (1989) deviate considerably from those of other countries and other published estimates in the United States (Crimmins et al 1989). The definition of disability used by McKinlay et al relates to 'limitations in major activities' but is not clearly specified. The results of Crimmins et al use the same definitions as and are exactly comparable to the Canadian results for 1978.

For most of the countries shown in Table 19, DFLE for both males and females represents about 80 per cent of total life expectancy at birth, and around 50 per cent of life expectancy at age 65 years. Female DFLE at birth is around five years higher than male DFLE for most of the countries, and at age 65 years it is around one to two years higher than male DFLE.

More detailed comparisons of health expectancies between countries will require considerable progress in the standardisation of definitions and survey instruments. The Australian Institute of Health is a participating member of the REVES network, which is addressing these issues (Robine and Blanchet 1990).

7.3 International trends in health expectancies

Health expectancy time series have been published only for Canada, the United States, England and Wales (Table 20). Although the definitions and data collection methods differ, the time series for England and Wales are all consistent with rising total life expectancy but essentially stationary disability-free life expectancy from the mid-1970s to the mid-1980s. In other words, all the gains in life expectancy have been in years of disability.

Table 20: Trends in disability-free life expectancy at birth and at age 65 - for countries for which time series have been published

	Males			*Females*		
	LE (years)	*DFLE (years)*	*DFLE/LE (%)*	*LE (years)*	*DFLE (years)*	*DFLE/LE (%)*
At birth						
Canada						
1951	66.3	59.8	90.2	70.8	64.7	91.4
1978	70.8	61.1	86.3	78.3	66.1	84.4
United States(a)						
1964	66.8	59.2	88.6	73.7	65.5	88.9
1974	68.1	59.2	86.9	75.8	65.3	86.1
1985	71.2	51.9	72.9	78.2	57.9	74.0
United States(b)						
1970	67.0	54.8	81.8	74.6	60.4	81.0
1980	70.1	55.5	79.2	77.6	60.4	77.8
England and Wales						
1976	70.0	58.2	83.1	76.1	61.7	81.1
1981	71.1	58.5	82.3	77.1	60.6	78.6
1985	71.8	58.7	81.8	77.7	61.5	79.2
Australia						
1981	71.4	59.2	82.9	78.4	65.0	82.9
1988	73.1	58.4	79.9	79.5	63.4	79.7
At age 65						
United States(a)						
1964	12.8	6.6	51.6	16.2	10.2	63.0
1974	13.4	7.2	53.7	17.5	10.7	61.1
1985	14.6	10.5	71.9	18.6	13.4	72.0
United States(b)						
1970	13.0	6.4	49.2	16.8	8.7	51.8
1980	14.2	6.6	42.3	18.4	8.9	48.4
England and Wales						
1976	12.5	6.9	55.2	16.6	8.2	49.4
1981	13.1	7.7	58.8	17.1	8.1	47.4
1985	13.4	7.7	57.5	17.5	8.9	50.9
Australia						
1981	13.9	7.9	56.8	18.1	10.1	55.8
1988	14.8	6.7	45.2	18.7	8.6	46.0

Source: Canada:Wilkins and Adams (1983b)
USA:(a) McKinlay, McKinlay and Beaglehole (1989)
(b) Crimmins, Saito and Ingegneri (1989)
England and Wales: Bebbington (1988)
Australia: Tables 7 and 8 of this report

The only exception is the estimate of DFLE at age 65 years for the United States in 1985 published by McKinlay et al (1989). As mentioned in the previous section, McKinlay's estimates deviate considerably from other published health expectancies.

The Canadian data covering an earlier period, 1951 to 1978, show slight increases in DFLE at birth for both males and females, although much less than the increases in total life expectancy. These data should be treated with caution as they were not collected using the same survey instrument (Wilkins and Adams 1983b). Sullivan (as quoted by Colvez and Blanchet 1981) found a slight decrease in both long-term and short-term severe disability prevalence between 1959 and 1965-66, suggesting that increases in disability expectancy are a more recent phenomenon of the late 1960s onwards.

Although Australian health expectancies show greater declines (1981 to 1988) than the other time series, the overall picture from the international data is of rising total life expectancy and stationary or falling health expectancies. The next section examines factors which may be responsible for these trends.

7.4 Are we living longer, but sicker?

The evidence summarised in the previous section suggests that for the United States, England and Wales, the extra years of life which have been gained in the last two decades have largely been years of disability. According to Brody, Brock and Williams (1987), present data from the United States are weak, 'but overall suggest that for each good active functional year gained, we add about 3.5 compromised years'. It is widely believed that the large declines in mortality, particularly at older ages, have resulted in ill people being saved, rather than well people being rewarded by disease absence (Verbrugge 1989). The Australian data paint an even gloomier apparent picture. The increase in years of disability between 1981 and 1988 has been greater than the overall increase in life expectancy. This section examines possible factors which could explain this result and its implications.

The increasing reported prevalence of disability and handicap is not due to population ageing (which the Sullivan life table technique controls for) or to sampling variability (standard errors are much smaller than the changes between 1981 and 1988). Measurement error can not be a factor for the Australian data as the survey instruments and methods were consistent for both years. There has been considerable debate about the problems of interpretation and comparability of survey results in the United States over time, as there have been several changes in survey instruments in that country. The consensus is that measurement error cannot explain the observed trends (Crimmins et al 1989; Verbrugge 1989). This leaves the following six factors which may be operating:

1. higher incidence of chronic disease and impairment due to deterioration in the physical and social environment or health-related lifestyle factors;
2. improved survival leading to increased prevalence of chronic disease and disability. This can happen in several ways: improvements in medical care may have resulted in increased survival of chronically ill and disabled people resulting in higher prevalence of disability; by staying alive longer, such people may have more years for their illness to advance in severity and more time to develop other chronic illness. Finally, the extra survivors, even

3. if healthy, are likely to be more frail, that is to have higher individual risk of death at all later ages, and hence to be more likely to develop chronic illness and disability (Manton and Stallard 1988; Verbrugge 1989);
3. earlier diagnosis or treatment of chronic diseases. It has been argued that this could result in earlier perception of limitation or so-called 'social iatrogenesis' (Colvez and Blanchet 1981);
4. earlier adjustment of activities to cope with disease. If people change or cut down their usual activities (eg job) at earlier stages of disease, whether due to changes in willingness to adopt the sick role or to increased levels of social support (pensions, early retirement etc), this will result in an increased prevalence of disability even if disease incidence remains unchanged;
5. changing community and personal attitudes may result in people being more aware of disabling conditions or more willing to report such conditions; and
6. rising expectations of what is 'good health' or 'normal functioning'. If community expectations of what is an acceptable level of independence of older persons are rising, this will result in an increasing prevalence of disability and handicap.

In terms of the model presented in Chapter 1 (see Box 1) the first two of these factors relate to increasing levels of underlying chronic disease and impairment, whereas the latter four relate to changes in perception of disability and handicap, discussed in relation to methodological issues in section 7.1. What evidence is there for the role of these factors over the last two decades in Australia or overseas?

Increased incidence of chronic disease

Crimmins et al (1989) reviewed studies from the United States and concluded that there were no distinct trends toward either increasing or decreasing health status. In contrast, Verbrugge (1989) concluded that 'overall, most researchers agree that the survey evidence in hand weighs towards worsening health (increasing chronic condition and disability prevalence) since around 1970'. She also suggested that, excluding the effects of improved survival (see below), the risks of developing chronic diseases have probably fallen due to safer work and home settings and to better lifestyle behaviours (less smoking by adults, lower consumption of fats and alcohol, increased exercise). This may explain the observed falls in some types of disabling conditions at younger ages in Australia (Table 18).

The Australian Health Survey of 1977-78 provided the first estimates of the prevalence of chronic conditions in the Australian population (ABS 4314.0). No questions on chronic illness were included in the 1983 Australian Health Survey (ABS 4324.0), but the 1989-90 ABS National Health Survey has collected data on chronic illness prevalence data which will be broadly comparable to that from the 1977-78 survey. This data is expected to be released in mid-1991.

Improved survival

Significant mortality declines at older ages began in the late 1960s and have continued through the 1970s and 1980s. Increases in disability prevalence also began to occur in the late sixties and seventies (see previous section). During this period, secondary prevention, the early detection of disease and subsequent intervention to slow its progress, was emphasised for many of the

major fatal and non-fatal diseases. Verbrugge (1989) argues that the resulting mortality declines led to increased prevalence of chronic conditions directly, and also to further increases as the 'new survivors' had their conditions worsen and as they developed new illness during their extra years of life.

The major causes of disability and handicap in older life are non-fatal conditions closely related to age. They include arthritis, deafness, blindness, and Alzheimer's disease and related disorders. The age-specific prevalence of these diseases would be expected to rise if improved survival was increasing the frailty of the older population.

This factor may explain the increased prevalence in Australia of some types of disabling conditions at older ages but not at younger ages (Table 18).

Earlier diagnosis or treatment

Greater awareness of chronic conditions due to improved diagnostic techniques, more frequent contacts with the health care system, and, perhaps, more frankness by doctors to patients has probably led to increased reporting of chronic disease conditions in surveys. For this to lead to increased prevalence of disability would require that increased knowledge of disease has led to earlier adjustment of behaviour by restricting activity. In addition, earlier treatment of chronic disease may also lead to behaviour modification. For example, over the last two decades there has been substantially increased screening for and treatment of high blood pressure which may have led more people to restrict their activity without any change in the underlying incidence or prevalence of high blood pressure. Colvez and Blanchet (1981) found evidence that disability due to hypertension has increased in the United States.

Earlier adjustment

The growing availability and generosity of disability programs and income support together with improved access to health services may mean that people are increasingly able and willing to adopt the 'sick role' (Parsons 1951). Changing work conditions (eg increased availability of sick leave, early retirement, superannuation) and income and social support programs may allow people to adjust their activities earlier or to a greater degree to cope with chronic illness. This should result in greater increases in disability prevalence in the working ages and for males. Such differentials have been observed in the United States, although Crimmins et al (1989) concluded that they did not explain all of the observed increases in disability.

The Australian survival curves (Figure 8) provide some evidence that this factor may be operating. Between 1981 and 1988, survival currently free of disability decreased substantially for men in their 60s, relative to other ages. There was no similar decrease for women in their 60s.

Changing perceptions of disability

There is a widespread consensus that people's attitudes to being disabled have changed in recent years, with increasing acceptance of disability for oneself and others (Verbrugge 1989). Crimmins et al (1989) have argued that a higher level of sophistication in knowledge about health leads to higher reporting levels of disability: 'Children who were once thought to have "colds" may now be reported as having a chronic allergic condition. Older people who may once have attributed aches and pains to "old age" now report they have arthritis'. Possible changes in the Australian community's perceptions of disability were discussed in more detail in section 7.1.

Changing perceptions of good health

McCallum (1990) concluded that the expectations of quality of life are rising for older people in Australia. This is reflected in increasing levels of early retirement to enjoy leisure activities and changes in women's expectations of social roles. Health promotion programs for older people are focusing on the goals of independence and wellness for older people (Health Targets and Implementation Committee 1988). These factors may be operating to increase expectations of what is an acceptable minimum level of limitation in activities of daily living and hence increasing perceived levels of disability and handicap.

The relative importance of these factors

The relative importance of changes in perception and awareness of disability and health versus changes in the underlying prevalence of chronic illness is still an open question for Australia, and other countries. We simply do not yet have the data or methodologies to resolve this issue. What we can say is that all the gains in increased years of life are increased years of perceived disability and handicap, with a consequent demand for social and health services. People may be living longer but sicker, they may have higher expectations of good health, or they may be adjusting behaviour more by restricting activity. In any case, they have, in all probability, increased their use of health care in order to monitor their condition.

Acute hospital admission rates have increased steadily during the 1970s in Australia, but the trend is not consistent in the 1980s (Australian Institute of Health 1990). Average private medical services per person increased from 2.8 in 1976 to 4.0 in 1986, an increase of 42 per cent over the decade (Barer et al 1990). Population ageing accounted for very little of this increase, which was most rapid for children, males aged 50-65 years and males aged 75 or more. Although changes in access to health services and provider-related factors may explain some of this increased demand, it is possible that it also reflects increased levels of chronic illness, perceived disability and handicap.

7.5 Indicators

Despite the limitations in the methodology and interpretation of health expectancies discussed above, they encapsulate the morbidity and mortality experience of a population in an easily interpreted indicator and as a result are being increasingly adopted as a health indicator for monitoring progress towards broad health targets.

The National Institute on Ageing in the United States has estimated that, in 1986, approximately 82 per cent (12.0 years of 14.8 years) of expected additional years for men aged 65, and approximately 73 per cent (13.7 years of 18.98 years) of expected additional years for women aged 65, were expected to be active (US Department of Health and Human Services 1989). The United States has adopted the following target for the vitality and independence of older people in the year 2000:

> **increase average active life expectancy (years of healthy life expected) at age 65 to at least 14 years for men and 16 years for women.**

The European member States of the World Health Organization have adopted 38 regional targets as concrete goals to work towards in the Health for All by

the Year 2000 program (WHO 1985).

The fourth of these targets is:

> **by the year 2000, the average number of years that people live free from major disease and disability should be increased by at least 10 per cent.**

The health of older people is one of the five priority areas for the National Better Health Program in Australia (Australian Institute of Health 1990). Targets for the year 2000 have been set for all priority areas apart from Health of Older People. Mathers (1990) has recommended eight targets, including the two following:

> **to increase average disability-free life expectancy at age 65 by 15 per cent or more by the year 2000; and**
>
> **to reduce the proportion of people aged 65 and older who report needing assistance for one or more activities of daily living by 10 per cent or more by the year 2000.**

These proposed targets specify quantifiable performance indicators which encapsulate the National Better Health Program's concern to improve the health and independence of older people and to reduce the prevalence of physical limitations. The proposed target of 15 per cent increase in active life expectancy is based on the target in the United States which specifies a 16 per cent increase for both males and females between 1986 and 2000. It would effectively mean that the current (1988) level of DFLE at age 65 would have to be increased by the year 2000 to slightly more than the level in 1981.

7.6 Conclusions

Fries (1980, 1989) has argued that there is a natural upper limit to life expectancy and that, as this limit is approached, medical and health services can no longer affect life expectancy, but will instead delay the onset of chronic illness, thus compressing morbidity into a shorter period prior to the end of life. In contrast, the recent improvements in life expectancy at older ages have led to renewed arguments that this is due to the improved survival of seriously and chronically ill people, leading to a greater burden of disability and an expansion of morbidity.

Verbrugge (1989) has argued that the great advances in medical treatment in recent years have been in secondary prevention, controlling fatal diseases so that they progress less rapidly, and that this has led to increasing life expectancy but decreasing health expectancies. In contrast, primary prevention reduces the incidence of fatal diseases and people who did fall ill would have less severe illness, since what deters the onset of illness also reduces its progression. Primary prevention would thus lead to increasing life expectancy and increasing health expectancy.

Though the primary prevention of disease, and consequent disability, is a highly desirable strategy, the potential for rehabilitation among the elderly and the mildly or moderately handicapped should not be overlooked. The surprisingly high transition rates from dependence to independence at older ages found by Rogers et al (1989) suggest considerable potential for reducing disability among older people through treatment, appropriate management and social and environmental support (Manton 1989).

As well as further population surveys in Australia to provide consistent data

on trends in disability and handicap, it would also be very useful to have longitudinal studies to examine transitions between dependence and independence and to further explore the dimensions of disability and the role of perceptual and social changes.

The lack of improvement in Australian health expectancies in recent decades probably reflects to some extent changes in societal perceptions of disability, handicap and rising expectations of good health and to some extent the successes of secondary prevention. Indeed, these factors are probably all interrelated. If significant advances in primary prevention occur in the future, we may hope to see falling incidence rates for chronic and disabling conditions and improving health expectancies. At present and for the near future, we may expect to see increasing numbers of frail older people (saved from death by secondary prevention) and increasing numbers of independent and vigorous older people (saved from ill-health by primary prevention).

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Appendix A—Data sources and definitions

A.1 ABS surveys of disability and handicap, 1981 and 1988

Data on the prevalence of disability and handicap among Australians were derived from population surveys conducted by the Australian Bureau of Statistics in 1981 and 1988. Detailed results of the surveys and information on survey methods are given in relevant ABS publications (ABS Cat No 4343.0, 4118.0).

Both surveys covered both rural and urban areas in all States and Territories and covered all persons except overseas residents in Australia, boarding school pupils not resident in households and inmates of gaols and reformatories. For each year, two separate sample surveys were conducted. The first of these, a household sample survey, covered all residential dwellings in Australia including residential staff quarters in health establishments. The second part covered resident patient accommodation in health establishments. Estimates from these two samples were combined to give estimates relating to the entire resident population of Australia.

Information was collected by trained interviewers through personal interviews. In the first stage, persons with one or more disabilities were identified from information provided by one adult member of each household and by individual patients or staff in health institutions. In the second stage, information on disability was collected from the disabled persons themselves. Where the person was aged under 15 years, or was not able to communicate sufficiently, information was obtained by proxy. The identification of disability, handicap and severity of handicap were made using a standard instrument according to the definitions given below (section A.2).

A.2 Definitions of disability and handicap

The 1981 and 1988 ABS surveys used definitions of disability and handicap based on World Health Organization recommendations (see Appendix 1 of Handicapped Persons Australia 1981, ABS Cat No 4343.0).

A disabled person is a person who had one or more of the following disabilities or impairments which had lasted, or were likely to last, for six months or more:

- loss of sight (even when wearing glasses or contact lenses);
- loss of hearing;
- speech difficulties in native language;
- blackouts, fits, or loss of consciousness;
- slowness at learning or understanding;
- incomplete use of arms or fingers;
- incomplete use of feet or legs;
- long term treatment for nerves or an emotional condition;
- restriction in physical activities or in doing physical work;
- disfigurement or deformity;
- need for help or supervision because of a mental disability; and
- long term treatment or medication (but was still restricted in some way by the condition being treated).

A handicapped person is a disabled person aged five years or over who was further identified as being limited to some degree in his or her ability to perform certain tasks in relation to one or more of the following five areas:

- self care
- mobility
- verbal communication
- schooling
- employment.

For disabled children aged under five years, data were not collected to determine the presence and severity of handicap. This was due to difficulties inherent in deciding whether the needs of children aged under five years were a function of their age or their disability. Disabled people aged under five years are all regarded as being handicapped.

Severity of handicap. Persons aged five years or more and handicapped in any of the self care, mobility and verbal communication areas were further classified into three categories of severity. These levels were based on the person's ability to perform tasks relevant to these three areas (see below) and on the amount and type of help required. For each area of handicap, the levels of severity are as follows:

- *severe*—personal help or supervision required or the person is unable to perform one or more of the tasks relevant to these areas;
- *moderate*—no personal help or supervision required, but the person has difficulty in performing one or more of the tasks;
- *mild*—no personal help or supervision required and no difficulty in performing any of the tasks, but the person uses an aid or has difficulty walking 200 metres or up and down stairs.

The highest level of severity in any one of the areas of self care, mobility and verbal communication determines the severity of total handicap for handicapped people. Severity of handicap was not determined for children aged less than five years because the questions were inappropriate for young children. Severity was also not determined for those people with only an employment or schooling limitation. For the purposes of calculating severe-handicap-free life expectancy, the prevalence of severe handicap was assumed to be zero in children aged under five, and persons with an employment or schooling handicap only were assumed not to be severely handicapped.

Tasks. Severity of handicap was assessed in relation to ability to perform the following tasks, or requirement for help in relation to these tasks:

Activity	*Task(s)*
Self care	Showering/bathing
	Dressing
	Eating a meal
Verbal communication (native language)	Understanding strangers
	Understanding family/friends/staff
	Being understood by strangers
	Being understood by family/friends/staff
Mobility	Using public transport
	Moving around in unfamiliar places
	Walking 200 metres
	Walking up and down stairs without a handrail
	Moving around inside the home/health establishment

A.3 Calculations of prevalence rates

Unpublished tabulations of prevalence data from the two disability surveys were provided by the Australian Bureau of Statistics.

Unrounded data for 1988 on the estimated numbers of severely handicapped persons, total handicapped persons, total disabled persons and total persons (whether or not disabled) were provided by sex and single years of age for Australia and by sex, age group (19 categories) and State. The sample survey estimates of total persons were used as denominators for the calculation of prevalence rates of disability, handicap and severe handicap. At the State and Territory level, data were not disaggregated below five year age groups by sex and the highest age groups were further collapsed to 85-94 years and 95+ years to ensure reasonable numbers in all cells.

For the 1981 data, ABS was able to supply estimates of the numbers of severely handicapped persons, total handicapped persons and total disabled persons but not of the total number of persons within each sex/age/State category. It advised that the computer data file for non-disabled persons had not been transferred when ABS upgraded its computer equipment in the mid-1980s and that they could only provide summary information on the total population estimates as shown in Table A.1.

Table A.1: Benchmark figures for total Australian population, Disabled and Aged Persons Survey, 1981

Age group (years)	*Persons*	*State(a)*	*Persons*
0-14	3,690,128		
15-19	1,273,718		
20-24	1,254,689		
25-29	1,177,041		
30-34	1,185,556		
35-39	969,237		
40-44	834,861		
45-49	738,018		
50-54	771,905	NSW	5,156,400
55-59	738,239	Vic	3,893,000
60-64	602,335	Qld	2,260,600
65-69	525,623	SA	1,301,400
70-74	391,708	WA	1,278,700
75-84	409,640	Tas	427,000
85-94	(b)97,118	NT	124,100
95+	(c)4,112	ACT	222,700
Total	14,663,998	Aust	14,664,000

(a) State totals accurate to nearest 100 (ABS Cat No 4343.0).
(b) Population aged 85+ from ABS (Cat No 4118.0).
(c) Population aged 95+ estimated as described below.

Source: Australian Bureau of Statistics, unpublished data

The estimated resident population of Australia for 30 June 1981 (ABS Cat No 3201.0) was adjusted as follows to give total population estimates for the calculation of disability and handicap prevalence rates:

1. the 1988 estimates of the prevalence of disability in males and females aged 95 or more (1.000 and 0.991 respectively) were applied to the numbers of disabled males and females aged 95 or more in 1981 to give estimates of the total population aged 95 or more (see overleaf);

2. population estimates for all other years of age were adjusted pro-rata to sum to the all persons totals given in Table A.1 for age groups 0-14, 15-19, ..., 85-94; and
3. for each State and Territory, the population estimates from step two for each age group up to 85-94 years were adjusted pro-rata so that total persons for each State and Territory summed to the totals given in Table A.1

In order to estimate the likely accuracy of this procedure, it was also applied to the 1988 30 June estimated resident population (ABS Cat No 3201.0) and the resulting population estimates p_e compared with the actual sample survey estimates p_s. The root mean squared relative differences

$$rms = \sqrt{\left(\frac{p_e - p_s}{p_s} \right)^2}$$

for the 1988 population estimates are shown in Table A.2.

Table A.2: Root mean squared relative differences for 1988 population estimates compared with sample survey estimates

	Mean relative difference for 19 age groups 0-4, ..., 95+								
	NSW	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Aust*
Male	0.007	0.012	0.016	0.012	0.014	0.015	0.103	0.630	0.007
Female	0.014	0.011	0.011	0.014	0.010	0.029	0.300	0.050	0.006

	Mean relative difference for six States by age group							
	0-14	*15-29*	*30-44*	*45-59*	*60-74*	*75-84*	*85-94*	*95+*
Male	0.011	0.020	0.007	0.006	0.005	0.006	0.033	0.001
Female	0.009	0.037	0.007	0.005	0.006	0.006	0.017	0.012

These results show that the estimated population numbers differ from the survey population estimates by around one to two per cent for nearly all age groups for both sexes and for the six States but not for the two Territories. Sample numbers for the two Territories are much smaller than for the six States and the age distribution of the sample differs considerably from that of the estimated resident population. For this reason, no attempt was made to estimate disability and handicap prevalence rates or health expectancies for the Northern Territory and Australian Capital Territory in 1981.

From comparison of the 1988 population estimates, and also from analysis of the estimated 1981 prevalence rates by age, it was apparent that the sample surveys under-estimated the total numbers of males in the oldest age groups 85-94 and 95+. Survey estimates of the numbers of males aged 95+ were around one half the estimated resident population aged 95+ for both 1981 and 1988. Furthermore, for males in 1981, all disabled persons aged 95+ were severely handicapped. For females, 88 per cent were severely handicapped compared to 95 per cent in 1988.

The best estimates of the 1981 population aged 95+ are thus provided by using the 1988 disability prevalence rates for males and females (step 1 on page 49). When handicap and disability rates, derived using the 1981 population estimated as described above, were plotted against age, it was apparent that

males aged 90-94 were over-represented in the estimated population. The population estimates for males and females for single years of age in the range 85 to 94 were further adjusted to minimise the deviations of the logs of the six prevalence curves (severe handicap, total handicap and total disability for males and females) from the fitted linear trends by age over the wider age range of 75 years or more. The magnitudes of the resulting adjustments are shown in Table A.3.

Table A.3: Adjustment of population estimates for persons aged 85-94 years, 1981

	Magnitude of adjustment (per cent)	
Age	*Males*	*Females*
85-89	–2.2	+4.4
90-94	–23.8	–2.5

The resulting estimated total Australian population data for 1981 are shown in Table A.4. The population estimates are expected to be accurate to within one to two per cent for nearly all age-sex categories in the six States and Australia. As the relative standard errors of the age-sex specific disability prevalence estimates range from around 5 per cent for Australia and 10 per cent in the larger States up to around 20 per cent for Tasmania (see Table C.1), the estimates of the 1981 population are considered to be of sufficient accuracy for the estimation of prevalence rates and health expectancies for Australia and the six States in 1981.

Table A.4: Estimated total population (disabled and non-disabled), Australia, 1981

Age group	*Males*	*Females*	*Persons*
0-4	577,674	551,111	1,108,785
5-9	642,933	614,553	1,257,486
10-14	665,847	638,008	1,303,855
15-19	648,895	624,823	1,273,718
20-24	635,928	618,761	1,254,689
25-29	595,620	581,421	1,177,041
30-34	601,264	584,292	1,185,556
35-39	494,067	475,170	969,237
40-44	427,723	407,138	834,861
45-49	378,537	359,481	738,018
50-54	394,168	377,737	771,905
55-59	368,961	369,278	738,239
60-64	286,703	315,632	602,335
65-69	245,203	280,420	525,623
70-74	171,753	219,955	391,708
75-79	104,887	152,523	257,410
80-84	51,417	100,813	152,230
85-89	20,745	54,148	74,893
90-94	4,471	17,826	22,297
95+	492	3,620	4,112
All ages	7,317,288	7,346,710	14,663,998

A.4 Graduation of prevalence rates by single years of age

When preparing life tables based on mortality data, it is customary to graduate the mortality rates to obtain a smooth curve giving the best possible estimate

of the underlying mortality experience of the population by removing statistical fluctuations. The prevalence of disability and handicap by single years of age show considerable fluctuations due to sampling variations. Thus, the rates used in the Australian health expectancy tables (Appendix D) have been graduated by using five-year average prevalence rates centred on each year of age.

The estimated prevalence rates for disability and severe handicap by single year of age are shown in Figures A.1 and A.2 together with the graduated rates. The numbers of disabled and severely handicapped expected in each age group have been calculated using the graduated rates and compared with the sample survey estimates. The per cent differences between these estimates for 1988 are shown in Table A.5. This method of graduation provides as good a fit to the data as more sophisticated methods involving weighted moving averages or spline curve fitting. Health expectancies calculated using the graduated rates generally are higher by 0.06 or less years from those calculated using the ungraduated rates for nearly all ages (see Table A.6).

Table A.5: Comparison of prevalence of disability in Australia in 1988 from survey estimates and graduated rates

	Per cent difference					
	Males			*Females*		
Age group	*Severe handicap*	*All handicap*	*All disability*	*Severe handicap*	*All handicap*	*All disability*
0-9	–1.3	–2.0	–3.4	3.5	–1.9	–1.9
10-19	–0.6	–1.0	0.7	1.9	0.7	0.8
20-29	1.0	1.2	0.4	–4.4	–3.2	–2.9
30-39	0.3	0.2	0.3	4.0	2.1	1.4
40-49	–0.3	–0.3	–0.1	–1.1	–0.6	–0.2
50-59	0.8	2.0	1.6	–1.7	0.1	–0.2
60-69	–0.9	–2.5	–2.3	–0.5	–1.1	–0.4
70-79	0.6	1.1	1.1	0.9	1.1	0.7
80-89	–4.4	–1.1	–1.5	–2.2	–1.8	–1.7
90+	0.4	–1.8	–0.6	1.0	1.6	1.5

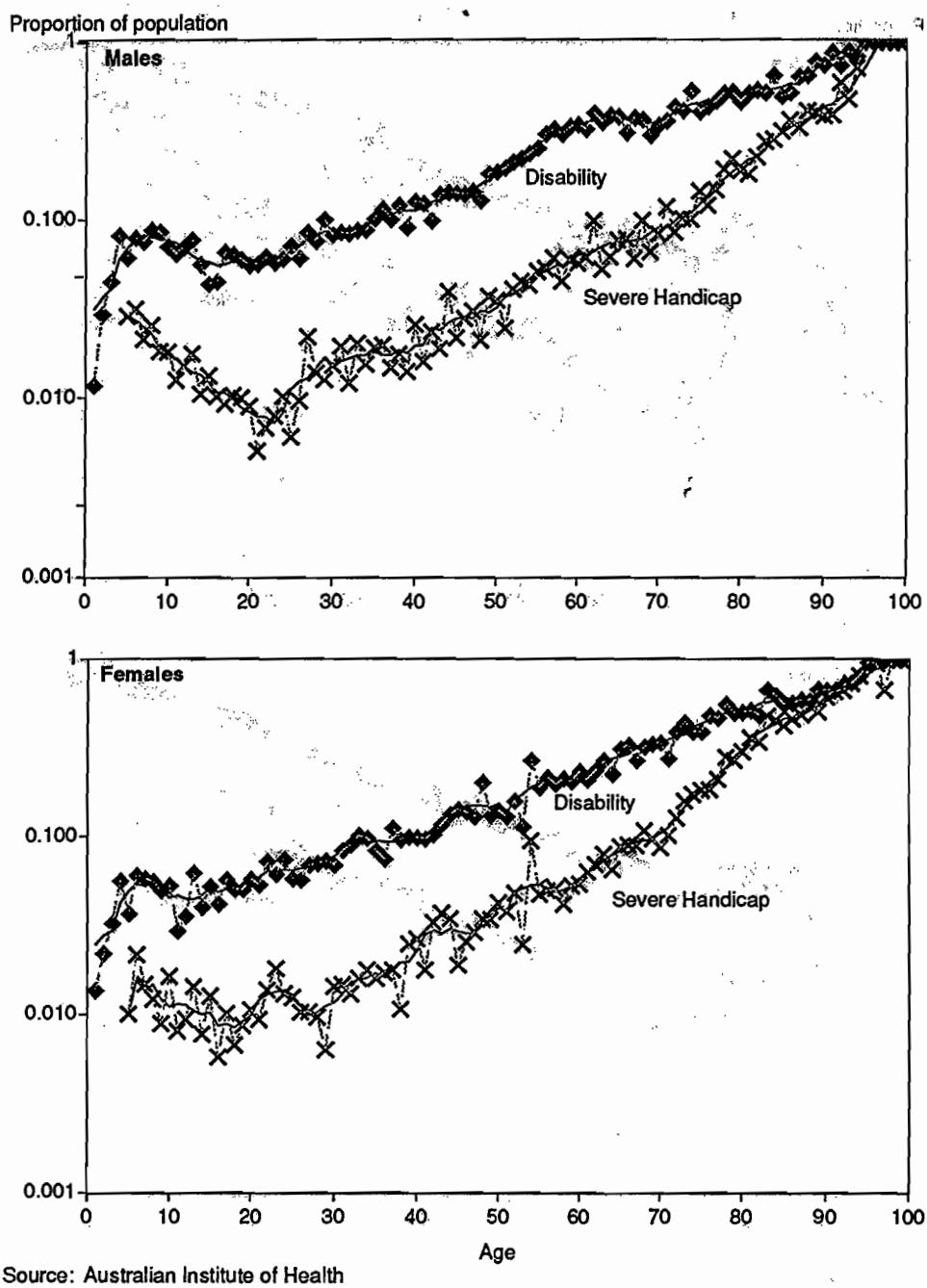
Table A.6: Difference between health expectancies based on graduated and ungraduated rates

	Males			*Females*		
Age (years)	*Severe handicap*	*All handicap*	*All disability*	*Severe handicap*	*All handicap*	*All disability*
0	0.03	0.04	0.05	0.04	0.06	0.03
30	0.03	0.03	0.02	0.03	0.04	0.02
7.5	0.05	0.01	0.00	0.05	0.03	0.00

A.5 Life tables for Australia and States and Territories

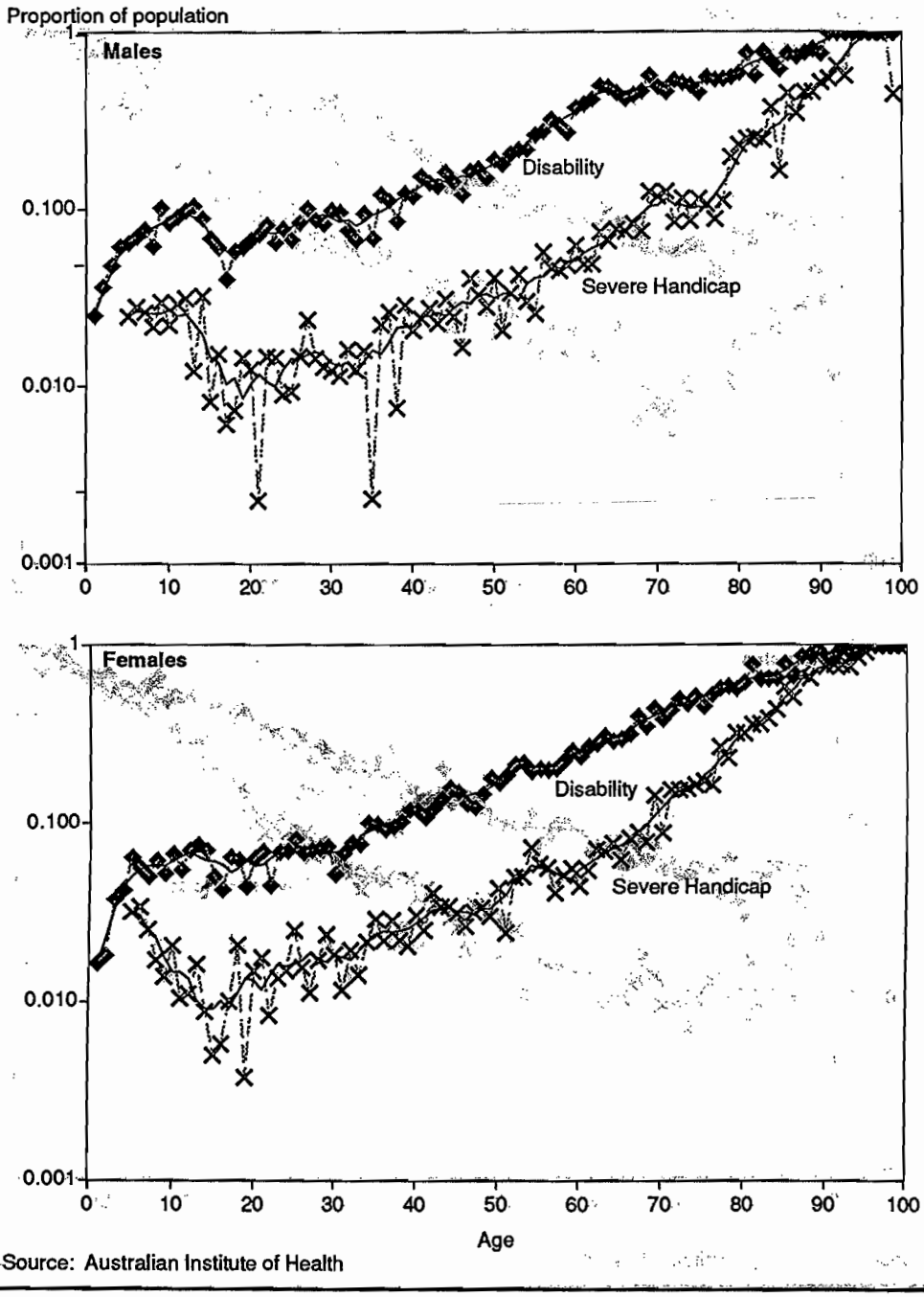
Life tables prepared by the Australian Bureau of Statistics for Australia and the States and Territories in 1981 and 1988 were used in the calculation of health expectancies (see Appendix B). These life tables are based on deaths registered in 1981 and 1988. The Australian life tables are published in *Deaths Australia* (ABS Cat No 3302.0).

Figure A.1: Ungraduated and graduated prevalence rates of disability and severe handicap, 1981



Source: Australian Institute of Health

Figure A.2: Ungraduated and graduated prevalence rates of disability and severe handicap, 1988



Source: Australian Institute of Health

Appendix B—The Sullivan method for calculating health expectancies

B.1 The Sullivan method

Sullivan (1971) developed a life-table method for combining mortality and disability data into a single composite index of disability-free life expectancy. This method has been applied by a number of investigators (Colvez and Blanchet 1983; Katz et al 1983; Wilkins and Adams 1983; Bebbington 1988; Crimmins et al 1989; McKinlay et al 1989). The method may be applied to a wide range of data on the prevalence of long-term morbidity to produce estimates of health expectancies.

The starting point for determining health expectancy is the life table by sex, and particularly the following life table functions:

l_i = the number of persons surviving to exact age x_i

L_i = the total number of years lived in the age interval (x_i, x_{i+1})

The years lived in the various age intervals (x_i, x_{i+1}) $(i = 0,1,\ldots,w)$ are divided into the years spent with disability and the years without disability as follows (Robine 1989):

$(d_i L_i)$ = average years lived with disability in age interval (x_i, x_{i+1})

$(1 - d_i)L_i$ = average years lived without disability in age interval (x_i, x_{i+1})

where

d_i = observed prevalence of disability in the age interval (x_i, x_{i+1})

The average expectation of life free of disability at age x_a is the total years of life lived free of disability from age x_a onwards divided by the number of persons alive at age x_a:

$$DFLE_a = \sum_{i=a}^{w} (1 - d_i)L_i / l_a \qquad a = 0,\ldots,w \quad (B.1)$$

The average expectation of life with disability is similarly calculated as

$$DLE_a = \sum_{i=a}^{w} d_i L_i / l_a \qquad a = 0,\ldots,w \quad (B.2)$$

Thus the complete expectation of life at age x_a, LE_a, has been decomposed into a disability–free and a disabled component:

$$LE_a = \sum_{i=a}^{w} L_i/l_a = DFLE_a + DLE_a \qquad a = 0,\ldots,w \quad (B.3)$$

When this method is applied to a period life table, it provides estimates of average years with and without disability on the assumption of stationary population dynamics, ie, constant age–specific death rates and disability prevalence rates. It thus synthesises cross–sectional data on mortality and disability into a form which is independent of the population age composition.

B.2 Comparison with the multistate life table method

The multistate life table generalises the single state life table (which analyses the transition from a single 'alive' state to the 'absorbing' death state) to include reversible transitions between two or more non–absorbing 'alive' states (Manton and Stallard 1988; Schoen 1988). To explicate the assumptions made by the Sullivan method, we compare it with a two–state life table with a non–disabled state (denoted by subscript N) and a disabled state (denoted by subscript D).

The number of survivors in state k and age x_i is denoted by l_{ik} (see Figure B.1). The transition probability q_i of the single–state life table becomes a transition matrix q_{ijk} giving the probabilities of transition between states j and k in the age interval (x_i, x_{i+1}). In particular, denoting death by subscript M,

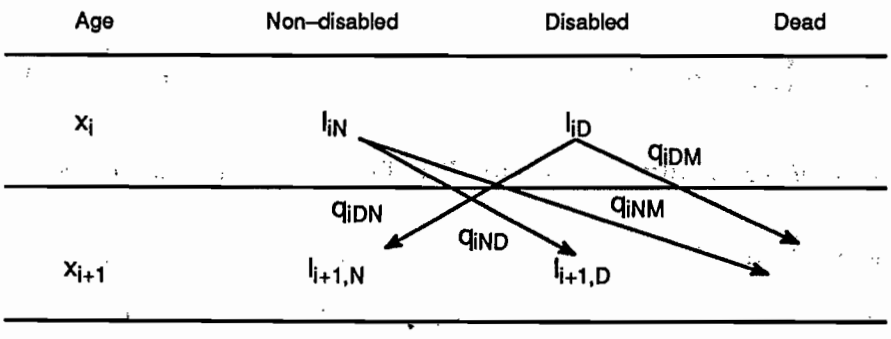
q_{iND} = probability of a person not disabled at exact age x_i being disabled at exact age x_{i+1}

q_{iDN} = probability of a person disabled at exact age x_i being free of disability at exact age x_{i+1}

q_{iNM} = probability of a person not disabled at exact age x_i dying within the interval (x_i, x_{i+1})

q_{iDM} = probability of a person disabled at exact age x_i dying within the interval (x_i, x_{i+1})

Figure B.1: Transitions in the multistate life table



Source: Australian Institute of Health

The life table methodology limits consideration of periods spent in disability to a single transition between states N and D over the age interval (x_i,x_{i+1}). The ABS definition of disability refers to states which have lasted or are expected to last at least six months, whereas life tables do not normally consider age intervals shorter than one year. In principle, it would be possible for an individual to spend one half or more of an age interval in a disabled state but to be free of disability at both boundaries of the interval.

If we assume that persons who make the transition between states N and D spend on average one half of the interval (x_i,x_{i+1}) in each state (this could be generalised to fractions f_{ijk} if more detailed information were available), then the years of life lived in states N and D are:

$$\begin{aligned} L_{iN} &= (1 - q_{iND}/2 - q_{iNM}/2)\, l_{iN} + q_{iDN}\, l_{iD}/2 \\ L_{iD} &= (1 - q_{iDN}/2 - q_{iDM}/2)\, l_{iD} + q_{iND}\, l_{iN}/2 \end{aligned} \qquad \text{(B.4)}$$

and the survivors at age x_{i+1} are:

$$\begin{aligned} l_{iN} &= (1 - q_{iND} - q_{iNM})\, l_{iN} + q_{iDN}\, l_{iD} \\ l_{iD} &= (1 - q_{iDN} - q_{iDM})\, l_{iD} + q_{iND}\, l_{iN} \end{aligned} \qquad \text{(B.5)}$$

The disability–free life expectancy for the entire cohort at age x_a is

$$DFLE_a = \sum_{i=a}^{w} L_{iN}/(l_{aN} + l_{aD}) \qquad \text{(B.6)}$$

Now, the average prevalence of disability in the interval (x_i,x_{i+1}) is given by

$$d_i = L_{iD}/(L_{iN} + L_{iD}) \qquad \text{(B.7)}$$

so that equation (B.6) becomes

$$\begin{aligned} DFLE_a &= \sum_{i=a}^{w} (1 - d_i)(L_{iN} + L_{iD})/(l_{iN} + l_{iD}) \\ &= \sum_{i=a}^{w} (1 - d_i)L_i/l_a \end{aligned} \qquad \text{(B.8)}$$

which is the Sullivan formula (B.1). The Sullivan formula is potentially more accurate than the multistate life table formula (B.6), as the use of disability prevalence (B.7) for the age interval (x_i,x_{i+1}) includes the effects of all periods of disability experienced, unlike the use of transition probabilities between the end–points of age intervals. On the other hand, the multistate life table contains far more information about the history of the cohort and can be used

to calculate other quantities such as the expectation of disability–free life for those not disabled at age x_a

$$DFLE_{aN} = \sum_{i=a}^{w} (L_{iN} | l_{aD} = 0)/l_{aN} \qquad (B.9)$$

where $(L_{iN} | l_{aD}=0)$ is the years of life lived free of disability in age interval (x_i,x_{i+1}) calculated for the cohort initially not disabled at age x_a, ie, by setting $l_{aD}=0$ in the life table. Similarly, the expectation of disability–free life for those disabled at age x_a is given by

$$DFLE_{aD} = \sum_{i=a}^{w} (L_{iD} | l_{aN} = 0)/l_{aD} \qquad (B.10)$$

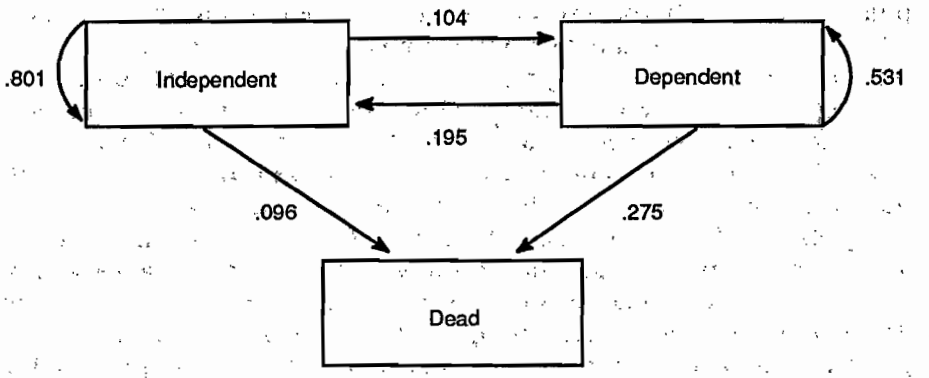
Multistate life table methods have been used by Rogers et al (1989) to calculate active life expectancy for the United States in 1984. Active life expectancy corresponds approximately to life expectancy free of severe handicap as defined in this report. The active life expectancies shown in Table B.1 were calculated using data from the 1986 Longitudinal Survey of Ageing which reinterviewed 5,150 people who had previously been interviewed in 1984 and who were aged 70 or over at that time. The transition probabilities were thus calculated for a two–year interval at each age.

Table B.1: Expectation of remaining life for individuals aged 70 and over: two functional statuses, United States, 1984

x_i	LE_{iN}	$DFLE_{iN}$	DLE_{iN}	LE_{iD}	$DFLE_{iD}$	DLE_{iD}
Males		%	%		%	%
70	11.3	9.3 (82)	2.0 (18)	9.9	5.9 (60)	4.0 (40)
72	10.2	8.2 (80)	2.2 (20)	9.1	5.3 (58)	3.8 (42)
74	9.2	7.2 (78)	2.0 (22)	8.1	4.3 (53)	3.8 (47)
76	8.3	6.3 (76)	2.0 (24)	7.2	3.1 (44)	4.0 (56)
78	7.4	5.5 (73)	2.0 (27)	6.5	2.6 (40)	3.9 (60)
80	6.7	4.8 (71)	1.9 (29)	5.9	2.0 (35)	3.8 (65)
82	6.0	4.2 (69)	1.9 (31)	5.4	1.7 (31)	3.7 (69)
84	5.5	3.6 (66)	1.9 (34)	5.0	1.5 (30)	3.5 (70)
86	5.0	3.1 (62)	1.9 (38)	4.5	1.1 (24)	3.4 (76)
88	4.5	2.7 (59)	1.9 (41)	4.2	0.8 (20)	3.4 (80)
90	4.2	2.2 (53)	2.0 (47)	4.0	0.6 (16)	3.4 (84)
92	3.9	1.5 (38)	2.4 (62)	3.8	0.6 (14)	3.3 (86)
Females						
70	15.4	10.9 (71)	4.5 (29)	14.5	6.8 (47)	7.7 (53)
72	14.0	9.6 (68)	4.4 (32)	13.0	5.6 (43)	7.4 (57)
74	12.6	8.4 (66)	4.2 (34)	11.6	4.0 (35)	7.5 (65)
76	11.4	7.4 (64)	4.1 (36)	10.3	2.8 (28)	7.4 (72)
78	10.3	6.3 (62)	3.9 (38)	9.3	2.5 (27)	6.7 (73)
80	9.2	5.5 (59)	3.7 (41)	8.3	2.2 (26)	6.1 (74)
82	8.3	4.8 (58)	3.5 (42)	7.5	1.8 (25)	5.6 (75)
84	7.5	4.2 (56)	3.3 (44)	6.7	1.6 (24)	5.1 (76)
86	6.8	3.7 (54)	3.1 (46)	6.1	1.4 (23)	4.7 (77)
88	6.2	3.4 (55)	2.8 (45)	5.5	1.1 (20)	4.4 (80)
90	5.9	3.4 (58)	2.5 (42)	5.1	1.1 (21)	4.0 (79)
92	5.7	3.4 (61)	2.2 (39)	4.9	1.1 (22)	3.8 (78)

Source: Rogers et al (1989)

Figure B.2: Transition probabilities for United States population aged 70 years and over, 1984–1986



Source: Rogers et al 1990

Rogers et al (1990) have recently published a paper arguing that the Sullivan method produces biased estimates of active life expectancy and that this bias leads to the conclusion that active life expectancy is declining in a population whose transition probabilities between the independent and dependent states are held constant. They give an example using the transition probabilities shown in Figure B.2. Applying these probabilities to the 1984 two–status population, and adding the new entrants (ie, the population aged 70–72) into the elderly population during the 1984–1986 interval, Rogers et al obtain the 1986 population distribution:

Dependent population
(0.531)*1,452,109 + (0.104)*11,629,247 +302,179 = 2,280,388

Independent population
(0.194)*1,452,109 + (0.801)*11,629,247 +2,982,821=12,574,861

Thus, the prevalence of dependency has increased from 11.1 per cent in 1984 to 15.35 per cent in 1986. They then project the population forward to 1988, assuming that all transition probabilities remain constant:

Dependent population
(0.531)*2,280,388 + (0.104)*12,574,861 +306,540 = 2,822,859

Independent population
(0.194)*2,280,388 + (0.801)*12,574,861 +3,099,460=13,609,276

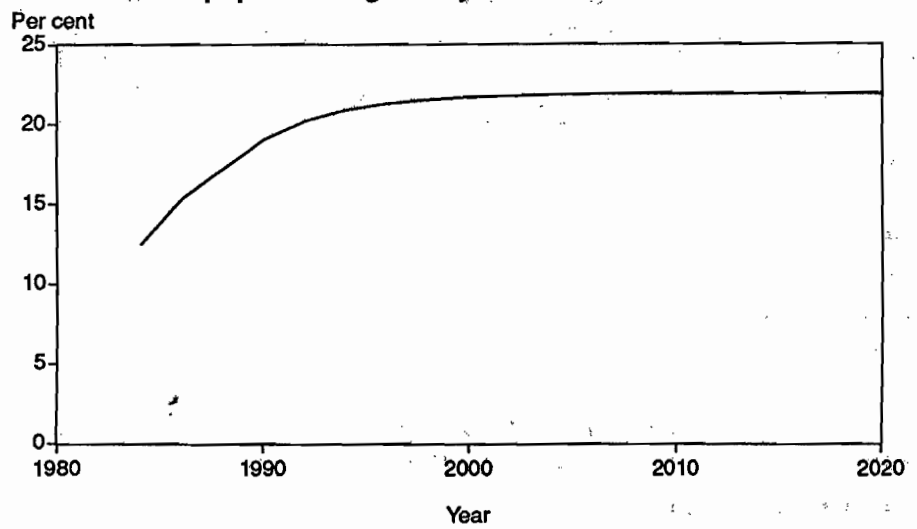
The prevalence of dependency increases once again (from 15.35 per cent to 17.18 per cent), even though the transition probabilities did not change over time. More detailed analyses, which take age composition of the population into account, lead to similar results.

Rogers and co–authors argued that the prevalence index is biased in the direction of increased dependency whenever the independent population is very much larger than the corresponding dependent population, due to the much larger weight given to the transition to dependency. They concluded that the Sullivan method introduces a pessimistic bias over time in most observed ageing populations in comparison to the multistate life table method.

Their conclusion is incorrect: the discrepancy between estimates made using the two methods do not result from bias in the prevalence index, but from the use of prevalence estimates from a non–stationary population, that is, a population in which the prevalence of dependency has not reached the equilibrium value associated with the current transition rates.

In the example above, if the projections are carried forward sufficiently far, assuming for simplicity a constant 3.41 million new entrants in each two year period, the prevalence of dependency stabilises at around 21.9 per cent by the year 2010 (Figure B.3). In other words, the observed transition probabilities (Figure B.2) are consistent with a higher equilibrium prevalence than that actually observed in the US population in 1986. If the probability of transition to dependency is increasing, or has recently increased, then it takes some years (around 20 in the example given) for the prevalence of dependency to increase to its equilibrium value. This happens because the overall prevalence of dependency in a non–stationary population reflects past probabilities of becoming dependent.

Figure B.3: Projected population prevalence of dependency in United States population aged 70 years or more



Source: Australian Institute of Health

Contrary to the argument of Rogers et al (1990), that the Sullivan method introduces pessimistic bias over time into the evolution of active life expectancy, the example above illustrates that it produces over–estimates of active life expectancy for some time after transition rates to dependency have increased, ie, an optimistic bias. Clearly, the multistate life table method is the most realistic demographic model for estimating health expectancies, but its use requires data on transition probabilities which can only be obtained from longitudinal surveys of the population. The Sullivan method requires only the availability of cross–sectional prevalence data, but produces estimates which may underestimate temporal trends in the population.

B.3 Survival curves

The function l_{aN} gives the numbers of persons surviving at exact age x_a who are currently not disabled. Some of these persons will have experienced periods of disability at earlier ages. The probability of survival currently free of disability at age x_a is

$$p_{aN} = l_{aN}/(l_{0N} + l_{0D})$$

$$\approx (1-(d_{a-1} + d_a)/2)l_a/l_0 \qquad \text{(B.11)}$$

where the proportion of survivors free of disability at exact age x_a has been approximated using the average prevalence of disability in the age interval (x_{a-1},x_{a+1}). This approximation involves ignoring terms of order $(q_{ajk} - q_{a-1,jk})$ and $q_{ajk} \times q_{ajk}$ and higher. Equations similar in form to (B.11) have been used to derive the survival curves given in Appendix D.

Disability–free survival curves are sometimes described in terms of survival free of disability up until a given age (Myers 1984). This survival probability is given by

$$p'_{aN} = \prod_{i=0}^{a=1} (1 - q_{iN} - q_{iM}) \qquad \text{(B.12)}$$

There are clearly various other survival functions which can be derived from the multistate life table. However, the survival curve given by equation (B.11) is the one whose integral gives the years of life spent free of disability and hence which is most useful for graphically presenting data on disability–free life expectancies. Survival curves may be calculated from cross–sectional prevalence data using equation (B.11) so long as we are careful not to confuse them with survival curves of the type (B.12) or to conceptualise the disability experience of the population in terms of a disability–free period followed by a period of disability followed by death.

B.4 Use of the Sullivan method in an abridged life table

Complete health expectancy tables by single years of age 0,...,99 have been calculated for males and females for Australia (Appendix D). For the States and Territories, abridged health expectancy tables have been calculated (see Appendix E).

Values for the life table functions l_i, L_i were derived from life tables supplied by ABS. For the abridged health expectancy tables shown in Appendix E, values of L_i for the age intervals were calculated by summing values of L_x for single years of age x from the unabridged life tables.

The application of average prevalence rates for a five or ten year age interval to the total years of life lived in that age interval results in a biased estimate at the oldest ages as disability prevalence rates are rapidly increasing with age whereas years of life lived are decreasing. The magnitude of this bias has been estimated by comparing the health expectancies for the complete Australian life tables (Tables D.1 to D.4) with those from the abridged life tables (Tables E.13, E.14, E.31, E.32).

Table B.2 shows the size of this difference for 1988. The differences for 1981 are similar. These biases would also apply to health expectancies derived from the abridged tables for the States and Territories. Any differences between the Australian and State or Territory biases would be of second order and hence negligible. If desired the health expectancies given in Appendix E could be corrected for the abridgement bias by adding the correction factors shown in Table B.2. However, the corrections are generally small compared to the standard errors and can safely be ignored in most cases.

Table B.2: Correction factors (years) for bias introduced into health expectancy estimates by life table abridgement, 1988

	Males			*Females*		
Age	*SHFLE*	*HFLE*	*DFLE*	*SHFLE*	*HFLE*	*DFLE*
0	–	–0.05	–0.04	–	–0.06	–0.04
20	–0.04	–0.06	–0.04	–0.03	–0.07	–0.04
40	–0.05	–0.05	–0.04	–0.03	–0.06	–0.04
60	–0.06	–0.06	–0.05	–0.03	–0.05	–0.03
80	–0.10	–0.06	–0.05	–0.01	–0.02	–0.02

Appendix C—Standard errors of health expectancies

Health expectancies presented in this report are estimates of corresponding unknown true values. Statistical inference regarding these unknown values may be made on the basis of the estimates if we have estimates of their standard errors. Health expectancies are calculated using life table functions derived from observed population mortality rates subject to statistical fluctuation and disability and handicap prevalence estimates subject to sampling variability. This Appendix derives formulae for estimating standard errors of health expectancies.

Chiang (1978) showed that the observed expectation of life LE_a is a linear function of p_{aj}, the observed probability that a person of age x_a will survive to age x_j. This probability is computed from

$$p_{aj} = p_a p_{a+1} \cdots p_{j-1}, \qquad j = a+1,\ldots,w \qquad (C.1)$$

where

$$p_i = l_{i+1}/l_i \qquad (C.2)$$

is the probability that a person of age x_i will survive to age x_{i+1}.

Now, the estimated probabilities p_i for two non-overlapping age intervals are based on the mortality experience of two distinct groups of people, and therefore are not correlated. Thus, the variance of the expectation of life may be computed from the formula

$$S^2(LE_a) = \sum_{i=a}^{w} \left[\frac{\partial}{\partial p_i} LE_a\right]^2 S^2(p_i) \qquad (C.3)$$

Chiang (1978) showed that LE_a can be written in the form

$$LE_a = f_a n_a + \sum_{j=a+1}^{w} c_j p_{aj} \qquad (C.4)$$

where

$c_j = (1 - f_{j-1})n_{j-1} + a_j n_j$

f_j = fraction of age interval (x_j, x_{j+1}) lived by those individuals who die in the interval

$n_j = x_{j+1} - x_j$ (the length of the age interval)

and that

$$\frac{\partial}{\partial p_i} LE_a = p_{ai}[(1 - f_a)n_i + LE_{i+1}] \qquad i = a,\ldots,w-1 \qquad (C.5)$$

$$\frac{\partial}{\partial p_w} LE_a = 0.$$

The variance of the survival probability p_i is derived from its binomial distribution, and the best unbiased estimate is given by

$$S^2(p_i) = S^2(q_i) = q_i^2(1- q_i)/D_i \qquad (C.6)$$

where

$q_i = 1- p_i =$ probability of dying during the interval (x_i,x_{i+1})

$D_i =$ number of deaths in the interval (x_i,x_{i+1}) for the actual population used to derived mortality rates (not the life table population)

The expectation of disabled life at age x_a is a function of the survival probabilities p_i and the disability prevalence rates d_i. The rates d_i are not correlated for the same reasons the p_i are not correlated. If it is assumed that the p_i and d_i are not correlated, then the variance of the disability expectancy may be computed from the formula:

$$S^2(DLE_a) = \sum_{i=a}^{w} \left[\left(\frac{\partial}{\partial p_i} DLE_a \right)^2 S^2(p_i) + \left(\frac{\partial}{\partial d_i} DLE_a \right)^2 S^2(d_i) \right] \qquad (C.7)$$

In an analogous fashion to equation (C.4), DLE_a ,may be written in the form

$$DLE_a = f_a n_a d_a + \sum_{j=a+1}^{w} c_j p_{aj} \qquad (C.8)$$

where

$$c_j = (1- f_{j-1}) n_{j-1} d_{j-1} + f_j n_j d_j \qquad (C.9)$$

Thus

$$\frac{\partial}{\partial p_i} DLE_a = \sum_{j=a+1}^{w} c_j \frac{\partial p_{aj}}{\partial p_i} \qquad (C.10)$$

In an analogous manner to Chiang's derivation of equation (C.5), this reduces to

$$\frac{\partial}{\partial p_i} DLE_a = p_{ai}[(1 - f_i)n_i d_i + DLE_{i+1}] \qquad (C.11)$$

From equation (B.2),

$$\frac{\partial}{\partial d_i} DLE_a = L_i/l_a \qquad (C.12)$$

Thus the variance of DLE_a is given by:

$$S^2(DLE_a) = \sum_{i=a}^{w-1} l_i^2[(1 - f_i)n_i d_i + DLE_{i+1}]^2 S^2(p_i) / l_a^2$$

$$+ \sum_{i=a}^{w} L_i^2 S^2(d_i) / l_a^2 \qquad \text{(C, 13)}$$

The variance of the disability-free life expectancy is similarly given by:

$$S^2(DFLE_a) = \sum_{i=a}^{w-1} l_i^2[(1 - f_i)n_i(1 - d_i)+DFLE_{i+1}]^2 S^2(p_i) / l_a^2$$

$$+ \sum_{i=a}^{w} L_i^2 S^2(1 - d_i) / l_a^2 \qquad \text{(C, 14)}$$

The variances of the observed disability rates d_i were calculated using the following formula (see Appendix 3 of Handicapped Persons Australia ABS Cat No 4343.0)

$$S^2(d_i^2) = \left(d_i^2 \ [RSE(x)]^2 - [RSE(y)]^2\right) \qquad \text{(C.15)}$$

where $d_i = x/y$ and RSE(x) is the relative standard error of the estimated number of disabled persons (x) and RSE(y) is the relative standard error of the total number of persons (y). The variance of the non-disabled rate was similarly calculated from the standard errors of the estimated numbers of non-disabled persons (y - x) and total persons (y). The ABS publications (Cat No 4343.0 and 4118.0) provide tables of standard errors for survey estimates from which standard errors can be obtained by interpolation.

Relative standard errors for disability and handicap prevalence rates by five year age group range from around 5 per cent for Australia to over 20 per cent for Tasmania and the two Territories (see Table C.1). Relative standard errors for the life table functions p_i typically range from less than 0.01 per cent at younger ages up to 0.1 per cent at older ages for Australia and from less than 0.1 per cent at younger ages up to a few per cent at older ages for the smaller States and Territories. Thus the first term in equation (C.14) is typically two orders of magnitude less than the second term. Any correlation between p_i and d_i would reduce the variance of $DFLE_a$ in proportion to the covariance of p_i and d_i. This would at most result in a very small reduction in the overall variance and equations of the form (C.13) and (C.14) have thus been used to provide estimates of the standard errors of health expectancies.

Table C.1: Average relative standard deviation (per cent) of prevalence rate estimates for 19 age groups, by sex and State or Territory, 1988

	NSW	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Aust*
Disability									
Males	9.8	11.4	12.5	14.7	12.9	19.7	49.4	36.5	5.3
Females	11.1	12.1	14.1	14.7	14.9	18.8	47.6	32.5	5.8
Handicap									
Males	11.4	13.0	14.7	16.2	15.1	22.1	51.7	41.3	6.1
Females	12.6	13.6	15.7	16.2	16.6	20.8	51.2	38.6	6.4
Severe handicap									
Males	25.4	26.6	31.3	36.5	42.5	51.1	65.6	62.3	13.3
Females	20.7	24.5	28.8	35.1	33.7	36.8	57.2	38.6	11.4

$S^2(d_i)$ is calculated using equation (C.15) and $S^2(p_i)$ using equation (C.6). D_i is approximated by q_iP_i where P_i is the relevant estimated resident population for the age interval (x_i,x_{i+1}). For complete health expectancy tables based on single years of age, f_i is calculated from l_i and L_i using

$$f_i = (L_i - l_{i+1})/(l_i - l_{i+1}) \qquad \text{(C.16)}$$

For $i > 1$, this reduces to $f_i = 0.5$. For the abridged life tables, f_i is calculated using formulae given in Chapter 5 of Chiang (1978).

The statistical significance of differences between health expectancies x and y have been calculated assuming that x - y is normally distributed with variance

$$S^2(x - y) = S^2(x) + S^2(y) \qquad \text{(C.17)}$$

This formula holds when x and y are uncorrelated, for example, when they are the health expectancies for two disjoint populations such as New South Wales and Victoria. In the case of differences between State, Territory and national health expectancies (Tables 9 to 13), this variance will be an overestimate since the State and Territory population is a subset of the Australian population, so that the two estimates are correlated with non-zero covariance. Thus the statistical significance of differences calculated using variance (C.17) is conservative, giving an upper bound for the probability that the difference differs significantly from zero. Such considerations apply also to the differences between 1981 and 1988 health expectancies (Tables 13 and 14).

Appendix D—Unabridged health expectancy tables for Australia

This Appendix contains complete health expectancy tables by single years of age for Australian males and females in 1981 and 1988 (Tables D.1-D.4). The data and methods used are documented in Appendices A and B. Prevalence rates shown in these tables have been graduated as described in Section A.4.

The health expectancy tables give the following functions:

s_x	Prevalence of severe handicap at age x years
h_x	Prevalence of all handicap at age x years
d_x	Prevalence of disability at age x years
l_x	The number of persons surviving to exact age x
L_x	Years of life lived in the age interval (x,x+1)
LE	Total life expectancy (at age x)
SHFLE	Severe-handicap-free life expectancy (at age x)
HFLE	Handicap-free life expectancy (at age x)
DFLE	Disability-free life expectancy (at age x)
SHLE	Severe-handicap expectancy (at age x)
HLE	Handicap expectancy (at age x)
DLE	Disability expectancy (at age x)

Standard errors have not been computed for the unabridged life tables as the underlying mortality rates and disability prevalence rates have been graduated and are no longer statistically independent. The abridged life tables provide estimates of standard errors for the Australian health expectancies (see Tables E.33 and E.34).

Tables D.5 and D.6 tabulate numbers of persons surviving free of severe handicap, all handicap and all disability at exact age x, calculated as

$$l_x(1 - (s_{x-1} + s_x)/2)$$

$$l_x(1 - (h_{x-1} + h_x)/2)$$

$$l_x(1 - (d_{x-1} + d_x)/2)$$

respectively.

Table D.1: Male health expectancies, Australia, 1981

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0118	0.0314	100000	197843	71.38	68.49	63.55	59.17	2.89	7.83	12.21
2	0.0000	0.0343	0.0365	98801	98771	70.24	67.32	62.34	57.95	2.93	7.90	12.29
3	0.0000	0.0368	0.0409	98740	98710	69.28	66.36	61.42	57.02	2.93	7.87	12.26
4	0.0000	0.0496	0.0603	98679	98655	68.33	65.40	60.49	56.10	2.93	7.84	12.23
5	0.0291	0.0526	0.0694	98631	98608	67.36	64.43	59.57	55.18	2.93	7.79	12.18
6	0.0274	0.0547	0.0780	98584	98566	66.39	63.49	58.65	54.28	2.90	7.74	12.11
7	0.0251	0.0486	0.0790	98547	98530	65.42	62.54	57.73	53.38	2.88	7.69	12.04
8	0.0229	0.0508	0.0804	98512	98497	64.44	61.59	56.80	52.48	2.85	7.64	11.96
9	0.0192	0.0496	0.0775	98481	98470	63.46	60.63	55.86	51.57	2.83	7.60	11.89
10	0.0180	0.0498	0.0764	98459	98450	62.47	59.66	54.93	50.66	2.81	7.55	11.81
11	0.0165	0.0494	0.0744	98440	98429	61.49	58.69	53.99	49.75	2.80	7.50	11.74
12	0.0150	0.0468	0.0685	98418	98405	60.50	57.72	53.05	48.83	2.78	7.45	11.67
13	0.0140	0.0415	0.0631	98391	98373	59.52	56.75	52.11	47.91	2.76	7.41	11.60
14	0.0135	0.0370	0.0593	98354	98328	58.54	55.79	51.17	47.00	2.75	7.37	11.54
15	0.0123	0.0327	0.0584	98301	98265	57.57	54.83	50.24	46.08	2.74	7.33	11.49
16	0.0108	0.0265	0.0557	98229	98182	56.61	53.88	49.30	45.17	2.73	7.31	11.44
17	0.0107	0.0246	0.0566	98134	98075	55.67	52.94	48.38	44.27	2.72	7.29	11.40
18	0.0098	0.0254	0.0589	98016	97948	54.73	52.02	47.46	43.38	2.71	7.27	11.35
19	0.0088	0.0257	0.0611	97880	97805	53.81	51.10	46.55	42.50	2.71	7.26	11.31
20	0.0083	0.0255	0.0603	97730	97651	52.89	50.19	45.65	41.62	2.70	7.24	11.27
21	0.0078	0.0245	0.0589	97572	97493	51.97	49.27	44.75	40.75	2.70	7.23	11.22
22	0.0078	0.0254	0.0590	97413	97335	51.06	48.36	43.84	39.88	2.70	7.22	11.18
23	0.0072	0.0251	0.0621	97257	97182	50.14	47.45	42.94	39.00	2.69	7.20	11.14
24	0.0082	0.0258	0.0629	97107	97036	49.22	46.53	42.03	38.12	2.69	7.19	11.10
25	0.0111	0.0285	0.0675	96964	96896	48.29	45.60	41.12	37.24	2.69	7.17	11.05
26	0.0123	0.0318	0.0712	96828	96764	47.36	44.68	40.20	36.36	2.68	7.15	11.00
27	0.0129	0.0339	0.0792	96699	96637	46.42	43.75	39.29	35.48	2.67	7.13	10.94
28	0.0148	0.0366	0.0815	96575	96515	45.48	42.82	38.37	34.60	2.66	7.11	10.88
29	0.0167	0.0387	0.0863	96455	96396	44.53	41.88	37.45	33.72	2.65	7.08	10.81
30	0.0148	0.0388	0.0859	96337	96279	43.59	40.95	36.54	32.85	2.63	7.05	10.74
31	0.0160	0.0387	0.0881	96221	96164	42.64	40.02	35.62	31.98	2.62	7.02	10.66
32	0.0166	0.0394	0.0857	96106	96047	41.69	39.08	34.70	31.10	2.61	6.99	10.59
33	0.0174	0.0417	0.0892	95988	95928	40.74	38.14	33.78	30.22	2.60	6.96	10.51
34	0.0174	0.0465	0.0949	95867	95804	39.79	37.21	32.87	29.35	2.58	6.92	10.44
35	0.0180	0.0469	0.0983	95741	95674	38.84	36.27	31.95	28.48	2.57	6.89	10.36
36	0.0174	0.0510	0.1048	95607	95535	37.90	35.34	31.05	27.62	2.55	6.85	10.27
37	0.0172	0.0497	0.1065	95463	95386	36.95	34.41	30.14	26.77	2.54	6.81	10.18
38	0.0185	0.0514	0.1114	95309	95225	36.01	33.48	29.24	25.92	2.53	6.77	10.09
39	0.0177	0.0495	0.1128	95141	95049	35.07	32.56	28.34	25.07	2.51	6.73	10.00
40	0.0195	0.0538	0.1127	94957	94856	34.14	31.64	27.45	24.23	2.50	6.69	9.91
41	0.0198	0.0554	0.1159	94755	94644	33.21	30.73	26.56	23.40	2.49	6.65	9.81
42	0.0248	0.0659	0.1262	94532	94408	32.29	29.82	25.67	22.57	2.47	6.62	9.72
43	0.0239	0.0684	0.1291	94284	94147	31.37	28.92	24.81	21.75	2.45	6.57	9.62
44	0.0264	0.0738	0.1323	94009	93856	30.46	28.03	23.95	20.94	2.44	6.52	9.52
45	0.0279	0.0805	0.1421	93702	93532	29.56	27.14	23.10	20.14	2.42	6.46	9.42
46	0.0285	0.0811	0.1401	93361	93171	28.67	26.27	22.26	19.36	2.40	6.41	9.31
47	0.0279	0.0855	0.1479	92981	92770	27.78	25.40	21.43	18.57	2.38	6.35	9.21
48	0.0308	0.0931	0.1577	92558	92323	26.91	24.54	20.61	17.81	2.36	6.30	9.10
49	0.0301	0.0989	0.1689	92087	91826	26.04	23.70	19.81	17.05	2.35	6.23	8.99
50	0.0322	0.1064	0.1823	91565	91276	25.19	22.86	19.02	16.32	2.33	6.17	8.87

(continued)

Table D.1: Male health expectancies, Australia, 1981 *(continued)*

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
51	0.0369	0.1161	0.2006	90987	90668	24.35	22.03	18.24	15.60	2.31	6.10	8.75
52	0.0381	0.1240	0.2111	90348	89996	23.51	21.22	17.48	14.91	2.29	6.03	8.61
53	0.0413	0.1366	0.2246	89643	89255	22.69	20.42	16.74	14.23	2.27	5.95	8.46
54	0.0469	0.1536	0.2461	88867	88442	21.89	19.64	16.02	13.58	2.25	5.87	8.31
55	0.0509	0.1718	0.2683	88017	87554	21.10	18.87	15.32	12.95	2.22	5.77	8.14
56	0.0511	0.1912	0.2852	87090	86587	20.31	18.12	14.66	12.35	2.20	5.66	7.96
57	0.0544	0.2091	0.3049	86083	85538	19.55	17.38	14.01	11.78	2.17	5.53	7.77
58	0.0556	0.2254	0.3228	84993	84405	18.79	16.65	13.40	11.23	2.14	5.39	7.56
59	0.0572	0.2308	0.3270	83817	83183	18.05	15.93	12.80	10.71	2.12	5.24	7.34
60	0.0631	0.2430	0.3393	82549	81867	17.32	15.22	12.23	10.19	2.09	5.09	7.12
61	0.0655	0.2554	0.3500	81184	80451	16.60	14.54	11.67	9.70	2.06	4.93	6.90
62	0.0663	0.2634	0.3607	79717	78929	15.90	13.86	11.13	9.22	2.04	4.76	6.68
63	0.0706	0.2536	0.3692	78140	77293	15.21	13.20	10.61	8.76	2.01	4.59	6.45
64	0.0742	0.2484	0.3675	76445	75535	14.53	12.55	10.09	8.32	1.98	4.44	6.22
65	0.0665	0.2388	0.3624	74624	73646	13.87	11.92	9.58	7.88	1.96	4.30	6.00
66	0.0753	0.2346	0.3642	72667	71618	13.23	11.29	9.07	7.45	1.94	4.17	5.79
67	0.0765	0.2195	0.3479	70568	69444	12.61	10.69	8.56	7.02	1.92	4.06	5.59
68	0.0776	0.2250	0.3392	68320	67120	12.01	10.10	8.05	6.59	1.91	3.97	5.42
69	0.0842	0.2375	0.3498	65920	64645	11.43	9.53	7.55	6.16	1.90	3.88	5.27
70	0.0902	0.2438	0.3574	63369	62021	10.87	8.98	7.08	5.74	1.89	3.80	5.13
71	0.0898	0.2495	0.3649	60672	59257	10.33	8.45	6.62	5.34	1.88	3.71	4.99
72	0.0977	0.2765	0.4087	57842	56365	9.81	7.93	6.17	4.95	1.88	3.64	4.86
73	0.1095	0.2908	0.4260	54888	53359	9.31	7.43	5.76	4.61	1.88	3.55	4.70
74	0.1092	0.3030	0.4441	51829	50256	8.84	6.95	5.37	4.29	1.88	3.46	4.54
75	0.1214	0.3048	0.4501	48682	47076	8.37	6.48	5.00	3.99	1.89	3.37	4.38
76	0.1376	0.3206	0.4696	45469	43840	7.93	6.03	4.63	3.71	1.90	3.30	4.22
77	0.1600	0.3273	0.4605	42210	40569	7.50	5.60	4.29	3.44	1.90	3.22	4.06
78	0.1682	0.3460	0.4765	38927	37287	7.09	5.20	3.95	3.17	1.89	3.15	3.92
79	0.1846	0.3638	0.4958	35646	34018	6.70	4.81	3.62	2.92	1.89	3.08	3.79
80	0.2014	0.3829	0.5110	32390	30787	6.33	4.44	3.32	2.68	1.89	3.00	3.65
81	0.2175	0.3945	0.5106	29184	27620	5.96	4.08	3.03	2.46	1.88	2.93	3.51
82	0.2254	0.4142	0.5251	26055	24546	5.62	3.74	2.76	2.23	1.88	2.86	3.39
83	0.2484	0.4313	0.5363	23037	21599	5.29	3.41	2.49	2.02	1.89	2.80	3.27
84	0.2845	0.4475	0.5402	20160	18804	4.98	3.09	2.24	1.81	1.89	2.74	3.16
85	0.3063	0.4813	0.5524	17447	16182	4.67	2.80	1.99	1.60	1.88	2.68	3.07
86	0.3291	0.4998	0.5767	14917	13736	4.38	2.52	1.77	1.38	1.86	2.61	3.00
87	0.3493	0.4754	0.5688	12554	11468	4.11	2.26	1.56	1.18	1.85	2.55	2.93
88	0.3685	0.5074	0.6177	10382	9401	3.87	2.01	1.30	0.95	1.85	2.56	2.91
89	0.3738	0.5560	0.6970	8420	7551	3.65	1.77	1.05	0.75	1.87	2.60	2.90
90	0.4288	0.6051	0.7353	6682	5929	3.47	1.53	0.83	0.60	1.94	2.64	2.87
91	0.4424	0.6857	0.7934	5175	4560	3.33	1.32	0.61	0.47	2.01	2.72	2.87
92	0.4804	0.7576	0.8046	3944	3453	3.22	1.09	0.44	0.37	2.13	2.77	2.84
93	0.5195	0.7993	0.8429	2961	2577	3.12	0.84	0.31	0.27	2.28	2.81	2.85
94	0.6219	0.8580	0.8580	2192	1898	3.04	0.57	0.18	0.18	2.47	2.86	2.86
95	0.7097	0.9342	0.9342	1604	1383	2.97	0.34	0.08	0.08	2.63	2.89	2.89
96	0.8632	0.9657	0.9657	1162	998	2.91	0.12	0.03	0.03	2.79	2.88	2.88
97	1.0000	1.0000	1.0000	834	715	2.85	0.00	0.00	0.00	2.85	2.85	2.85
98	1.0000	1.0000	1.0000	595	508	2.80	0.00	0.00	0.00	2.80	2.80	2.80
99	1.0000	1.0000	1.0000	421	1158	2.75	0.00	0.00	0.00	2.75	2.75	2.75

(a) Graduated prevalence rates (see Appendix A, Section A.4).

Table D.2: Female health expectancies, Australia, 1981

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0136	0.0245	100000	198310	78.42	73.25	68.59	65.03	5.18	9.83	13.40
2	0.0000	0.0266	0.0278	99042	99020	77.18	71.95	67.29	63.70	5.23	9.90	13.48
3	0.0000	0.0263	0.0293	98997	98981	76.22	70.98	66.34	62.76	5.23	9.87	13.46
4	0.0000	0.0334	0.0420	98964	98951	75.24	70.01	65.39	61.81	5.23	9.85	13.43
5	0.0101	0.0350	0.0492	98938	98924	74.26	69.03	64.44	60.87	5.23	9.82	13.39
6	0.0156	0.0344	0.0538	98910	98902	73.28	68.06	63.49	59.93	5.23	9.79	13.35
7	0.0134	0.0292	0.0524	98893	98886	72.29	67.08	62.54	59.00	5.21	9.75	13.30
8	0.0147	0.0314	0.0553	98879	98871	71.30	66.11	61.58	58.06	5.20	9.73	13.25
9	0.0121	0.0281	0.0493	98863	98854	70.32	65.13	60.62	57.12	5.18	9.70	13.19
10	0.0111	0.0260	0.0450	98845	98839	69.33	64.16	59.66	56.18	5.17	9.67	13.15
11	0.0114	0.0270	0.0462	98833	98825	68.34	63.17	58.69	55.23	5.16	9.65	13.10
12	0.0113	0.0260	0.0444	98816	98807	67.35	62.20	57.73	54.29	5.15	9.62	13.06
13	0.0104	0.0256	0.0440	98797	98786	66.36	61.22	56.76	53.34	5.14	9.60	13.02
14	0.0100	0.0255	0.0466	98774	98760	65.38	60.24	55.80	52.40	5.13	9.57	12.98
15	0.0102	0.0271	0.0511	98746	98730	64.40	59.27	54.84	51.46	5.12	9.55	12.93
16	0.0086	0.0242	0.0487	98714	98695	63.42	58.30	53.89	50.53	5.12	9.53	12.89
17	0.0088	0.0228	0.0507	98676	98655	62.44	57.33	52.93	49.60	5.11	9.51	12.84
18	0.0085	0.0241	0.0518	98633	98610	61.47	56.36	51.98	48.67	5.10	9.49	12.80
19	0.0091	0.0254	0.0541	98587	98563	60.50	55.40	51.03	47.74	5.10	9.47	12.75
20	0.0098	0.0277	0.0571	98539	98514	59.52	54.44	50.08	46.82	5.09	9.45	12.70
21	0.0120	0.0299	0.0592	98489	98465	58.55	53.47	49.13	45.90	5.08	9.42	12.65
22	0.0129	0.0321	0.0640	98440	98416	57.58	52.51	48.18	44.98	5.07	9.40	12.60
23	0.0133	0.0321	0.0642	98391	98368	56.61	51.55	47.24	44.07	5.06	9.37	12.54
24	0.0136	0.0323	0.0651	98344	98321	55.64	50.59	46.30	43.15	5.05	9.34	12.48
25	0.0129	0.0308	0.0643	98297	98274	54.67	49.62	45.35	42.24	5.04	9.32	12.43
26	0.0112	0.0309	0.0662	98250	98226	53.69	48.66	44.40	41.32	5.03	9.29	12.37
27	0.0099	0.0328	0.0659	98202	98178	52.72	47.70	43.45	40.41	5.02	9.26	12.31
28	0.0103	0.0331	0.0681	98154	98130	51.74	46.73	42.51	39.50	5.01	9.23	12.25
29	0.0111	0.0351	0.0734	98105	98080	50.77	45.76	41.56	38.58	5.01	9.21	12.19
30	0.0117	0.0371	0.0774	98055	98029	49.79	44.80	40.62	37.68	5.00	9.18	12.12
31	0.0129	0.0396	0.0836	98002	97975	48.82	43.83	39.68	36.77	4.99	9.14	12.05
32	0.0152	0.0433	0.0887	97948	97920	47.85	42.87	38.74	35.88	4.98	9.11	11.97
33	0.0155	0.0442	0.0918	97891	97861	46.87	41.91	37.80	34.99	4.97	9.07	11.89
34	0.0160	0.0454	0.0903	97831	97799	45.90	40.95	36.87	34.10	4.95	9.03	11.80
35	0.0169	0.0495	0.0944	97767	97733	44.93	39.99	35.94	33.21	4.94	8.99	11.72
36	0.0161	0.0491	0.0931	97698	97660	43.96	39.04	35.01	32.33	4.93	8.95	11.64
37	0.0173	0.0513	0.0930	97622	97581	43.00	38.08	34.09	31.45	4.91	8.91	11.55
38	0.0194	0.0532	0.0962	97540	97495	42.03	37.13	33.17	30.57	4.90	8.86	11.47
39	0.0197	0.0555	0.1014	97449	97399	41.07	36.19	32.25	29.69	4.89	8.82	11.38
40	0.0227	0.0560	0.0994	97349	97293	40.11	35.24	31.34	28.82	4.87	8.77	11.29
41	0.0280	0.0625	0.1033	97237	97174	39.16	34.30	30.43	27.95	4.86	8.73	11.21
42	0.0298	0.0665	0.1100	97111	97041	38.21	33.38	29.53	27.09	4.83	8.68	11.12
43	0.0284	0.0706	0.1189	96970	96890	37.26	32.45	28.64	26.24	4.81	8.62	11.02
44	0.0301	0.0768	0.1271	96810	96720	36.33	31.54	27.76	25.40	4.79	8.56	10.92
45	0.0292	0.0794	0.1330	96630	96529	35.39	30.62	26.89	24.58	4.77	8.50	10.82
46	0.0285	0.0937	0.1502	96428	96316	34.47	29.72	26.02	23.76	4.75	8.44	10.70
47	0.0284	0.0924	0.1499	96204	96081	33.54	28.81	25.18	22.97	4.73	8.37	10.58
48	0.0334	0.0972	0.1494	95958	95825	32.63	27.91	24.33	22.17	4.72	8.30	10.46
49	0.0359	0.0986	0.1476	95691	95547	31.72	27.02	23.50	21.38	4.70	8.22	10.34
50	0.0397	0.1048	0.1536	95403	95248	30.81	26.14	22.66	20.59	4.67	8.15	10.22

(continued)

Table D.2: Female health expectancies, Australia, 1981 *(continued)*

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
51	0.0377	0.0897	0.1360	95093	94927	29.91	25.26	21.84	19.81	4.65	8.07	10.10
52	0.0497	0.1149	0.1636	94760	94580	29.02	24.39	21.01	19.02	4.63	8.01	10.00
53	0.0508	0.1235	0.1740	94399	94204	28.12	23.53	20.20	18.25	4.60	7.92	9.87
54	0.0531	0.1349	0.1914	94008	93795	27.24	22.68	19.41	17.50	4.56	7.83	9.74
55	0.0537	0.1371	0.1993	93582	93350	26.36	21.83	18.63	16.77	4.53	7.73	9.59
56	0.0572	0.1549	0.2197	93117	92863	25.49	20.99	17.85	16.05	4.50	7.64	9.44
57	0.0487	0.1428	0.2063	92609	92331	24.63	20.16	17.11	15.36	4.47	7.52	9.27
58	0.0501	0.1521	0.2154	92053	91750	23.77	19.33	16.35	14.65	4.45	7.42	9.12
59	0.0526	0.1545	0.2140	91446	91114	22.93	18.50	15.61	13.96	4.43	7.32	8.96
60	0.0559	0.1643	0.2215	90782	90420	22.09	17.69	14.87	13.28	4.40	7.22	8.82
61	0.0633	0.1712	0.2318	90058	89663	21.27	16.88	14.15	12.60	4.38	7.11	8.66
62	0.0661	0.1753	0.2373	89267	88836	20.45	16.09	13.45	11.94	4.36	7.00	8.51
63	0.0733	0.1797	0.2533	88404	87934	19.64	15.31	12.75	11.29	4.34	6.90	8.35
64	0.0787	0.1910	0.2779	87464	86953	18.85	14.54	12.06	10.66	4.31	6.79	8.19
65	0.0827	0.1955	0.2843	86442	85887	18.07	13.79	11.39	10.06	4.28	6.68	8.00
66	0.0882	0.2059	0.2941	85331	84730	17.30	13.04	10.73	9.47	4.25	6.57	7.82
67	0.0946	0.2153	0.3160	84128	83476	16.54	12.31	10.08	8.90	4.22	6.45	7.64
68	0.0947	0.2221	0.3205	82824	82119	15.79	11.59	9.45	8.35	4.20	6.34	7.44
69	0.0969	0.2220	0.3109	81414	80651	15.05	10.88	8.83	7.81	4.17	6.22	7.25
70	0.1043	0.2382	0.3347	79887	79060	14.33	10.18	8.21	7.26	4.15	6.12	7.07
71	0.1130	0.2504	0.3569	78232	77335	13.62	9.49	7.62	6.74	4.14	6.01	6.88
72	0.1272	0.2673	0.3678	76437	75463	12.93	8.81	7.04	6.25	4.12	5.90	6.68
73	0.1476	0.2861	0.3792	74489	73434	12.26	8.16	6.48	5.77	4.10	5.78	6.48
74	0.1654	0.3264	0.4221	72379	71239	11.60	7.53	5.94	5.31	4.07	5.66	6.29
75	0.1822	0.3454	0.4374	70099	68872	10.96	6.93	5.45	4.90	4.03	5.51	6.06
76	0.2044	0.3754	0.4565	67645	66329	10.34	6.35	4.98	4.50	3.99	5.36	5.84
77	0.2229	0.4085	0.4793	65012	63606	9.74	5.79	4.55	4.13	3.95	5.19	5.61
78	0.2457	0.4407	0.5066	62199	60701	9.16	5.26	4.15	3.78	3.90	5.01	5.37
79	0.2833	0.4555	0.5138	59203	57613	8.59	4.75	3.78	3.47	3.84	4.81	5.13
80	0.3113	0.4740	0.5208	56022	54339	8.05	4.28	3.44	3.16	3.77	4.61	4.89
81	0.3465	0.4907	0.5342	52655	50884	7.54	3.85	3.12	2.87	3.69	4.42	4.66
82	0.3883	0.5160	0.5620	49112	47263	7.04	3.45	2.81	2.60	3.60	4.23	4.45
83	0.4125	0.5265	0.5739	45414	43505	6.58	3.09	2.54	2.35	3.49	4.04	4.22
84	0.4344	0.5439	0.5892	41595	39651	6.14	2.76	2.28	2.12	3.37	3.86	4.01
85	0.4656	0.5759	0.6143	37706	35754	5.72	2.45	2.03	1.91	3.27	3.69	3.81
86	0.4726	0.5682	0.5959	33802	31848	5.32	2.17	1.82	1.72	3.15	3.50	3.60
87	0.4837	0.5738	0.5957	29893	27962	4.95	1.89	1.60	1.52	3.06	3.35	3.43
88	0.5166	0.5954	0.6137	26030	24151	4.61	1.62	1.37	1.31	2.99	3.24	3.30
89	0.5490	0.6172	0.6328	22271	20475	4.30	1.37	1.17	1.11	2.94	3.14	3.19
90	0.5842	0.6414	0.6572	18678	16995	4.03	1.13	0.97	0.92	2.90	3.06	3.11
91	0.6170	0.6718	0.6915	15311	13822	3.81	0.92	0.79	0.74	2.89	3.02	3.07
92	0.6899	0.7014	0.7142	12333	11045	3.61	0.72	0.61	0.58	2.90	3.00	3.03
93	0.7491	0.7599	0.7621	9757	8669	3.43	0.55	0.43	0.41	2.88	3.00	3.03
94	0.8042	0.8224	0.8249	7581	6682	3.28	0.43	0.28	0.25	2.85	2.99	3.02
95	0.8210	0.8885	0.8911	5783	5058	3.14	0.33	0.17	0.13	2.81	2.97	3.01
96	0.8789	0.9318	0.9546	4333	3762	3.02	0.23	0.09	0.05	2.79	2.93	2.98
97	0.9173	0.9689	0.9901	3190	2750	2.92	0.18	0.04	0.01	2.75	2.88	2.92
98	0.9244	0.9707	1.0000	2309	1977	2.85	0.14	0.03	0.00	2.71	2.82	2.85
99	0.9600	1.0000	1.0000	1644	4603	2.80	0.11	0.00	0.00	2.69	2.80	2.80

(a) Graduated prevalence rates (see Appendix A, Section A.4).

Table D.3: Male health expectancies, Australia, 1988

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0254	0.0254	100000	198130	73.08	69.88	61.00	58.39	3.20	12.07	14.69
2	0.0000	0.0371	0.0343	98958	98932	71.84	68.61	59.69	57.05	3.23	12.15	14.79
3	0.0000	0.0423	0.0440	98906	98889	70.88	67.65	58.76	56.11	3.23	12.12	14.77
4	0.0000	0.0535	0.0565	98871	98858	69.91	66.67	57.82	55.18	3.23	12.08	14.73
5	0.0250	0.0590	0.0645	98845	98832	68.92	65.69	56.89	54.25	3.23	12.03	14.68
6	0.0266	0.0588	0.0673	98818	98804	67.94	64.73	55.97	53.33	3.21	11.98	14.61
7	0.0263	0.0635	0.0749	98789	98782	66.96	63.78	55.04	52.41	3.18	11.92	14.55
8	0.0257	0.0691	0.0788	98774	98761	65.97	62.82	54.11	51.49	3.16	11.86	14.48
9	0.0260	0.0720	0.0831	98748	98740	64.99	61.86	53.20	50.59	3.13	11.79	14.40
10	0.0271	0.0763	0.0875	98732	98724	64.00	60.89	52.28	49.68	3.11	11.72	14.32
11	0.0250	0.0833	0.0963	98716	98706	63.01	59.93	51.36	48.77	3.08	11.65	14.24
12	0.0256	0.0798	0.0939	98695	98682	62.02	58.97	50.46	47.88	3.06	11.57	14.14
13	0.0227	0.0737	0.0906	98668	98650	61.04	58.01	49.55	46.99	3.03	11.49	14.05
14	0.0197	0.0666	0.0842	98631	98606	60.06	57.05	48.64	46.09	3.01	11.42	13.97
15	0.0146	0.0551	0.0722	98581	98547	59.09	56.10	47.73	45.20	2.99	11.36	13.89
16	0.0136	0.0477	0.0633	98512	98468	58.13	55.16	46.82	44.30	2.98	11.31	13.83
17	0.0103	0.0446	0.0580	98424	98370	57.19	54.22	45.91	43.41	2.97	11.28	13.78
18	0.0111	0.0441	0.0575	98315	98251	56.25	53.29	45.00	42.51	2.96	11.24	13.74
19	0.0085	0.0437	0.0596	98187	98116	55.32	52.37	44.11	41.63	2.95	11.21	13.70
20	0.0103	0.0501	0.0681	98044	97968	54.40	51.45	43.21	40.74	2.95	11.19	13.66
21	0.0118	0.0506	0.0696	97891	97812	53.49	50.54	42.33	39.88	2.94	11.15	13.61
22	0.0106	0.0515	0.0732	97732	97652	52.57	49.64	41.45	39.01	2.94	11.12	13.56
23	0.0100	0.0517	0.0732	97572	97493	51.66	48.73	40.57	38.15	2.93	11.09	13.51
24	0.0125	0.0559	0.0758	97413	97336	50.74	47.82	39.69	37.28	2.93	11.06	13.46
25	0.0143	0.0593	0.0797	97258	97183	49.82	46.90	38.80	36.42	2.92	11.02	13.41
26	0.0143	0.0631	0.0842	97108	97035	48.90	45.99	37.92	35.55	2.91	10.97	13.35
27	0.0151	0.0645	0.0852	96962	96891	47.97	45.07	37.04	34.69	2.90	10.93	13.28
28	0.0157	0.0688	0.0916	96819	96750	47.04	44.15	36.16	33.82	2.89	10.88	13.22
29	0.0151	0.0711	0.0941	96680	96612	46.11	43.23	35.28	32.96	2.88	10.83	13.14
30	0.0136	0.0669	0.0892	96544	96477	45.17	42.31	34.40	32.10	2.86	10.77	13.07
31	0.0131	0.0646	0.0849	96409	96342	44.23	41.38	33.51	31.24	2.85	10.72	13.00
32	0.0137	0.0672	0.0872	96275	96208	43.29	40.45	32.63	30.36	2.85	10.67	12.93
33	0.0117	0.0613	0.0809	96141	96074	42.35	39.52	31.74	29.49	2.84	10.62	12.86
34	0.0139	0.0650	0.0857	96007	95940	41.41	38.58	30.84	28.61	2.83	10.57	12.80
35	0.0161	0.0716	0.0933	95873	95806	40.47	37.65	29.95	27.74	2.82	10.52	12.73
36	0.0152	0.0749	0.0974	95738	95669	39.53	36.72	29.06	26.87	2.81	10.46	12.66
37	0.0178	0.0797	0.1029	95600	95529	38.58	35.79	28.18	26.01	2.80	10.40	12.58
38	0.0215	0.0910	0.1132	95458	95383	37.64	34.86	27.30	25.15	2.78	10.34	12.49
39	0.0219	0.0950	0.1202	95308	95228	36.70	33.93	26.43	24.30	2.76	10.26	12.40
40	0.0219	0.0985	0.1257	95148	95061	35.76	33.01	25.57	23.46	2.75	10.19	12.30
41	0.0249	0.1069	0.1354	94974	94879	34.82	32.09	24.72	22.63	2.73	10.11	12.20
42	0.0251	0.1107	0.1426	94783	94679	33.89	31.18	23.87	21.81	2.71	10.02	12.08
43	0.0262	0.1166	0.1487	94574	94460	32.97	30.27	23.04	21.00	2.69	9.93	11.97
44	0.0250	0.1130	0.1425	94345	94221	32.04	29.37	22.21	20.20	2.67	9.84	11.85
45	0.0280	0.1186	0.1476	94096	93961	31.13	28.47	21.38	19.39	2.65	9.75	11.74
46	0.0301	0.1241	0.1546	93826	93680	30.22	27.58	20.56	18.59	2.63	9.66	11.62
47	0.0294	0.1239	0.1521	93534	93375	29.31	26.70	19.74	17.80	2.61	9.57	11.50
48	0.0325	0.1280	0.1612	93215	93041	28.41	25.82	18.93	17.02	2.59	9.48	11.39
49	0.0335	0.1356	0.1722	92866	92673	27.51	24.94	18.13	16.24	2.57	9.38	11.27
50	0.0316	0.1475	0.1806	92480	92266	26.63	24.08	17.34	15.48	2.55	9.29	11.15

(continued)

Table D.3: Male health expectancies, Australia, 1988 *(continued)*

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
51	0.0334	0.1549	0.1896	92052	91815	25.75	23.22	16.57	14.73	2.53	9.18	11.02
52	0.0340	0.1659	0.2040	91577	91313	24.88	22.37	15.80	13.99	2.50	9.07	10.89
53	0.0309	0.1780	0.2174	91049	90757	24.02	21.53	15.06	13.28	2.49	8.96	10.74
54	0.0382	0.1963	0.2364	90465	90141	23.17	20.70	14.33	12.58	2.47	8.84	10.60
55	0.0410	0.2161	0.2615	89817	89459	22.33	19.88	13.63	11.90	2.45	8.71	10.43
56	0.0416	0.2328	0.2790	89101	88705	21.51	19.08	12.95	11.25	2.43	8.56	10.26
57	0.0452	0.2447	0.2894	88308	87869	20.70	18.29	12.30	10.63	2.41	8.40	10.07
58	0.0523	0.2645	0.3122	87429	86942	19.90	17.51	11.66	10.02	2.39	8.24	9.88
59	0.0507	0.2907	0.3347	86455	85917	19.12	16.76	11.05	9.45	2.36	8.07	9.68
60	0.0511	0.3051	0.3528	85378	84785	18.36	16.02	10.48	8.90	2.34	7.88	9.46
61	0.0566	0.3375	0.3898	84191	83541	17.61	15.29	9.93	8.37	2.32	7.68	9.24
62	0.0603	0.3764	0.4355	82890	82183	16.88	14.57	9.42	7.89	2.30	7.46	8.99
63	0.0630	0.3815	0.4537	81476	80712	16.16	13.88	8.95	7.45	2.28	7.21	8.71
64	0.0684	0.3757	0.4622	79947	79125	15.46	13.20	8.50	7.04	2.26	6.96	8.42
65	0.0754	0.3696	0.4681	78303	77422	14.77	12.53	8.04	6.65	2.24	6.73	8.13
66	0.0754	0.3532	0.4605	76540	75597	14.10	11.89	7.59	6.26	2.21	6.51	7.84
67	0.0861	0.3537	0.4727	74653	73643	13.45	11.25	7.13	5.88	2.19	6.32	7.57
68	0.0938	0.3592	0.4796	72633	71553	12.81	10.64	6.67	5.50	2.17	6.13	7.30
69	0.1032	0.3748	0.4906	70472	69317	12.18	10.04	6.23	5.14	2.14	5.96	7.04
70	0.1050	0.3946	0.5118	68162	66931	11.58	9.47	5.80	4.80	2.11	5.78	6.78
71	0.1140	0.4092	0.5241	65700	64392	10.99	8.92	5.40	4.48	2.08	5.59	6.51
72	0.1058	0.4036	0.5085	63084	61700	10.43	8.38	5.02	4.18	2.05	5.41	6.25
73	0.1046	0.4129	0.5027	60315	58857	9.89	7.85	4.64	3.87	2.03	5.24	6.01
74	0.1010	0.4171	0.5186	57399	55873	9.36	7.33	4.28	3.56	2.03	5.09	5.80
75	0.1028	0.4277	0.5173	54347	52761	8.86	6.82	3.92	3.26	2.04	4.94	5.60
76	0.1009	0.4330	0.5199	51175	49537	8.38	6.32	3.57	2.97	2.06	4.81	5.41
77	0.1186	0.4498	0.5298	47899	46221	7.92	5.82	3.23	2.68	2.10	4.69	5.24
78	0.1376	0.4781	0.5593	44542	42835	7.48	5.34	2.90	2.39	2.13	4.58	5.09
79	0.1619	0.5224	0.5886	41128	39409	7.06	4.89	2.60	2.13	2.17	4.46	4.93
80	0.1989	0.5284	0.6011	37690	35977	6.65	4.46	2.33	1.89	2.19	4.32	4.76
81	0.2338	0.5791	0.6487	34263	32574	6.27	4.06	2.07	1.66	2.20	4.20	4.61
82	0.2626	0.5905	0.6776	30884	29238	5.90	3.70	1.86	1.47	2.20	4.04	4.43
83	0.2563	0.6078	0.6953	27591	26004	5.54	3.36	1.64	1.31	2.18	3.90	4.24
84	0.2855	0.6032	0.6840	24416	22899	5.20	3.01	1.44	1.15	2.19	3.76	4.05
85	0.3019	0.6529	0.7209	21381	19943	4.87	2.67	1.22	0.98	2.20	3.65	3.89
86	0.3396	0.6274	0.7089	18504	17140	4.55	2.33	1.03	0.83	2.22	3.51	3.71
87	0.3377	0.6673	0.7303	15775	14500	4.25	2.02	0.81	0.66	2.23	3.44	3.59
88	0.4364	0.7162	0.7674	13225	12053	3.97	1.68	0.60	0.49	2.29	3.37	3.48
89	0.4417	0.7636	0.8151	10881	9824	3.72	1.42	0.41	0.34	2.30	3.30	3.38
90	0.5155	0.8267	0.8678	8767	7834	3.49	1.13	0.25	0.21	2.36	3.24	3.28
91	0.5434	0.9139	0.9139	6900	6115	3.30	0.89	0.12	0.12	2.41	3.18	3.18
92	0.6279	0.9524	0.9524	5330	4685	3.13	0.62	0.06	0.06	2.50	3.07	3.07
93	0.7310	0.9800	0.9800	4039	3520	2.97	0.39	0.02	0.02	2.57	2.94	2.94
94	0.8437	0.9950	0.9950	3001	2593	2.82	0.21	0.00	0.00	2.60	2.81	2.81
95	0.9143	1.0000	1.0000	2185	1872	2.68	0.11	0.00	0.00	2.58	2.68	2.68
96	0.9600	1.0000	1.0000	1559	1325	2.56	0.05	0.00	0.00	2.51	2.56	2.56
97	0.9850	1.0000	1.0000	1091	920	2.44	0.02	0.00	0.00	2.42	2.44	2.44
98	0.9930	1.0000	1.0000	748	626	2.34	0.01	0.00	0.00	2.33	2.34	2.34
99	0.9970	1.0000	1.0000	503	1122	2.23	0.01	0.00	0.00	2.22	2.23	2.23

(a) Graduated prevalence rates (see Appendix A, Section A.4).

Table D.4: Female health expectancies, Australia, 1988

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0165	0.0165	100000	98538	79.45	73.44	65.46	63.43	6.01	13.99	16.02
2	0.0000	0.0233	0.0226	99174	99152	78.11	72.05	64.04	61.99	6.06	14.07	16.12
3	0.0000	0.0318	0.0329	99130	99117	77.14	71.08	63.09	61.04	6.07	14.05	16.10
4	0.0000	0.0407	0.0440	99103	99091	76.17	70.10	62.14	60.09	6.07	14.03	16.07
5	0.0320	0.0456	0.0504	99078	99071	75.18	69.11	61.20	59.15	6.07	13.99	16.03
6	0.0306	0.0479	0.0553	99063	99054	74.20	68.16	60.25	58.21	6.04	13.95	15.99
7	0.0248	0.0486	0.0574	99044	99035	73.21	67.20	59.31	57.28	6.01	13.90	15.93
8	0.0226	0.0478	0.0579	99025	99016	72.22	66.24	58.37	56.34	5.99	13.85	15.88
9	0.0176	0.0490	0.0577	99006	98998	71.24	65.27	57.43	55.41	5.96	13.81	15.82
10	0.0147	0.0512	0.0618	98989	98984	70.25	64.30	56.49	54.48	5.95	13.76	15.77
11	0.0145	0.0521	0.0648	98978	98971	69.26	63.32	55.54	53.55	5.93	13.71	15.71
12	0.0134	0.0528	0.0685	98964	98957	68.27	62.35	54.60	52.62	5.92	13.66	15.65
13	0.0102	0.0494	0.0647	98949	98940	67.28	61.37	53.67	51.70	5.91	13.61	15.58
14	0.0092	0.0452	0.0617	98930	98919	66.29	60.39	52.72	50.77	5.90	13.57	15.52
15	0.0090	0.0433	0.0608	98908	98894	65.30	59.41	51.78	49.84	5.89	13.52	15.46
16	0.0101	0.0434	0.0584	98880	98863	64.32	58.44	50.84	48.92	5.88	13.48	15.40
17	0.0091	0.0382	0.0532	98845	98825	63.35	57.47	49.90	47.99	5.88	13.45	15.35
18	0.0111	0.0393	0.0559	98805	98782	62.37	56.50	48.96	47.07	5.87	13.41	15.30
19	0.0135	0.0425	0.0614	98758	98733	61.40	55.54	48.02	46.14	5.86	13.38	15.26
20	0.0132	0.0398	0.0574	98708	98682	60.43	54.58	47.09	45.23	5.85	13.34	15.20
21	0.0116	0.0402	0.0586	98656	98630	59.46	53.62	46.15	44.31	5.84	13.31	15.15
22	0.0139	0.0468	0.0640	98603	98577	58.49	52.66	45.22	43.39	5.83	13.28	15.10
23	0.0161	0.0516	0.0677	98550	98525	57.53	51.71	44.29	42.48	5.82	13.24	15.05
24	0.0157	0.0521	0.0676	98499	98475	56.56	50.75	43.36	41.57	5.81	13.19	14.99
25	0.0163	0.0565	0.0726	98450	98426	55.58	49.79	42.44	40.66	5.79	13.15	14.93
26	0.0169	0.0574	0.0732	98401	98378	54.61	48.83	41.51	39.75	5.78	13.10	14.86
27	0.0187	0.0596	0.0740	98354	98331	53.64	47.87	40.59	38.84	5.77	13.05	14.80
28	0.0174	0.0546	0.0678	98307	98283	52.66	46.91	39.67	37.93	5.75	12.99	14.73
29	0.0167	0.0563	0.0676	98259	98234	51.69	45.95	38.74	37.02	5.74	12.95	14.67
30	0.0182	0.0590	0.0689	98209	98184	50.71	44.99	37.82	36.11	5.72	12.90	14.61
31	0.0177	0.0579	0.0697	98158	98131	49.74	44.03	36.90	35.19	5.71	12.84	14.55
32	0.0171	0.0608	0.0747	98104	98075	48.77	43.07	35.97	34.28	5.69	12.79	14.48
33	0.0193	0.0686	0.0851	98046	98016	47.80	42.12	35.06	33.38	5.68	12.74	14.42
34	0.0214	0.0732	0.0900	97985	97953	46.82	41.16	34.15	32.48	5.66	12.68	14.34
35	0.0232	0.0757	0.0935	97921	97887	45.86	40.21	33.24	31.59	5.65	12.61	14.26
36	0.0248	0.0811	0.0987	97852	97815	44.89	39.26	32.34	30.71	5.63	12.55	14.18
37	0.0246	0.0834	0.1026	97778	97739	43.92	38.32	31.45	29.83	5.61	12.48	14.09
38	0.0249	0.0882	0.1069	97699	97656	42.96	37.37	30.55	28.96	5.59	12.40	14.00
39	0.0255	0.0893	0.1101	97613	97567	41.99	36.43	29.67	28.09	5.57	12.32	13.90
40	0.0276	0.0937	0.1151	97521	97471	41.03	35.49	28.79	27.23	5.55	12.25	13.81
41	0.0297	0.0998	0.1214	97420	97365	40.07	34.55	27.91	26.37	5.52	12.17	13.71
42	0.0326	0.1090	0.1284	97309	97247	39.12	33.62	27.04	25.52	5.50	12.08	13.60
43	0.0330	0.1131	0.1349	97185	97116	38.17	32.69	26.18	24.68	5.47	11.99	13.49
44	0.0339	0.1216	0.1410	97047	96971	37.22	31.77	25.33	23.85	5.45	11.89	13.37
45	0.0319	0.1235	0.1423	96894	96809	36.28	30.86	24.49	23.03	5.42	11.79	13.25
46	0.0319	0.1276	0.1440	96724	96632	35.34	29.94	23.66	22.21	5.40	11.68	13.13
47	0.0310	0.1273	0.1477	96539	96438	34.41	29.03	22.83	21.39	5.38	11.58	13.02
48	0.0333	0.1314	0.1511	96337	96227	33.48	28.12	22.01	20.59	5.36	11.48	12.89
49	0.0330	0.1387	0.1617	96116	95996	32.56	27.22	21.19	19.78	5.34	11.37	12.77
50	0.0366	0.1560	0.1803	95876	95745	31.64	26.32	20.38	18.99	5.32	11.26	12.64

(continued)

Table D.4: Female health expectancies, Australia, 1988 *(continued)*

	Prevalence rates(a)			*Life table*		*Health expectancy (years)*						
x	*s*	*h*	*d*	*l*	*L*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
51	0.0398	0.1671	0.1955	95613	95469	30.72	25.43	19.59	18.23	5.30	11.13	12.50
52	0.0483	0.1754	0.1991	95325	95166	29.81	24.54	18.81	17.47	5.27	11.00	12.34
53	0.0516	0.1849	0.2065	95007	94832	28.91	23.67	18.05	16.73	5.24	10.86	12.18
54	0.0580	0.1868	0.2092	94657	94464	28.02	22.81	17.30	16.00	5.21	10.72	12.02
55	0.0562	0.1842	0.2068	94271	94059	27.13	21.96	16.56	15.27	5.17	10.57	11.86
56	0.0563	0.1862	0.2084	93847	93615	26.25	21.11	15.81	14.55	5.14	10.44	11.71
57	0.0528	0.1921	0.2199	93383	93130	25.38	20.27	15.08	13.82	5.11	10.30	11.55
58	0.0497	0.1976	0.2274	92877	92601	24.51	19.43	14.35	13.12	5.08	10.17	11.40
59	0.0494	0.2122	0.2400	92325	92024	23.66	18.59	13.63	12.42	5.07	10.03	11.24
60	0.0553	0.2247	0.2549	91723	91395	22.81	17.76	12.93	11.74	5.05	9.88	11.07
61	0.0590	0.2373	0.2725	91066	90709	21.97	16.94	12.24	11.08	5.03	9.73	10.89
62	0.0635	0.2441	0.2792	90351	89962	21.14	16.13	11.57	10.43	5.01	9.57	10.71
63	0.0675	0.2469	0.2925	89572	89149	20.32	15.33	10.92	9.80	4.99	9.40	10.52
64	0.0725	0.2445	0.3012	88726	88267	19.51	14.54	10.26	9.18	4.97	9.25	10.33
65	0.0755	0.2601	0.3220	87808	87310	18.71	13.76	9.61	8.58	4.95	9.10	10.13
66	0.0773	0.2600	0.3289	86812	86271	17.92	12.99	8.98	7.99	4.93	8.94	9.92
67	0.0899	0.2862	0.3592	85730	85143	17.14	12.22	8.35	7.42	4.91	8.79	9.72
68	0.0969	0.3039	0.3798	84555	83915	16.37	11.48	7.74	6.88	4.89	8.62	9.49
69	0.1107	0.3291	0.4030	83275	82578	15.61	10.74	7.16	6.36	4.87	8.45	9.25
70	0.1240	0.3441	0.4220	81881	81121	14.87	10.03	6.61	5.86	4.84	8.26	9.01
71	0.1397	0.3754	0.4453	80361	79533	14.14	9.33	6.07	5.39	4.81	8.07	8.75
72	0.1434	0.3823	0.4596	78705	77802	13.43	8.66	5.57	4.94	4.77	7.86	8.48
73	0.1619	0.4057	0.4766	76898	75914	12.73	8.00	5.07	4.51	4.73	7.66	8.22
74	0.1638	0.4277	0.4947	74930	73860	12.05	7.36	4.60	4.10	4.69	7.45	7.95
75	0.1858	0.4451	0.5084	72790	71629	11.39	6.73	4.16	3.71	4.67	7.23	7.68
76	0.2003	0.4684	0.5312	70467	69209	10.75	6.12	3.73	3.33	4.63	7.02	7.42
77	0.2289	0.4895	0.5408	67951	66592	10.13	5.53	3.33	2.98	4.60	6.80	7.15
78	0.2583	0.5312	0.5748	65233	63769	9.53	4.98	2.94	2.63	4.56	6.59	6.90
79	0.2967	0.5739	0.6168	62305	60736	8.96	4.45	2.60	2.32	4.51	6.35	6.64
80	0.3159	0.5930	0.6350	59166	57496	8.41	3.96	2.30	2.05	4.44	6.10	6.35
81	0.3469	0.6053	0.6482	55825	54065	7.88	3.50	2.02	1.80	4.38	5.86	6.08
82	0.3676	0.6246	0.6693	52304	50471	7.37	3.06	1.75	1.56	4.32	5.62	5.82
83	0.4150	0.6518	0.7035	48637	46754	6.89	2.63	1.49	1.33	4.26	5.40	5.56
84	0.4428	0.6292	0.6788	44870	42959	6.43	2.24	1.26	1.13	4.19	5.17	5.30
85	0.5054	0.6836	0.7188	41048	39130	5.98	1.87	0.98	0.90	4.11	5.00	5.08
86	0.5606	0.7387	0.7679	37212	35253	5.55	1.54	0.75	0.70	4.01	4.79	4.85
87	0.6378	0.8095	0.8289	33294	31319	5.14	1.26	0.56	0.54	3.88	4.58	4.61
88	0.6746	0.8450	0.8500	29343	27382	4.77	1.04	0.44	0.42	3.73	4.33	4.34
89	0.7325	0.8830	0.8865	25420	23505	4.42	0.85	0.34	0.33	3.58	4.09	4.10
90	0.7539	0.8960	0.9000	21589	19756	4.12	0.71	0.27	0.26	3.41	3.85	3.86
91	0.7835	0.9080	0.9106	17923	16271	3.86	0.58	0.21	0.21	3.28	3.65	3.65
92	0.7786	0.9200	0.9210	14619	13162	3.62	0.47	0.16	0.15	3.15	3.46	3.47
93	0.8109	0.9380	0.9390	11704	10446	3.40	0.34	0.11	0.10	3.06	3.29	3.29
94	0.8594	0.9540	0.9550	9187	8126	3.19	0.22	0.06	0.06	2.97	3.13	3.13
95	0.9046	0.9718	0.9720	7065	6191	3.00	0.12	0.03	0.03	2.88	2.97	2.97
96	0.9536	0.9906	0.9910	5317	4614	2.82	0.05	0.01	0.01	2.77	2.82	2.82
97	0.9822	1.0000	1.0000	3911	3361	2.66	0.02	0.00	0.00	2.64	2.66	2.66
98	0.9990	1.0000	1.0000	2810	2390	2.51	0.00	0.00	0.00	2.50	2.51	2.51
99	1.0000	1.0000	1.0000	1970	4649	2.36	0.00	0.00	0.00	2.36	2.36	2.36

(a) Graduated prevalence rates (see Appendix A, Section A.4).

Table D.5: Survival curves for males and females, Australia, 1981

	Males				Females			
Age	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*
0	100000	100000	100000	100000	100000	100000	100000	100000
1	98877		97707	95776	99130		97778	96699
2	98801		96147	95361	99042		96830	96398
3	98740		95231	94917	98997		96380	96171
4	98679		94416	93687	98964		96010	95436
5	98631	97196	93589	92235	98938	98439	95555	94426
6	98584	95799	93294	91319	98910	97642	95479	93815
7	98547	95959	93456	90812	98893	97460	95746	93643
8	98512	96147	93616	90658	98879	97492	95881	93554
9	98481	96405	93537	90703	98863	97542	95923	93692
10	98459	96624	93565	90880	98845	97702	96174	94185
11	98440	96741	93558	91016	98833	97721	96212	94328
12	98418	96871	93683	91387	98816	97693	96193	94342
13	98391	96969	94045	91916	98797	97725	96248	94431
14	98354	97005	94493	92332	98774	97766	96254	94296
15	98301	97036	94876	92517	98746	97751	96152	93918
16	98229	97098	95320	92627	98714	97787	96184	93786
17	98134	97083	95627	92626	98676	97815	96358	93770
18	98016	97013	95567	92359	98633	97781	96321	93577
19	97880	96969	95377	92009	98587	97720	96152	93369
20	97730	96892	95226	91800	98539	97604	95925	93063
21	97572	96783	95130	91757	98489	97412	95654	92762
22	97413	96650	94981	91670	98440	97211	95389	92374
23	97257	96524	94801	91371	98391	97099	95231	92082
24	97107	96359	94637	91037	98344	97022	95176	91985
25	96964	96029	94335	90641	98297	96995	95193	91938
26	96828	95692	93911	90112	98250	97065	95217	91839
27	96699	95480	93524	89423	98202	97167	95072	91717
28	96575	95241	93171	88814	98154	97166	94918	91577
29	96455	94937	92823	88366	98105	97055	94760	91162
30	96337	94821	92606	88043	98055	96937	94516	90659
31	96221	94740	92495	87847	98002	96796	94242	90110
32	96106	94539	92355	87756	97948	96568	93887	89511
33	95988	94359	92097	87596	97891	96384	93608	89061
34	95867	94203	91638	87044	97831	96288	93449	88927
35	95741	94049	91270	86495	97767	96156	93127	88742
36	95607	93916	90926	85899	97698	96084	92879	88540
37	95463	93810	90652	85380	97622	95992	92721	88536
38	95309	93607	90490	84925	97540	95748	92444	88310
39	95141	93419	90340	84474	97449	95541	92152	87817
40	94957	93189	90049	84249	97349	95285	91920	87576
41	94755	92891	89578	83922	97237	94774	91473	87382
42	94532	92425	88797	83086	97111	94308	90844	86750
43	94284	91987	87952	82245	96970	94151	90319	85869
44	94009	91643	87326	81723	96810	93981	89675	84901
45	93702	91160	86475	80847	96630	93765	89084	84062
46	93361	90731	85820	80187	96428	93642	88085	82773
47	92981	90362	85236	79590	96204	93464	87257	81767
48	92558	89845	84290	78414	95958	92990	86863	81597
49	92087	89286	83245	77050	95691	92375	86324	81482
50	91565	88715	82165	75488	95403	91798	85701	81036

Table D.5: Survival curves for males and females, Australia, 1981 *(continued)*

	Males				Females			
Age	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*
51	90987	87843	80865	73568	95093	91414	85846	81324
52	90348	86959	79502	71749	94760	90621	85065	80564
53	89643	86086	77960	70114	94399	89656	83143	78462
54	88867	84949	75969	67953	94008	89125	81862	76829
55	88017	83711	73695	65380	93582	88587	80857	75302
56	87090	82648	71283	62987	93117	87955	79520	73613
57	86083	81544	68856	60684	92609	87705	78820	72883
58	84993	80318	66529	58318	92053	87506	78478	72642
59	83817	79091	64696	56587	91446	86751	77430	71815
60	82549	77587	62994	55048	90782	85858	76315	71015
61	81184	75964	60955	53202	90058	84690	74952	69644
62	79717	74461	59039	51392	89267	83489	73802	68329
63	78140	72791	57941	49626	88404	82241	72714	66720
64	76445	70912	57258	48288	87464	80816	71254	64235
65	74624	69375	56446	47392	86442	79466	69738	62145
66	72667	67516	55468	46268	85331	78042	68205	60655
67	70568	65214	54547	45443	84128	76439	66412	58467
68	68320	63059	53138	44851	82824	74985	64710	56467
69	65920	60588	50676	43213	81414	73615	63333	55709
70	63369	57842	48118	40963	79887	71849	61503	54099
71	60672	55209	45706	38761	78232	69733	59120	51181
72	57842	52417	42627	35468	76437	67258	56650	48741
73	54888	49200	39319	31979	74489	64255	53877	46668
74	51829	46161	36442	29281	72379	61053	50215	43381
75	48682	43069	33887	26918	70099	57917	46554	39974
76	45469	39581	31250	24560	67645	54569	43265	37410
77	42210	35929	28537	22580	65012	51122	39529	34593
78	38927	32538	25823	20689	62199	47624	35787	31539
79	35646	29358	22995	18316	59203	43544	32673	28999
80	32390	26138	20296	16086	56022	39366	29987	27044
81	29184	23071	17840	14277	52655	35337	27257	24880
82	26055	20285	15520	12562	49112	31068	24390	22194
83	23037	17580	13298	10811	45414	27230	21742	19621
84	20160	14789	11302	9309	41595	23982	19333	17404
85	17447	12293	9345	7916	37706	20738	16594	15016
86	14917	10178	7599	6496	33802	17946	14465	13350
87	12554	8296	6433	5364	29893	15601	12823	12084
88	10382	6656	5281	4223	26030	13011	10813	10290
89	8420	5295	3943	2885	22271	10405	8768	8390
90	6682	4000	2803	1897	18678	8096	6924	6630
91	5175	2921	1835	1219	15311	6115	5257	4986
92	3944	2124	1098	793	12333	4274	3865	3664
93	2961	1481	656	522	9757	2737	2628	2555
94	2192	941	376	328	7581	1693	1583	1566
95	1604	536	167	167	5783	1084	836	821
96	1162	248	58	58	4333	650	389	334
97	834	57	14	14	3190	325	158	88
98	595	0	0	0	2309	183	70	11
99	421	0	0	0	1644	95	24	0

Table D.6: Survival curves for males and females, Australia, 1988

	Males				Females			
Age	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*
0	100000	100000	100000	100000	100000	100000	100000	100000
1	99028		96510	96510	99246		97606	97606
2	98958		95669	95854	99174		97088	97130
3	98906		94981	95033	99130		96400	96375
4	98871		94134	93902	99103		95510	95292
5	98845	97609	93286	92866	99078	97493	94803	94405
6	98818	96269	93000	92305	99063	95961	94433	93830
7	98789	96179	92750	91764	99044	96299	94268	93463
8	98774	96206	92229	91182	99025	96680	94251	93314
9	98748	96195	91781	90750	99006	97018	94213	93283
10	98732	96114	91407	90307	98989	97392	94033	93075
11	98716	96146	90838	89641	98978	97533	93867	92714
12	98695	96195	90649	89305	98964	97584	93772	92371
13	98668	96285	91099	89564	98949	97784	93891	92361
14	98631	96541	91716	90011	98930	97972	94251	92678
15	98581	96888	92585	90874	98908	98006	94533	92849
16	98512	97121	93451	91838	98880	97934	94594	92985
17	98424	97247	93881	92456	98845	97896	94812	93327
18	98315	97261	93953	92638	98805	97808	94975	93415
19	98187	97222	93877	92437	98758	97547	94719	92966
20	98044	97121	93445	91782	98708	97394	94647	92846
21	97891	96811	92961	91151	98656	97433	94711	92933
22	97732	96638	92742	90756	98603	97342	94316	92559
23	97572	96567	92536	90430	98550	97068	93704	92062
24	97413	96316	92169	90156	98499	96930	93390	91837
25	97258	95951	91654	89697	98450	96875	93102	91549
26	97108	95716	91166	89150	98401	96767	92795	91227
27	96962	95536	90778	88748	98354	96599	92600	91118
28	96819	95328	90368	88257	98307	96532	92698	91342
29	96680	95190	89918	87700	98259	96587	92811	91607
30	96544	95160	89883	87694	98209	96497	92544	91503
31	96409	95122	90069	88014	98158	96396	92418	91355
32	96275	94981	89931	87987	98104	96398	92281	91024
33	96141	94916	89964	88058	98046	96263	91703	90215
34	96007	94778	89943	88009	97985	95995	91038	89409
35	95873	94438	89323	87293	97921	95740	90631	88936
36	95738	94240	88723	86610	97852	95502	90180	88445
37	95600	94022	88209	86024	97778	95362	89736	87937
38	95458	93581	87309	85144	97699	95281	89316	87468
39	95308	93236	86443	84187	97613	95150	88950	87024
40	95148	93062	85944	83451	97521	94931	88598	86539
41	94974	92751	85221	82575	97420	94631	87994	85898
42	94783	92414	84471	81608	97309	94280	87154	85157
43	94574	92149	83827	80798	97185	94001	86394	84392
44	94345	91930	83514	80606	97047	93802	85657	83660
45	94096	91603	83198	80445	96894	93703	85018	83171
46	93826	91102	82440	79648	96724	93639	84577	82879
47	93534	90749	81935	79192	96539	93504	84231	82457
48	93215	90328	81472	78614	96337	93237	83871	81943
49	92866	89801	80627	77384	96116	92927	83135	81081
50	92480	89469	79390	76166	95876	92540	81752	79478

Table D.6: Survival curves for males and females, Australia, 1988 *(continued)*

	Males				Females			
Age	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*	*Alive*	*Severe h'cap free*	*Handi-cap free*	*Disabi-lity free*
51	92052	89058	78131	75015	95613	91964	80166	77646
52	91577	88488	76889	73557	95325	91126	78999	76516
53	91049	88091	75395	71865	95007	90260	77894	75738
54	90465	87336	73537	69940	94657	89467	77067	74984
55	89817	86257	71299	67459	94271	88888	76785	74663
56	89101	85420	69104	65022	93847	88570	76469	74363
57	88308	84475	67224	63209	93383	88287	75720	73384
58	87429	83164	65167	61130	92877	88117	74781	72103
59	86455	82000	62456	58492	92325	87754	73408	70747
60	85378	81029	59946	56028	91723	86924	71685	69025
61	84191	79657	57142	52930	91066	85860	70031	67054
62	82890	78048	53303	48683	90351	84816	68602	65428
63	81476	76456	50601	45249	89572	83709	67581	63966
64	79947	74698	49680	43335	88726	82519	66926	62387
65	78303	72676	49124	41881	87808	81312	65656	60448
66	76540	70771	48878	41002	86812	80179	64238	58563
67	74653	68626	48266	39821	85730	78563	62318	56236
68	72633	66101	46743	38049	84555	76658	59608	53313
69	70472	63532	44611	36285	83275	74629	56920	50682
70	68162	61068	41940	34000	81881	72270	54321	48102
71	65700	58506	39295	31672	80361	69766	51450	45511
72	63084	56150	37448	30514	78705	67564	48887	43094
73	60315	53969	35691	29820	76898	65159	46602	40902
74	57399	51500	33577	28087	74930	62728	43708	38542
75	54347	48810	31390	26197	72790	60066	41025	36281
76	51175	45962	29151	24636	70467	56864	38282	33837
77	47899	42642	26755	22759	67951	53370	35407	31532
78	44542	38836	23876	20287	65233	49344	31940	28848
79	41128	34969	20554	17524	62305	45017	27878	25182
80	37690	30890	17888	15272	59166	41043	24646	22132
81	34263	26849	15289	12853	55825	37324	22377	20008
82	30884	23219	12823	10404	52304	33619	20138	17850
83	27591	20433	11060	8652	48637	29607	17596	15254
84	24416	17803	9632	7577	44870	25627	16131	13858
85	21381	15102	7952	6361	41048	21589	14104	12363
86	18504	12569	6659	5275	37212	17378	10747	9549
87	15775	10433	5563	4423	33294	13343	7520	6711
88	13225	8106	4076	3322	29343	10088	5068	4711
89	10881	6104	2830	2271	25420	7536	3457	3349
90	8767	4571	1796	1390	21589	5545	2386	2305
91	6900	3247	895	753	17923	4146	1756	1697
92	5330	2208	356	356	14619	3201	1257	1231
93	4039	1295	137	137	11704	2403	831	819
94	3001	638	38	38	9187	1515	496	487
95	2185	264	5	5	7065	834	262	258
96	1559	98	0	0	5317	377	100	98
97	1091	30	0	0	3911	126	18	18
98	748	8	0	0	2810	26	0	0
99	503	3	0	0	1970	1	0	0

Appendix E—Abridged health expectancy tables for Australia and States and Territories

This Appendix contains abridged health expectancy tables for males and females for the six States and Australia in 1981 (Tables E.1-E.14) and for all the States and Territories and Australia in 1988 (Tables E.15-E.32). Prevalence rates shown in these tables have been calculated directly from survey estimates without graduation. For the 1981 survey, the total survey population has been estimated as described in Appendix A, section A.3. This may have introduced non-sampling errors of the order of 1-2 per cent into the estimates of expected years of disability and handicap for 1981.

Health expectancies have not been calculated for the two Territories in 1981 as it was not possible to estimate the total sample population with acceptable accuracy. Health expectancy estimates for the Northern Territory for 1988 should also be treated with caution, as the sampled population did not include any males or females of ages 75 or greater. The estimates in Tables E.27 and E.28 are calculated assuming the Australian prevalence rates apply to these age groups. The large uncertainties associated with this assumption are incorporated in the standard error estimates (Table E.34).

Standard errors were estimated for all health expectancies using the methods outlined in Appendix C. These standard errors measure the degree of statistical uncertainty caused by statistical variations in observed numbers of deaths and sampling variation in estimates of disability prevalences.

As well as these statistical variations, there is also a systematic bias introduced by the use of abridged age groups. This bias is generally small compared to the size of the standard errors and can safely be ignored. However, Table B.1 gives estimates of the size of this bias and could be used to adjust the health expectancy estimates tabulated here if desired.

The health expectancy tables give the following functions:

x_i	Limits of age intervals (i=0,1, ..,19)
s_i	Prevalence of severe handicap in age group (x_i,x_{i+1})
h_i	Prevalence of all handicap in age group (x_i,x_{i+1})
d_i	Prevalence of disability in age group (x_i,x_{i+1})
l_i	The number of persons surviving to exact age x_i
L_i	Years of life lived in the age interval (x_i,x_{i+1})
LE	Total life expectancy
SHFLE	Severe-handicap-free life expectancy
HFLE	Handicap-free life expectancy
DFLE	Disability-free life expectancy
SHLE	Severe-handicap expectancy
HLE	Handicap expectancy
DLE	Disability expectancy

Table E.1: Male health expectancies, New South Wales, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0519	0.0519	100000	493825	71.14	68.32	63.70	60.04	2.82	7.44	11.10
5	0.0188	0.0377	0.0589	98623	492606	67.13	64.27	59.84	56.13	2.86	7.29	11.00
10	0.0151	0.0423	0.0538	98447	491943	62.24	59.47	55.13	51.52	2.77	7.11	10.72
15	0.0115	0.0212	0.0486	98297	490240	57.33	54.63	50.42	46.86	2.70	6.91	10.47
20	0.0061	0.0253	0.0559	97715	486499	52.66	50.00	45.81	42.37	2.66	6.85	10.29
25	0.0071	0.0232	0.0590	96894	482745	48.08	45.43	41.31	37.99	2.65	6.78	10.10
30	0.0155	0.0353	0.0727	96235	479754	43.40	40.76	36.69	33.53	2.63	6.71	9.87
35	0.0185	0.0479	0.1029	95654	476488	38.64	36.07	32.07	29.08	2.57	6.57	9.57
40	0.0189	0.0563	0.1068	94906	471841	33.93	31.43	27.55	24.80	2.50	6.38	9.12
45	0.0216	0.0830	0.1374	93714	463583	29.32	26.89	23.14	20.62	2.43	6.18	8.70
50	0.0437	0.1273	0.1993	91525	449249	24.96	22.58	19.05	16.75	2.38	5.91	8.21
55	0.0614	0.2097	0.2945	87901	426361	20.88	18.62	15.38	13.34	2.26	5.50	7.53
60	0.0649	0.2445	0.3422	82280	392112	17.12	15.03	12.33	10.60	2.09	4.79	6.52
65	0.0794	0.1971	0.3021	74109	343471	13.72	11.74	9.70	8.29	1.98	4.02	5.43
70	0.1098	0.2692	0.3663	62705	277619	10.74	8.83	7.06	5.97	1.91	3.68	4.76
75	0.1683	0.3022	0.4258	47886	198782	8.26	6.40	5.01	4.15	1.86	3.25	4.12
80	0.1979	0.4251	0.5185	31630	119804	6.22	4.47	3.20	2.67	1.76	3.02	3.55
85	0.3774	0.5543	0.6316	16750	72605	4.60	2.70	1.93	1.60	1.90	2.67	3.00
95	1.0000	1.0000	1.0000	1504	4465	2.97	0.00	0.00	0.00	2.97	2.97	2.97

Table E.2: Female health expectancies, New South Wales, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0238	0.0238	100000	495251	78.26	73.29	69.33	66.26	4.97	8.93	12.00
5	0.0092	0.0260	0.0470	98938	494485	74.10	69.07	65.19	62.08	5.02	8.90	12.01
10	0.0141	0.0242	0.0414	98861	494084	69.15	64.17	60.37	57.36	4.98	8.78	11.79
15	0.0089	0.0223	0.0477	98757	493318	64.22	59.31	55.55	52.63	4.92	8.67	11.59
20	0.0113	0.0299	0.0615	98557	492168	59.35	54.47	50.77	47.97	4.88	8.58	11.38
25	0.0101	0.0269	0.0521	98307	490897	54.49	49.65	46.04	43.39	4.84	8.45	11.10
30	0.0150	0.0323	0.0659	98050	489504	49.63	44.83	41.29	38.76	4.80	8.34	10.87
35	0.0123	0.0361	0.0684	97734	487610	44.78	40.04	36.58	34.21	4.74	8.20	10.57
40	0.0222	0.0480	0.0905	97284	484719	39.97	35.28	31.92	29.70	4.70	8.06	10.28
45	0.0232	0.0724	0.1158	96532	479745	35.26	30.64	27.39	25.36	4.62	7.88	9.90
50	0.0596	0.1102	0.1624	95287	472096	30.69	26.12	23.07	21.24	4.57	7.62	9.45
55	0.0439	0.1132	0.1659	93425	460577	26.25	21.89	19.04	17.43	4.36	7.21	8.82
60	0.0639	0.1599	0.2151	90627	443059	21.98	17.71	15.12	13.73	4.27	6.86	8.25
65	0.1069	0.2087	0.3129	86269	415688	17.95	13.79	11.57	10.39	4.16	6.39	7.56
70	0.1193	0.2496	0.3585	79599	374900	14.23	10.29	8.40	7.68	3.95	5.83	6.56
75	0.2316	0.4381	0.4670	69731	315126	10.87	7.01	5.56	5.31	3.86	5.31	5.56
80	0.3869	0.4818	0.5042	55609	233174	7.97	4.43	3.79	3.64	3.53	4.18	4.32
85	0.4623	0.5344	0.5490	37068	192233	5.66	2.79	2.42	2.34	2.87	3.24	3.32
95	0.9896	0.9896	0.9896	5605	17589	3.14	0.03	0.03	0.03	3.11	3.11	3.11

Table E.3: Male health expectancies, Victoria, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0368	0.0368	100000	494450	71.89	69.37	64.04	59.28	2.53	7.86	12.61
5	0.0311	0.0574	0.0941	98718	493244	67.82	65.26	60.04	55.23	2.56	7.77	12.59
10	0.0121	0.0404	0.0629	98594	492673	62.90	60.49	55.40	50.76	2.41	7.50	12.13
15	0.0087	0.0222	0.0527	98448	491221	57.99	55.64	50.68	46.15	2.35	7.31	11.84
20	0.0104	0.0251	0.0601	97978	488289	53.25	50.93	46.02	41.62	2.32	7.23	11.63
25	0.0147	0.0399	0.0870	97351	485398	48.58	46.30	41.43	37.18	2.28	7.15	11.40
30	0.0215	0.0489	0.0982	96812	482713	43.84	41.62	36.85	32.81	2.22	6.99	11.03
35	0.0137	0.0431	0.0991	96270	479778	39.07	36.94	32.29	28.47	2.12	6.78	10.60
40	0.0291	0.0742	0.1414	95591	475315	34.33	32.26	27.71	24.15	2.07	6.62	10.18
45	0.0356	0.0946	0.1584	94440	467731	29.71	27.76	23.39	20.12	1.95	6.32	9.59
50	0.0283	0.1152	0.2186	92479	454601	25.29	23.47	19.31	16.29	1.81	5.98	8.99
55	0.0303	0.2088	0.3227	89074	432783	21.15	19.41	15.53	12.93	1.74	5.62	8.22
60	0.0464	0.2708	0.3696	83702	399956	17.34	15.64	12.44	10.25	1.69	4.90	7.08
65	0.0647	0.1996	0.3275	75796	352332	13.87	12.24	9.88	8.00	1.62	3.98	5.87
70	0.0795	0.2985	0.4234	64568	287018	10.82	9.27	7.24	5.72	1.55	3.59	5.10
75	0.1199	0.2699	0.4381	49677	206375	8.29	6.73	5.35	4.10	1.56	2.94	4.19
80	0.1649	0.3696	0.5154	32843	124291	6.25	4.65	3.51	2.67	1.60	2.74	3.58
85	0.3590	0.5173	0.6393	17419	76306	4.65	2.81	2.11	1.58	1.84	2.54	3.07
95	1.0000	1.0000	1.0000	1591	4720	2.97	0.00	0.00	0.00	2.97	2.97	2.97

Table E.4: Female health expectancies, Victoria, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0367	0.0367	100000	495499	78.42	73.45	68.65	64.88	4.96	9.77	13.54
5	0.0173	0.0331	0.0630	99000	494767	74.20	69.19	64.52	60.71	5.01	9.68	13.49
10	0.0066	0.0195	0.0364	98916	494412	69.26	64.33	59.74	56.07	4.93	9.53	13.19
15	0.0065	0.0235	0.0493	98839	493773	64.32	59.41	54.88	51.30	4.90	9.44	13.02
20	0.0166	0.0414	0.0759	98649	492646	59.43	54.55	50.10	46.64	4.88	9.34	12.80
25	0.0062	0.0316	0.0639	98415	491481	54.57	49.76	45.42	42.12	4.81	9.15	12.45
30	0.0101	0.0423	0.1022	98166	490122	49.70	44.91	40.68	37.54	4.79	9.02	12.16
35	0.0235	0.0616	0.1130	97880	488480	44.84	40.09	36.01	33.16	4.75	8.83	11.68
40	0.0385	0.0901	0.1272	97476	485753	40.01	35.36	31.45	28.85	4.66	8.56	11.17
45	0.0287	0.0975	0.1766	96757	480916	35.29	30.79	27.12	24.68	4.50	8.17	10.61
50	0.0538	0.1387	0.1753	95522	473374	30.71	26.30	22.93	20.85	4.41	7.79	9.86
55	0.0523	0.1469	0.2225	93716	462077	26.25	22.03	19.02	17.09	4.22	7.24	9.16
60	0.0709	0.1623	0.2233	90906	444216	21.98	17.89	15.27	13.67	4.09	6.71	8.31
65	0.0712	0.1998	0.3008	86467	416696	17.97	14.04	11.75	10.38	3.93	6.22	7.59
70	0.1092	0.2174	0.3001	79797	375483	14.25	10.36	8.55	7.59	3.89	5.70	6.66
75	0.1864	0.3651	0.4584	69721	314483	10.93	7.06	5.57	4.92	3.87	5.35	6.00
80	0.3585	0.5136	0.5636	55434	233322	8.07	4.27	3.41	3.12	3.80	4.66	4.95
85	0.5757	0.6161	0.6384	37396	196052	5.72	2.32	2.02	1.90	3.40	3.71	3.82
95	0.7957	0.9903	0.9903	5748	18038	3.14	0.64	0.03	0.03	2.50	3.11	3.11

Table E.5: Male health expectancies, Queensland, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0240	0.0240	100000	493614	71.08	67.75	62.76	57.78	3.33	8.32	13.30
5	0.0156	0.0490	0.0832	98513	491960	67.14	63.76	58.82	53.76	3.38	8.33	13.38
10	0.0190	0.0649	0.0959	98312	491206	62.28	58.96	54.18	49.29	3.31	8.10	12.99
15	0.0121	0.0298	0.0764	98125	489178	57.39	54.17	49.60	44.85	3.22	7.79	12.53
20	0.0043	0.0249	0.0525	97467	485215	52.76	49.57	45.07	40.52	3.18	7.69	12.24
25	0.0100	0.0349	0.0944	96644	481591	48.19	45.00	40.55	36.11	3.19	7.63	12.08
30	0.0147	0.0325	0.0752	96010	478434	43.49	40.33	35.98	31.81	3.16	7.51	11.68
35	0.0205	0.0557	0.1062	95340	474632	38.78	35.67	31.38	27.39	3.11	7.40	11.39
40	0.0261	0.0612	0.1244	94462	469115	34.11	31.08	26.93	23.15	3.04	7.19	10.96
45	0.0439	0.1010	0.1844	93073	460063	29.58	26.63	22.60	19.09	2.95	6.98	10.50
50	0.0496	0.1289	0.2345	90765	445272	25.26	22.46	18.61	15.44	2.80	6.65	9.83
55	0.0531	0.2122	0.3145	87104	422787	21.21	18.55	14.94	12.17	2.67	6.27	9.04
60	0.0945	0.2586	0.3394	81669	389679	17.45	14.88	11.86	9.43	2.57	5.59	8.02
65	0.0838	0.2884	0.4650	73757	342440	14.04	11.69	9.21	6.95	2.34	4.82	7.08
70	0.0880	0.2673	0.4800	62642	278484	11.06	8.76	6.96	5.26	2.30	4.10	5.80
75	0.2482	0.4177	0.5544	48376	202948	8.57	6.09	4.79	3.82	2.47	3.77	4.74
80	0.3282	0.4720	0.5526	32745	126182	6.46	4.34	3.47	2.89	2.12	2.98	3.57
85	0.2852	0.4129	0.5263	18103	80273	4.71	3.17	2.60	2.10	1.54	2.11	2.61
95	1.0000	1.0000	1.0000	1685	5000	2.97	0.00	0.00	0.00	2.97	2.97	2.97

Table E.6: Female health expectancies, Queensland, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0294	0.0294	100000	494805	78.29	72.90	67.51	63.22	5.38	10.77	15.07
5	0.0137	0.0269	0.0400	98806	493606	74.22	68.78	63.47	59.12	5.45	10.76	15.10
10	0.0106	0.0310	0.0486	98664	493061	69.33	63.94	58.69	54.40	5.39	10.64	14.92
15	0.0121	0.0288	0.0539	98546	492202	64.41	59.07	53.91	49.71	5.34	10.50	14.70
20	0.0114	0.0326	0.0577	98321	490995	59.55	54.26	49.17	45.09	5.29	10.38	14.46
25	0.0185	0.0511	0.0839	98081	489833	54.69	49.44	44.45	40.48	5.25	10.24	14.21
30	0.0222	0.0611	0.1161	97850	488620	49.81	44.64	39.81	35.99	5.17	10.01	13.82
35	0.0125	0.0677	0.1127	97585	486941	44.94	39.87	35.21	31.66	5.07	9.73	13.28
40	0.0313	0.0736	0.1247	97153	484129	40.13	35.10	30.70	27.36	5.03	9.43	12.77
45	0.0351	0.1048	0.1795	96435	479213	35.41	30.50	26.27	23.16	4.91	9.13	12.24
50	0.0404	0.1158	0.1978	95145	471224	30.85	26.05	22.12	19.35	4.80	8.73	11.50
55	0.0470	0.1866	0.2653	93234	459353	26.43	21.73	18.11	15.69	4.69	8.32	10.74
60	0.0708	0.2106	0.2935	90293	441133	22.20	17.59	14.56	12.46	4.61	7.64	9.74
65	0.1319	0.2543	0.3723	85915	414698	18.20	13.72	11.25	9.47	4.48	6.95	8.73
70	0.1323	0.3254	0.4415	79556	375704	14.44	10.29	8.26	6.95	4.15	6.18	7.49
75	0.1961	0.3644	0.4516	70195	319398	11.01	7.02	5.75	4.89	4.00	5.26	6.12
80	0.4222	0.5188	0.6155	56713	237975	8.00	4.16	3.54	2.97	3.84	4.46	5.03
85	0.5203	0.5825	0.6127	37868	197634	5.70	2.60	2.27	2.03	3.10	3.42	3.67
95	0.8027	0.8027	0.9903	5781	18141	3.14	0.62	0.62	0.03	2.52	2.52	3.11

Table E.7: Male health expectancies, South Australia, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0307	0.0307	100000	494826	72.15	68.85	64.04	59.74	3.29	8.10	12.41
5	0.0445	0.0649	0.1083	98854	493922	67.98	64.65	59.93	55.58	3.33	8.04	12.40
10	0.0154	0.0556	0.0810	98732	493343	63.06	59.95	55.33	51.18	3.11	7.73	11.87
15	0.0132	0.0416	0.0808	98562	491545	58.16	55.12	50.70	46.67	3.04	7.46	11.49
20	0.0097	0.0249	0.0749	98000	488395	53.48	50.49	46.18	42.33	2.99	7.30	11.15
25	0.0248	0.0422	0.0918	97379	485439	48.81	45.84	41.59	37.96	2.96	7.22	10.85
30	0.0166	0.0571	0.1098	96790	482502	44.09	41.23	37.04	33.64	2.86	7.05	10.45
35	0.0195	0.0727	0.1223	96207	479207	39.34	36.55	32.53	29.38	2.79	6.81	9.96
40	0.0438	0.0825	0.1560	95427	474478	34.64	31.93	28.14	25.21	2.71	6.50	9.43
45	0.0126	0.0605	0.1037	94281	466807	30.03	27.50	23.87	21.27	2.53	6.16	8.76
50	0.0343	0.1171	0.1732	92257	453769	25.63	23.11	19.64	17.20	2.52	5.99	8.43
55	0.0808	0.1929	0.2708	89011	432667	21.46	19.03	15.85	13.61	2.44	5.61	7.85
60	0.0790	0.2891	0.4004	83681	400678	17.66	15.49	12.69	10.71	2.17	4.97	6.95
65	0.0670	0.1746	0.2852	76225	355577	14.13	12.16	10.19	8.60	1.97	3.94	5.53
70	0.0704	0.2091	0.3343	65285	290741	11.05	9.12	7.40	6.15	1.94	3.65	4.90
75	0.0897	0.3037	0.4086	50600	212287	8.52	6.42	5.01	4.11	2.09	3.51	4.40
80	0.2596	0.3989	0.5174	34154	130945	6.40	3.86	3.09	2.42	2.54	3.31	3.98
85	0.5790	0.6751	0.7659	18704	82519	4.69	1.86	1.43	1.03	2.83	3.25	3.65
95	1.0000	1.0000	1.0000	1727	5125	2.97	0.00	0.00	0.00	2.97	2.97	2.97

Table E.8: Female health expectancies, South Australia, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0236	0.0236	100000	496609	79.48	73.87	69.11	65.77	5.62	10.37	13.71
5	0.0109	0.0292	0.0500	99263	496163	75.07	69.41	64.74	61.37	5.66	10.33	13.70
10	0.0090	0.0262	0.0472	99212	495891	70.11	64.50	59.92	56.65	5.61	10.19	13.46
15	0.0121	0.0261	0.0536	99125	495112	65.17	59.60	55.10	51.94	5.57	10.07	13.23
20	0.0176	0.0293	0.0634	98906	494026	60.31	54.79	50.34	47.31	5.52	9.96	12.99
25	0.0023	0.0265	0.0724	98721	493264	55.41	49.97	45.58	42.72	5.44	9.83	12.70
30	0.0161	0.0504	0.0836	98584	492486	50.49	45.05	40.77	38.13	5.44	9.72	12.35
35	0.0257	0.0535	0.1018	98391	491147	45.58	40.21	36.10	33.62	5.37	9.48	11.96
40	0.0319	0.0607	0.1115	98037	488769	40.74	35.48	31.49	29.24	5.26	9.25	11.49
45	0.0403	0.1111	0.1518	97407	484431	35.98	30.85	26.98	24.97	5.13	9.00	11.01
50	0.0358	0.0679	0.1000	96285	477665	31.37	26.38	22.82	21.00	4.99	8.55	10.37
55	0.0515	0.1387	0.2173	94693	467749	26.85	21.96	18.50	16.81	4.89	8.35	10.04
60	0.0623	0.1793	0.2377	92230	452484	22.50	17.74	14.63	13.29	4.76	7.87	9.21
65	0.0512	0.1848	0.2656	88498	428028	18.34	13.69	11.05	9.95	4.64	7.29	8.38
70	0.1179	0.2604	0.3348	82167	387602	14.54	9.80	7.65	6.90	4.74	6.88	7.64
75	0.2983	0.4459	0.5343	72282	327990	11.16	6.41	4.73	4.27	4.75	6.43	6.89
80	0.4089	0.5465	0.5465	58145	246378	8.24	4.01	2.76	2.68	4.22	5.48	5.56
85	0.5887	0.7722	0.7931	39965	212884	5.82	2.20	1.22	1.11	3.62	4.60	4.71
95	0.9888	0.9888	0.9888	6291	19742	3.14	0.04	0.04	0.04	3.10	3.10	3.10

Table E.9: Male health expectancies, Western Australia, 1981

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0411	0.0411	100000	494543	72.07	68.84	62.84	57.88	3.22	9.23	14.19
5	0.0273	0.0544	0.0744	98776	493434	67.96	64.69	58.81	53.80	3.26	9.14	14.16
10	0.0198	0.0488	0.0821	98581	492629	63.09	59.95	54.20	49.27	3.13	8.89	13.81
15	0.0076	0.0210	0.0470	98458	491286	58.16	55.12	49.51	44.74	3.04	8.65	13.42
20	0.0101	0.0317	0.0586	97964	487846	53.44	50.42	44.85	40.19	3.02	8.59	13.25
25	0.0209	0.0365	0.0897	97188	484399	48.85	45.86	40.34	35.78	2.99	8.50	13.06
30	0.0153	0.0369	0.1061	96599	481720	44.13	41.23	35.76	31.44	2.90	8.37	12.69
35	0.0192	0.0548	0.1425	96081	478631	39.35	36.51	31.12	27.12	2.84	8.23	12.23
40	0.0129	0.0706	0.1328	95293	473284	34.66	31.89	26.63	23.04	2.77	8.02	11.61
45	0.0270	0.0854	0.1755	93926	464922	30.12	27.38	22.34	19.01	2.74	7.78	11.11
50	0.0371	0.1601	0.2579	91915	452022	25.72	23.05	18.20	15.25	2.67	7.52	10.47
55	0.0629	0.2117	0.3175	88614	431176	21.58	19.00	14.59	12.04	2.58	6.99	9.54
60	0.0507	0.2953	0.4046	83565	400657	17.72	15.31	11.41	9.24	2.41	6.32	8.48
65	0.0960	0.3108	0.4604	76234	355503	14.17	11.80	8.80	7.00	2.37	5.37	7.17
70	0.1307	0.3487	0.4962	65345	292300	11.09	8.85	6.52	5.23	2.25	4.58	5.86
75	0.1884	0.4813	0.5962	51108	213903	8.46	6.34	4.61	3.81	2.13	3.86	4.66
80	0.2581	0.4151	0.5411	34125	129382	6.41	4.41	3.65	3.17	2.00	2.76	3.24
85	0.3532	0.4183	0.4183	18457	84023	4.84	2.94	2.65	2.65	1.90	2.19	2.19
95	*	*	*	1791	5316	2.97	(a)0.00	(a)0.00	(a)0.00	(a)2.97	(a)2.97	(a)2.97

(a) Sampled population did not include any men aged 95 or more. Health expectancies estimated assuming the prevalence of severe handicap was 100% in this age group.

Table E.10: Female health expectancies, Western Australia, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0313	0.0313	100000	495858	79.27	72.95	66.80	62.99	6.32	12.47	16.28
5	0.0160	0.0312	0.0572	99080	495204	75.00	68.62	62.57	58.73	6.38	12.43	16.27
10	0.0168	0.0321	0.0554	98983	494624	70.07	63.77	57.79	54.07	6.30	12.28	16.00
15	0.0070	0.0127	0.0656	98858	493863	65.15	58.93	53.02	49.41	6.23	12.14	15.74
20	0.0073	0.0241	0.0595	98681	492927	60.27	54.06	48.17	44.82	6.20	12.10	15.44
25	0.0085	0.0343	0.0847	98489	491957	55.38	49.20	43.38	40.20	6.18	12.00	15.18
30	0.0151	0.0518	0.0949	98293	490858	50.48	44.34	38.63	35.70	6.15	11.85	14.78
35	0.0221	0.0576	0.0893	98034	489363	45.61	39.52	33.99	31.26	6.09	11.62	14.35
40	0.0274	0.0654	0.1163	97697	487239	40.76	34.76	29.38	26.81	6.00	11.38	13.95
45	0.0395	0.1222	0.1750	97144	483439	35.97	30.08	24.86	22.53	5.90	11.11	13.44
50	0.0391	0.1356	0.1689	96139	476966	31.32	25.56	20.71	18.62	5.76	10.61	12.70
55	0.0712	0.2014	0.2439	94543	466664	26.81	21.15	16.70	14.74	5.66	10.11	12.07
60	0.0712	0.2232	0.2923	91866	448853	22.51	17.05	13.13	11.33	5.46	9.38	11.18
65	0.0941	0.2519	0.3360	87425	423327	18.52	13.14	9.81	8.27	5.37	8.71	10.25
70	0.1901	0.3993	0.5246	81622	386825	14.65	9.38	6.62	5.41	5.27	8.02	9.23
75	0.2526	0.4761	0.5743	72291	327431	11.19	6.26	4.26	3.57	4.93	6.92	7.62
80	0.3896	0.6233	0.6971	57963	246078	8.30	3.58	2.36	2.05	4.72	5.94	6.26
85	0.7350	0.7968	0.7968	40070	215137	5.87	1.43	1.10	1.10	4.44	4.77	4.77
95	0.9855	0.9855	0.9855	6383	20030	3.14	0.05	0.05	0.05	3.09	3.09	3.09

Table E.11: Male health expectancies, Tasmania, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0325	0.0325	100000	492129	69.83	66.58	62.00	58.81	3.25	7.83	11.02
5	0.0322	0.0530	0.0738	98209	490446	66.10	62.79	58.29	55.04	3.31	7.81	11.06
10	0.0047	0.0261	0.0505	97998	489622	61.23	58.08	53.67	50.52	3.15	7.56	10.71
15	0.0193	0.0283	0.0544	97799	487134	56.35	53.22	48.91	45.87	3.14	7.45	10.48
20	0.0183	0.0301	0.0683	96931	481763	51.83	48.76	44.46	41.53	3.07	7.37	10.30
25	0.0068	0.0476	0.0668	95815	476989	47.41	44.40	40.10	37.33	3.01	7.30	10.08
30	0.0053	0.0233	0.0573	95029	473701	42.78	39.78	35.65	32.95	3.00	7.13	9.83
35	0.0141	0.0293	0.0699	94473	470690	38.02	35.02	30.97	28.42	2.99	7.05	9.60
40	0.0285	0.0588	0.0812	93712	465056	33.30	30.36	26.34	23.98	2.95	6.96	9.33
45	0.0209	0.0362	0.0703	92177	455635	28.81	25.96	22.03	19.74	2.85	6.78	9.07
50	0.0271	0.1013	0.1674	89932	440508	24.46	21.65	17.70	15.52	2.82	6.77	8.94
55	0.0730	0.2428	0.3002	85883	415138	20.49	17.68	13.92	11.98	2.81	6.57	8.51
60	0.1243	0.3810	0.4643	79938	380595	16.82	14.18	11.03	9.24	2.64	5.79	7.58
65	0.0926	0.2441	0.3662	71839	331325	13.42	11.14	8.99	7.44	2.28	4.43	5.97
70	0.1526	0.2750	0.4610	59938	262448	10.55	8.33	6.60	5.42	2.22	3.96	5.13
75	0.1302	0.2976	0.3577	44844	184360	8.25	6.18	4.57	4.09	2.08	3.68	4.17
80	0.3508	0.4866	0.5836	28902	110069	6.43	4.04	2.62	2.25	2.39	3.81	4.18
85	0.3650	0.7314	0.7314	15854	71260	4.78	2.85	1.21	1.21	1.92	3.57	3.57
95	1.0000	1.0000	1.0000	1508	4476	2.97	0.00	0.00	0.00	2.97	2.97	2.97

Table E.12: Female health expectancies, Tasmania, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0183	0.0183	100000	494327	77.65	72.47	68.51	64.63	5.18	9.14	13.02
5	0.0232	0.0342	0.0626	98701	493298	73.67	68.42	64.50	60.56	5.25	9.17	13.10
10	0.0066	0.0347	0.0509	98643	493091	68.71	63.58	59.71	55.91	5.13	9.00	12.80
15	0.0068	0.0186	0.0328	98561	492048	63.76	58.66	54.93	51.21	5.10	8.84	12.56
20	0.0156	0.0232	0.0470	98228	490218	58.97	53.88	50.20	46.54	5.09	8.77	12.43
25	0.0198	0.0368	0.0750	97863	488279	54.18	49.15	45.49	41.94	5.03	8.69	12.24
30	0.0254	0.0521	0.0815	97441	486260	49.40	44.45	40.86	37.48	4.95	8.54	11.92
35	0.0007	0.0243	0.0822	97071	484199	44.58	39.74	36.27	33.02	4.84	8.32	11.56
40	0.0337	0.0768	0.1189	96572	481105	39.80	34.94	31.56	28.59	4.86	8.24	11.21
45	0.0061	0.0814	0.1380	95817	476364	35.09	30.36	27.18	24.39	4.73	7.92	10.70
50	0.0345	0.0799	0.1271	94638	468291	30.50	25.73	22.89	20.36	4.76	7.60	10.14
55	0.0268	0.0890	0.1398	92467	454447	26.15	21.45	18.77	16.42	4.70	7.38	9.73
60	0.0370	0.1807	0.2435	89172	435607	22.02	17.28	14.82	12.64	4.73	7.20	9.38
65	0.0852	0.2223	0.2974	84813	408452	18.01	13.22	11.37	9.40	4.79	6.64	8.61
70	0.2039	0.3097	0.4212	78171	368761	14.32	9.57	8.28	6.53	4.75	6.04	7.79
75	0.3042	0.3919	0.5406	68732	309624	10.92	6.61	5.71	4.32	4.31	5.21	6.60
80	0.4205	0.5425	0.6693	54273	228157	8.12	4.40	3.76	2.85	3.72	4.36	5.27
85	0.4520	0.4880	0.5922	36779	194658	5.78	2.90	2.71	2.16	2.88	3.07	3.62
95	1.0000	1.0000	1.0000	5734	17994	3.14	0.00	0.00	0.00	3.14	3.14	3.14

Table E.13: Male health expectancies, Australia, 1981

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0402	0.0402	100000	493978	71.38	68.48	63.52	59.18	2.90	7.86	12.20
5	0.0251	0.0486	0.0789	98631	492669	67.36	64.42	59.59	55.20	2.94	7.77	12.16
10	0.0150	0.0468	0.0684	98459	491983	62.47	59.66	54.93	50.68	2.82	7.54	11.79
15	0.0107	0.0246	0.0565	98301	490275	57.57	54.82	50.25	46.10	2.75	7.32	11.47
20	0.0078	0.0254	0.0590	97730	486696	52.89	50.18	45.65	41.64	2.71	7.24	11.25
25	0.0129	0.0339	0.0794	96964	483208	48.29	45.60	41.12	37.24	2.69	7.17	11.04
30	0.0166	0.0394	0.0858	96337	480221	43.59	40.94	36.54	32.87	2.65	7.04	10.72
35	0.0172	0.0497	0.1064	95741	476869	38.84	36.26	31.95	28.49	2.58	6.89	10.35
40	0.0248	0.0659	0.1261	94957	471910	34.14	31.63	27.44	24.24	2.51	6.70	9.90
45	0.0279	0.0855	0.1482	93702	463621	29.56	27.14	23.11	20.16	2.42	6.45	9.40
50	0.0381	0.1240	0.2111	91565	449636	25.19	22.85	19.02	16.32	2.34	6.17	8.87
55	0.0544	0.2091	0.3046	88017	427266	21.10	18.86	15.31	12.94	2.24	5.79	8.15
60	0.0663	0.2634	0.3610	82549	394073	17.32	15.21	12.23	10.20	2.10	5.09	7.11
65	0.0765	0.2195	0.3478	74624	346472	13.87	11.90	9.64	7.91	1.98	4.24	5.96
70	0.0977	0.2765	0.4084	63369	281257	10.87	8.96	7.08	5.75	1.91	3.79	5.12
75	0.1601	0.3273	0.4598	48682	202788	8.37	6.45	5.04	4.07	1.92	3.34	4.31
80	0.2254	0.4142	0.5241	32390	123355	6.33	4.44	3.36	2.73	1.89	2.97	3.59
85	0.3725	0.5238	0.6123	17447	76752.5	4.67	2.76	2.10	1.71	1.91	2.58	2.97
95	1.0000	1.0000	1.0000	1604	4761	2.97	0.00	0.00	0.00	2.97	2.97	2.97

Table E.14: Female health expectancies, Australia, 1981

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0296	0.0296	100000	495261	78.42	73.25	68.59	65.04	5.17	9.84	13.39
5	0.0134	0.0292	0.0524	98938	494437	74.26	69.03	64.47	60.88	5.23	9.79	13.38
10	0.0113	0.0260	0.0443	98845	494016	69.33	64.16	59.67	56.20	5.17	9.66	13.13
15	0.0088	0.0228	0.0508	98746	493253	64.40	59.28	54.86	51.47	5.12	9.54	12.92
20	0.0129	0.0321	0.0640	98539	492082	59.52	54.44	50.08	46.83	5.08	9.44	12.70
25	0.0099	0.0328	0.0658	98297	490887	54.67	49.63	45.36	42.26	5.03	9.30	12.41
30	0.0152	0.0433	0.0885	98055	489583	49.79	44.80	40.63	37.68	4.99	9.16	12.11
35	0.0173	0.0513	0.0928	97767	487867	44.93	40.00	35.96	33.23	4.93	8.97	11.70
40	0.0298	0.0665	0.1101	97349	485118	40.11	35.25	31.36	28.83	4.87	8.75	11.29
45	0.0284	0.0924	0.1504	96630	480298	35.39	30.64	26.91	24.57	4.75	8.49	10.82
50	0.0497	0.1149	0.1633	95403	472753	30.81	26.14	22.68	20.61	4.67	8.13	10.20
55	0.0487	0.1428	0.2065	93582	461407	26.36	21.85	18.65	16.79	4.51	7.71	9.57
60	0.0661	0.1753	0.2374	90782	443805	22.09	17.69	14.87	13.27	4.40	7.22	8.82
65	0.0946	0.2153	0.3157	86442	416862	18.07	13.78	11.39	10.02	4.28	6.68	8.04
70	0.1272	0.2673	0.3675	79887	376530	14.33	10.19	8.22	7.27	4.14	6.11	7.06
75	0.2229	0.4085	0.4795	70099	317120	10.96	6.92	5.44	4.89	4.04	5.52	6.07
80	0.3873	0.5146	0.5604	56022	235640	8.05	4.26	3.46	3.18	3.79	4.60	4.88
85	0.5327	0.6034	0.6246	37706	197401	5.72	2.51	2.10	1.97	3.21	3.62	3.75
95	0.8751	0.9475	0.9901	5783	18149	3.14	0.39	0.16	0.03	2.75	2.97	3.11

Table E.15: Male health expectancies, New South Wales, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0399	0.0399	100000	494741	72.56	69.55	61.05	58.21	3.01	11.51	14.35
5	0.0265	0.0555	0.0662	98841	493946	68.41	65.36	56.96	54.08	3.04	11.44	14.32
10	0.0302	0.0892	0.1065	98742	493403	63.47	60.56	52.30	49.47	2.92	11.18	14.01
15	0.0111	0.0414	0.0501	98591	491901	58.56	55.80	47.82	45.07	2.77	10.75	13.49
20	0.0154	0.0598	0.0871	98095	488477	53.85	51.12	43.25	40.54	2.73	10.59	13.31
25	0.0059	0.0556	0.0765	97276	484357	49.28	46.61	38.90	36.29	2.67	10.38	12.99
30	0.0163	0.0775	0.1014	96486	480652	44.66	42.00	34.47	31.95	2.67	10.19	12.71
35	0.0218	0.0909	0.1199	95779	477075	39.97	37.37	30.10	27.68	2.60	9.88	12.29
40	0.0275	0.1059	0.1401	95025	472553	35.27	32.76	25.77	23.48	2.51	9.50	11.79
45	0.0196	0.1100	0.1395	93915	465543	30.66	28.25	21.58	19.43	2.41	9.08	11.22
50	0.0468	0.1547	0.2009	92169	454116	26.19	23.83	17.49	15.45	2.35	8.69	10.73
55	0.0403	0.2332	0.2964	89235	435174	21.96	19.77	13.77	11.89	2.19	8.19	10.06
60	0.0583	0.3758	0.4326	84497	405576	18.04	15.93	10.59	8.94	2.11	7.45	9.10
65	0.0804	0.3435	0.4611	77273	361434	14.48	12.48	8.30	6.80	2.00	6.17	7.68
70	0.0925	0.3821	0.5128	66705	299673	11.35	9.47	6.06	4.95	1.88	5.29	6.40
75	0.1096	0.4453	0.5278	52640	222049	8.69	6.84	4.16	3.50	1.85	4.53	5.19
80	0.2678	0.5162	0.6213	35957	138913	6.55	4.51	2.67	2.21	2.04	3.88	4.34
85	0.3425	0.6856	0.7046	20045	91104	4.81	3.02	1.43	1.34	1.80	3.39	3.47
95	0.8998	1.0000	1.0000	2015	5405	2.68	0.27	0.00	0.00	2.41	2.68	2.68

Table E.16: Female health expectancies, New South Wales, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0185	0.0185	100000	495663	78.92	73.18	65.65	63.39	5.74	13.27	15.53
5	0.0278	0.0573	0.0670	99044	495014	74.68	68.88	61.37	59.09	5.79	13.30	15.59
10	0.0130	0.0444	0.0655	98963	494663	69.73	64.08	56.71	54.47	5.66	13.03	15.27
15	0.0087	0.0276	0.0463	98887	493948	64.79	59.19	51.97	49.84	5.60	12.82	14.95
20	0.0144	0.0360	0.0577	98669	492694	59.92	54.36	47.22	45.17	5.57	12.71	14.75
25	0.0192	0.0628	0.0758	98417	491524	55.07	49.56	42.51	40.57	5.51	12.56	14.50
30	0.0219	0.0663	0.0788	98189	490263	50.19	44.77	37.92	36.04	5.43	12.27	14.15
35	0.0315	0.0987	0.1149	97903	488597	45.33	40.00	33.35	31.53	5.33	11.98	13.80
40	0.0419	0.1133	0.1400	97513	486080	40.50	35.31	28.97	27.22	5.20	11.53	13.28
45	0.0441	0.1482	0.1553	96855	481660	35.76	30.74	24.72	23.09	5.02	11.04	12.67
50	0.0385	0.1779	0.1999	95722	474472	31.15	26.29	20.72	19.11	4.86	10.42	12.04
55	0.0409	0.1698	0.1928	93951	463575	26.69	21.93	16.96	15.43	4.75	9.72	11.25
60	0.0486	0.2216	0.2662	91298	446943	22.38	17.70	13.24	11.78	4.69	9.14	10.60
65	0.1198	0.3054	0.3973	87208	421614	18.31	13.65	9.87	8.57	4.66	8.44	9.73
70	0.1422	0.3617	0.4536	81000	382436	14.51	10.12	7.01	6.09	4.39	7.49	8.41
75	0.1920	0.4403	0.4917	71320	323038	11.11	6.89	4.54	3.99	4.22	6.57	7.12
80	0.3390	0.5749	0.6589	57098	240580	8.22	4.04	2.51	2.11	4.19	5.72	6.11
85	0.6615	0.8073	0.8193	38758	209372	5.91	1.84	1.06	0.99	4.07	4.85	4.92
95	0.9706	0.9706	0.9706	6556	19678	3.00	0.09	0.09	0.09	2.91	2.91	2.91

Table E.17: Male health expectancies, Victoria, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0302	0.0302	100000	495138	73.58	69.89	60.63	58.24	3.69	12.95	15.34
5	0.0333	0.0754	0.0943	98914	494300	69.38	65.65	56.45	54.03	3.74	12.94	15.36
10	0.0294	0.0819	0.0943	98814	493858	64.45	60.88	51.88	49.55	3.57	12.57	14.90
15	0.0067	0.0486	0.0648	98699	492428	59.52	56.09	47.34	45.08	3.43	12.18	14.45
20	0.0092	0.0394	0.0549	98193	489031	54.81	51.40	42.82	40.62	3.41	12.00	14.20
25	0.0278	0.0816	0.0985	97421	485345	50.23	46.83	38.34	36.19	3.39	11.89	14.03
30	0.0144	0.0587	0.0811	96726	481930	45.57	42.29	34.00	31.93	3.28	11.57	13.64
35	0.0138	0.0634	0.0825	96051	478609	40.87	37.64	29.52	27.55	3.23	11.36	13.33
40	0.0242	0.1097	0.1415	95370	474451	36.15	32.96	25.03	23.14	3.18	11.12	13.01
45	0.0359	0.1196	0.1469	94337	468198	31.51	28.42	20.83	19.07	3.10	10.69	12.44
50	0.0360	0.1953	0.2273	92856	458831	26.97	24.01	16.72	15.08	2.97	10.26	11.90
55	0.0600	0.2681	0.2957	90469	442928	22.62	19.75	13.08	11.55	2.86	9.54	11.06
60	0.0674	0.3652	0.4324	86340	415807	18.57	15.88	9.95	8.49	2.69	8.62	10.07
65	0.1113	0.3976	0.4942	79529	374659	14.93	12.36	7.48	6.25	2.57	7.45	8.67
70	0.1433	0.4676	0.5464	69790	316057	11.64	9.31	5.29	4.41	2.33	6.35	7.23
75	0.1035	0.4619	0.5489	55934	237730	8.88	6.78	3.60	2.94	2.09	5.28	5.94
80	0.2566	0.6432	0.7271	38862	151411	6.66	4.28	1.88	1.47	2.38	4.77	5.18
85	0.4703	0.8105	0.8422	22100	101317	4.86	2.43	0.87	0.72	2.43	3.99	4.13
95	1.0000	1.0000	1.0000	2252	6042	2.68	0.00	0.00	0.00	2.68	2.68	2.68

Table E.18: Female health expectancies, Victoria, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0274	0.0274	100000	496503	79.81	73.36	64.72	62.96	6.45	15.09	16.85
5	0.0241	0.0351	0.0482	99194	495806	75.45	68.95	60.38	58.60	6.50	15.07	16.85
10	0.0132	0.0642	0.0814	99130	495522	70.50	64.11	55.59	53.88	6.38	14.91	16.62
15	0.0092	0.0403	0.0570	99067	494911	65.54	59.22	50.95	49.32	6.32	14.60	16.22
20	0.0107	0.0439	0.0555	98874	493709	60.66	54.38	46.24	44.70	6.29	14.42	15.97
25	0.0172	0.0505	0.0654	98613	492445	55.82	49.57	41.58	40.08	6.25	14.24	15.73
30	0.0195	0.0738	0.0850	98362	491087	50.95	44.77	36.93	35.51	6.18	14.02	15.45
35	0.0169	0.0816	0.1088	98064	489387	46.10	40.00	32.40	31.03	6.10	13.70	15.07
40	0.0338	0.1199	0.1325	97669	486905	41.28	35.24	27.93	26.69	6.04	13.34	14.58
45	0.0285	0.1105	0.1350	97043	482990	36.53	30.61	23.70	22.51	5.91	12.83	14.01
50	0.0834	0.2005	0.2212	96104	477212	31.86	26.03	19.46	18.39	5.82	12.40	13.47
55	0.0796	0.2456	0.2774	94651	467528	27.30	21.81	15.73	14.74	5.49	11.58	12.56
60	0.0870	0.2565	0.2776	92172	451906	22.97	17.73	12.32	11.47	5.24	10.64	11.49
65	0.0722	0.2931	0.3586	88339	428180	18.85	13.83	9.05	8.27	5.02	9.79	10.57
70	0.1597	0.4357	0.4929	82544	391932	14.98	9.98	6.02	5.53	5.00	8.96	9.45
75	0.2576	0.5498	0.5820	73594	336388	11.48	6.72	3.75	3.50	4.76	7.73	7.98
80	0.3401	0.6426	0.6640	60175	256884	8.45	4.07	2.07	1.94	4.38	6.38	6.50
85	0.6742	0.8581	0.8666	41987	229777	5.99	1.80	0.78	0.73	4.19	5.21	5.26
95	0.9682	1.0000	1.0000	7240	21733	3.00	0.10	0.00	0.00	2.91	3.00	3.00

Table E.19: Male health expectancies, Queensland, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0469	0.0469	100000	495004	73.30	70.36	61.40	58.65	2.94	11.90	14.65
5	0.0236	0.0703	0.0800	98886	493955	69.12	66.15	57.32	54.54	2.97	11.80	14.58
10	0.0212	0.0849	0.0956	98725	493274	64.23	61.37	52.76	50.03	2.86	11.47	14.20
15	0.0101	0.0309	0.0495	98546	491506	59.34	56.58	48.27	45.59	2.75	11.06	13.75
20	0.0095	0.0420	0.0603	97995	488161	54.66	51.94	43.68	41.08	2.72	10.97	13.58
25	0.0088	0.0688	0.0938	97276	484748	50.04	47.35	39.20	36.67	2.69	10.84	13.37
30	0.0129	0.0688	0.0841	96634	481573	45.36	42.69	34.79	32.37	2.67	10.57	12.99
35	0.0119	0.0601	0.0815	95982	478052	40.65	38.03	30.35	27.99	2.62	10.30	12.66
40	0.0165	0.1022	0.1415	95214	473685	35.96	33.38	25.88	23.60	2.58	10.08	12.35
45	0.0391	0.1257	0.1625	94206	467568	31.31	28.79	21.64	19.54	2.52	9.67	11.77
50	0.0298	0.1767	0.2095	92703	457506	26.78	24.41	17.58	15.63	2.37	9.19	11.14
55	0.0410	0.2669	0.3152	90051	439738	22.48	20.20	13.92	12.08	2.29	8.57	10.41
60	0.0562	0.3589	0.4146	85462	410240	18.55	16.35	10.89	9.20	2.20	7.65	9.34
65	0.0665	0.3423	0.4857	78181	366930	15.03	12.92	8.54	6.99	2.11	6.48	8.04
70	0.0907	0.3695	0.4614	68155	308892	11.85	9.79	6.26	5.25	2.06	5.59	6.61
75	0.1586	0.4842	0.5293	54797	234439	9.11	7.06	4.23	3.49	2.05	4.87	5.62
80	0.2374	0.6162	0.7162	38750	152790	6.83	4.89	2.86	2.09	1.94	3.96	4.74
85	0.3087	0.5029	0.6441	22616	105365	4.94	3.22	2.32	1.66	1.72	2.62	3.28
95	1.0000	1.0000	1.0000	2363	6341	2.68	0.00	0.00	0.00	2.68	2.68	2.68

Table E.20: Female health expectancies, Queensland, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0341	0.0341	100000	495694	79.79	74.17	66.71	64.81	5.62	13.08	14.99
5	0.0234	0.0555	0.0618	99022	494747	75.58	69.90	62.54	60.61	5.68	13.04	14.96
10	0.0180	0.0530	0.0632	98875	494105	70.69	65.11	57.91	56.01	5.57	12.78	14.68
15	0.0094	0.0347	0.0389	98762	493403	65.76	60.28	53.23	51.39	5.49	12.53	14.38
20	0.0172	0.0587	0.0734	98585	492340	60.88	55.43	48.50	46.67	5.45	12.38	14.21
25	0.0173	0.0603	0.0727	98346	491126	56.02	50.64	43.90	42.14	5.38	12.11	13.87
30	0.0117	0.0266	0.0393	98107	489872	51.15	45.85	39.31	37.60	5.30	11.84	13.54
35	0.0212	0.0594	0.0741	97826	488173	46.29	41.03	34.55	32.90	5.26	11.74	13.39
40	0.0124	0.0870	0.0986	97426	485759	41.47	36.29	29.97	28.40	5.18	11.49	13.07
45	0.0159	0.1211	0.1572	96823	481718	36.71	31.56	25.58	24.05	5.15	11.13	12.66
50	0.0420	0.1753	0.1911	95787	475051	32.08	26.96	21.44	20.07	5.12	10.64	12.00
55	0.0365	0.1886	0.2181	94100	464519	27.60	22.60	17.66	16.35	5.00	9.94	11.25
60	0.0435	0.2213	0.2569	91575	449327	23.29	18.34	14.03	12.83	4.95	9.26	10.46
65	0.0552	0.2384	0.3067	87911	426535	19.15	14.21	10.63	9.57	4.94	8.52	9.58
70	0.1312	0.3097	0.3809	82335	391932	15.27	10.28	7.41	6.63	4.99	7.86	8.64
75	0.2521	0.5161	0.5749	73861	338883	11.71	6.85	4.60	4.10	4.86	7.12	7.61
80	0.3558	0.5543	0.5822	60827	261589	8.65	4.15	2.88	2.61	4.50	5.77	6.04
85	0.6521	0.7564	0.7944	43359	241617	6.10	1.94	1.36	1.15	4.17	4.75	4.96
95	1.0000	1.0000	1.0000	7681	23054	3.00	0.00	0.00	0.00	3.00	3.00	3.00

Table E.21: Male health expectancies, South Australia, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0560	0.0560	100000	494835	73.59	70.44	61.77	60.07	3.15	11.83	13.52
5	0.0170	0.0410	0.0448	98864	494034	69.43	66.24	57.75	56.04	3.19	11.68	13.39
10	0.0214	0.0617	0.0682	98765	493476	64.50	61.39	53.01	51.32	3.11	11.49	13.18
15	0.0182	0.0679	0.0703	98583	491666	59.61	56.60	48.41	46.75	3.01	11.20	12.87
20	0.0061	0.0624	0.0788	98019	488295	54.94	52.01	44.02	42.35	2.93	10.92	12.59
25	0.0218	0.0489	0.0665	97318	485091	50.32	47.39	39.63	38.04	2.92	10.69	12.28
30	0.0101	0.0445	0.0577	96724	482114	45.61	42.78	35.10	33.59	2.83	10.51	12.02
35	0.0175	0.0888	0.1098	96128	479139	40.88	38.08	30.53	29.07	2.80	10.35	11.81
40	0.0358	0.1081	0.1238	95515	475434	36.12	33.39	26.15	24.79	2.73	9.97	11.33
45	0.0307	0.1422	0.1530	94578	469278	31.46	28.88	21.93	20.63	2.58	9.53	10.82
50	0.0172	0.1657	0.1876	93003	459304	26.94	24.48	17.97	16.71	2.47	8.97	10.24
55	0.0446	0.2585	0.2899	90571	443661	22.59	20.15	14.22	13.04	2.45	8.37	9.56
60	0.0615	0.3936	0.4159	86452	415043	18.54	16.21	11.09	10.01	2.33	7.44	8.53
65	0.0664	0.2950	0.3886	79057	371088	15.02	12.80	8.95	7.88	2.23	6.07	7.14
70	0.1085	0.3457	0.4332	68946	312493	11.84	9.65	6.47	5.75	2.20	5.38	6.10
75	0.1415	0.4241	0.4701	55436	236574	9.09	6.97	4.35	3.95	2.12	4.74	5.14
80	0.2449	0.6180	0.6204	38912	153259	6.88	4.71	2.70	2.41	2.16	4.17	4.46
85	0.3870	0.5677	0.6689	22816	107750	5.01	2.97	2.04	1.56	2.04	2.97	3.45
95	0.7475	1.0000	1.0000	2435	6534	2.68	0.68	0.00	0.00	2.01	2.68	2.68

Table E.22: Female health expectancies, South Australia, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0358	0.0358	100000	496803	80.27	74.12	65.86	64.29	6.14	14.40	15.98
5	0.0126	0.0468	0.0499	99282	496179	75.84	69.65	61.51	59.93	6.19	14.33	15.92
10	0.0113	0.0480	0.0596	99176	495722	70.92	64.79	56.81	55.24	6.13	14.11	15.68
15	0.0102	0.0661	0.0726	99109	495142	65.97	59.89	52.09	50.57	6.08	13.88	15.39
20	0.0184	0.0699	0.0959	98922	494006	61.09	55.05	47.51	46.03	6.04	13.58	15.06
25	0.0155	0.0710	0.0892	98689	492978	56.23	50.26	42.97	41.61	5.96	13.26	14.62
30	0.0058	0.0361	0.0535	98508	492076	51.32	45.43	38.40	37.13	5.90	12.93	14.20
35	0.0269	0.0855	0.0972	98308	490737	46.42	40.54	33.65	32.47	5.88	12.77	13.96
40	0.0450	0.1149	0.1260	97960	488510	41.58	35.81	29.19	28.06	5.77	12.39	13.52
45	0.0074	0.0936	0.1073	97400	485029	36.80	31.23	24.92	23.84	5.57	11.89	12.97
50	0.0270	0.1312	0.1611	96574	480017	32.09	26.51	20.58	19.56	5.58	11.52	12.54
55	0.0633	0.1595	0.1905	95300	470913	27.49	21.96	16.48	15.59	5.52	11.01	11.89
60	0.0640	0.3011	0.3223	92840	455053	23.14	17.79	12.65	11.90	5.35	10.49	11.24
65	0.0755	0.2767	0.3309	88949	431350	19.04	13.79	9.63	8.95	5.25	9.41	10.09
70	0.1023	0.3549	0.4046	83200	395781	15.17	9.94	6.54	6.10	5.23	8.63	9.07
75	0.2557	0.4613	0.4977	74593	342973	11.61	6.33	3.87	3.65	5.29	7.74	7.97
80	0.4537	0.7354	0.7354	61730	264369	8.48	3.51	1.69	1.62	4.97	6.79	6.86
85	0.7189	0.8549	0.8740	43295	236644	5.98	1.67	0.79	0.69	4.31	5.19	5.29
95	0.7377	1.0000	1.0000	7452	22367	3.00	0.79	0.00	0.00	2.21	3.00	3.00

Table E.23: Male health expectancies, Western Australia, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0364	0.0364	100000	494949	73.75	70.81	60.94	57.77	2.94	12.81	15.98
5	0.0196	0.0692	0.0743	98878	494180	69.59	66.61	56.81	53.61	2.98	12.78	15.98
10	0.0144	0.0700	0.0805	98804	493832	64.64	61.75	52.20	49.02	2.88	12.44	15.62
15	0.0147	0.0528	0.0728	98685	492177	59.71	56.90	47.60	44.47	2.81	12.11	15.24
20	0.0057	0.0578	0.0917	98105	488540	55.05	52.29	43.13	40.08	2.76	11.91	14.96
25	0.0143	0.0573	0.0881	97328	485052	50.47	47.72	38.75	35.85	2.75	11.72	14.62
30	0.0104	0.0655	0.0831	96719	482298	45.77	43.07	34.27	31.50	2.70	11.50	14.27
35	0.0220	0.0991	0.1189	96201	479582	41.00	38.34	29.76	27.07	2.66	11.24	13.93
40	0.0266	0.1483	0.1765	95603	475788	36.24	33.68	25.43	22.82	2.56	10.81	13.42
45	0.0265	0.1436	0.1733	94612	469287	31.59	29.14	21.41	18.92	2.46	10.18	12.67
50	0.0014	0.1189	0.1646	93011	459506	27.09	24.73	17.46	15.07	2.37	9.63	12.02
55	0.0294	0.2171	0.2554	90617	444000	22.74	20.32	13.46	11.23	2.42	9.28	11.50
60	0.0553	0.3935	0.4718	86622	417774	18.66	16.28	10.06	7.94	2.38	8.60	10.72
65	0.0843	0.3456	0.5314	80080	378129	14.97	12.68	7.72	5.83	2.29	7.24	9.14
70	0.0897	0.4503	0.5482	70551	319944	11.63	9.48	5.26	4.11	2.15	6.37	7.52
75	0.0746	0.3644	0.5065	56778	241617	8.81	6.65	3.44	2.56	2.16	5.38	6.26
80	0.3343	0.7480	0.8511	39370	151722	6.57	3.92	1.05	0.66	2.66	5.52	5.92
85	0.4738	0.9678	0.9678	21915	101061	4.89	2.43	0.15	0.15	2.46	4.74	4.74
95	1.0000	1.0000	1.0000	2254	6046	2.68	0.00	0.00	0.00	2.68	2.68	2.68

Table E.24: Female health expectancies, Western Australia, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0271	0.0271	100000	495825	80.14	73.70	65.41	63.17	6.44	14.73	16.97
5	0.0189	0.0342	0.0395	99057	495268	75.90	69.39	61.16	58.90	6.50	14.73	17.00
10	0.0070	0.0542	0.0602	99039	495053	70.91	64.50	56.34	54.11	6.41	14.56	16.80
15	0.0107	0.0420	0.0549	98968	494480	65.96	59.58	51.65	49.44	6.38	14.30	16.51
20	0.0124	0.0502	0.0622	98809	493491	61.06	54.72	46.94	44.79	6.33	14.12	16.27
25	0.0230	0.0609	0.0790	98582	492331	56.19	49.91	42.30	40.20	6.29	13.90	15.99
30	0.0143	0.0765	0.0951	98354	491149	51.32	45.13	37.69	35.68	6.19	13.62	15.63
35	0.0227	0.0753	0.0985	98090	489538	46.45	40.32	33.17	31.25	6.13	13.28	15.20
40	0.0227	0.1019	0.1333	97708	487412	41.62	35.58	28.67	26.85	6.04	12.95	14.77
45	0.0227	0.1468	0.1786	97233	484246	36.81	30.85	24.31	22.64	5.96	12.51	14.17
50	0.0275	0.1691	0.2026	96372	478496	32.11	26.22	20.24	18.72	5.90	11.88	13.40
55	0.0325	0.1832	0.2014	94926	469332	27.56	21.72	16.36	14.98	5.85	11.21	12.58
60	0.0655	0.2343	0.2686	92628	454476	23.18	17.35	12.62	11.31	5.83	10.56	11.87
65	0.0871	0.2689	0.3290	88882	431192	19.04	13.30	9.24	8.04	5.74	9.80	11.00
70	0.1483	0.4328	0.5175	83272	396942	15.15	9.47	6.08	5.11	5.68	9.07	10.04
75	0.2270	0.4412	0.5670	74896	343202	11.54	6.02	3.75	3.13	5.52	7.79	8.42
80	0.4638	0.7324	0.7459	61351	261308	8.50	3.02	1.45	1.39	5.47	7.05	7.10
85	0.8151	0.9193	0.9193	42827	237445	6.07	1.06	0.45	0.45	5.01	5.62	5.62
95	0.9314	1.0000	1.0000	7530	22600	3.00	0.21	0.00	0.00	2.80	3.00	3.00

Table E.25: Male health expectancies, Tasmania, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0342	0.0342	100000	493561	72.47	69.44	59.94	57.92	3.03	12.53	14.55
5	0.0185	0.0458	0.0591	98584	492567	68.50	65.43	55.97	53.91	3.07	12.53	14.59
10	0.0304	0.0767	0.1021	98419	491581	63.61	60.63	51.29	49.30	2.99	12.33	14.32
15	0.0095	0.0585	0.0791	98186	489557	58.76	55.92	46.79	44.92	2.84	11.97	13.84
20	0.0023	0.0485	0.0730	97550	485596	54.12	51.31	42.37	40.59	2.81	11.76	13.53
25	0.0232	0.0577	0.0706	96709	481746	49.57	46.75	37.96	36.29	2.82	11.61	13.28
30	0.0169	0.0616	0.0669	96008	478532	44.92	42.19	33.51	31.89	2.73	11.41	13.03
35	0.0268	0.1099	0.1099	95393	475006	40.19	37.53	29.01	27.41	2.66	11.17	12.78
40	0.0293	0.1352	0.1493	94590	470869	35.51	32.96	24.79	23.18	2.55	10.72	12.33
45	0.0165	0.1304	0.1630	93723	465345	30.81	28.39	20.68	19.12	2.43	10.14	11.70
50	0.0523	0.2278	0.2447	92262	454699	26.26	23.88	16.62	15.20	2.38	9.64	11.06
55	0.0496	0.1774	0.2104	89296	434983	22.04	19.84	13.24	11.86	2.19	8.80	10.18
60	0.0685	0.4611	0.4840	84442	406470	18.15	16.09	9.76	8.47	2.06	8.39	9.68
65	0.0499	0.4194	0.5180	77730	363987	14.49	12.61	7.79	6.50	1.88	6.71	7.99
70	0.0627	0.3701	0.4685	67058	299771	11.37	9.46	5.87	4.92	1.91	5.50	6.45
75	0.2068	0.5759	0.6676	52563	224744	8.80	6.72	3.90	3.25	2.08	4.90	5.55
80	0.2758	0.3344	0.4296	37119	143334	6.41	4.71	2.96	2.59	1.70	3.45	3.82
85	0.2085	0.8397	0.8397	20272	89350	4.66	3.51	0.71	0.71	1.16	3.96	3.96
95	*	*	*	1942	5212	2.68	(a)0.20	(a)0.00	(a)0.00	(a)2.49	(a)2.68	(a)2.68

(a) Sampled population did not include any men aged 95 or more. Prevalence rates in this age group assumed to be the same as those for all Australian males aged 95+ (Table E.31).

Table E.26: Female health expectancies, Tasmania, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0306	0.0306	100000	495787	78.72	72.07	63.40	61.29	6.65	15.32	17.43
5	0.0368	0.0742	0.0960	99075	495055	74.45	67.74	59.14	57.01	6.71	15.31	17.44
10	0.0205	0.0673	0.0889	98957	494697	69.54	63.00	54.58	52.55	6.54	14.95	16.98
15	0.0127	0.0831	0.0883	98922	494276	64.56	58.12	49.94	48.02	6.44	14.62	16.54
20	0.0138	0.0611	0.0674	98748	492890	59.67	53.28	45.44	43.54	6.38	14.23	16.13
25	0.0242	0.0635	0.0805	98398	491018	54.87	48.53	40.89	39.02	6.34	13.98	15.85
30	0.0136	0.0586	0.0638	98005	489169	50.08	43.84	36.37	34.57	6.24	13.71	15.51
35	0.0172	0.0940	0.1160	97685	487512	45.24	39.04	31.77	30.00	6.19	13.47	15.24
40	0.0313	0.1063	0.1312	97250	484227	40.43	34.29	27.37	25.70	6.13	13.05	14.73
45	0.0317	0.1185	0.1422	96406	479584	35.76	29.73	23.12	21.56	6.03	12.64	14.20
50	0.0434	0.1329	0.1764	95364	472523	31.12	25.18	18.94	17.48	5.94	12.18	13.64
55	0.0880	0.1958	0.2202	93462	460839	26.70	20.86	14.94	13.67	5.84	11.75	13.02
60	0.0816	0.2270	0.2931	90797	444513	22.40	16.84	11.30	10.12	5.56	11.10	12.29
65	0.1284	0.3616	0.3819	86562	417029	18.37	12.95	7.88	6.98	5.42	10.48	11.38
70	0.1931	0.5096	0.6007	79985	378350	14.66	9.47	5.20	4.33	5.19	9.46	10.33
75	0.2253	0.6023	0.6239	70643	319897	11.25	6.40	3.27	2.77	4.84	7.98	8.48
80	0.4427	0.7039	0.7942	56768	242709	8.36	3.60	1.82	1.32	4.76	6.54	7.03
85	0.6742	0.8509	0.8809	39599	211956	5.85	1.74	0.80	0.64	4.11	5.06	5.22
95	1.0000	1.0000	1.0000	6607	19833	3.00	0.00	0.00	0.00	3.00	3.00	3.00

Table E.27: Male health expectancies, Northern Territory, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0645	0.0645	100000	489211	64.76	61.91	53.96	51.63	2.85	10.80	13.13
5	0.0000	0.0312	0.0312	97420	486105	61.46	58.53	50.69	48.30	2.93	10.76	13.16
10	0.0337	0.0337	0.0630	97044	484037	56.68	53.74	46.03	43.63	2.94	10.65	13.05
15	0.0000	0.0000	0.0000	96474	479051	52.00	49.21	41.46	39.19	2.79	10.54	12.81
20	0.0193	0.0992	0.0992	94984	470070	47.77	44.94	37.07	34.76	2.83	10.71	13.01
25	0.0278	0.0833	0.0833	93043	460072	43.72	40.92	33.29	30.93	2.80	10.43	12.79
30	0.0000	0.1143	0.1428	90962	450079	39.66	36.94	29.41	27.01	2.72	10.25	12.66
35	0.0000	0.0526	0.1053	89136	441098	35.42	32.65	25.54	23.23	2.77	9.88	12.19
40	0.0000	0.0833	0.1250	87225	430038	31.14	28.31	21.31	19.21	2.83	9.83	11.93
45	0.0500	0.2000	0.2000	84616	413758	27.02	24.10	17.31	15.36	2.92	9.71	11.66
50	0.0000	0.0000	0.0668	80682	390377	23.21	20.40	14.05	12.01	2.81	9.16	11.20
55	0.0000	0.1427	0.1427	75164	357880	19.72	16.71	9.89	8.04	3.01	9.83	11.68
60	0.0000	0.7999	1.0000	67643	315496	16.62	13.27	6.45	4.40	3.35	10.17	12.22
65	0.3337	0.3337	0.3337	58272	264512	13.88	9.99	6.41	5.11	3.89	7.47	8.78
70	0.2775	0.7595	1.0000	47540	210334	11.45	8.54	4.15	2.55	2.91	7.31	8.90
75	*	*	*	36126	148771	9.25	(a)7.04	(a)4.06	(a)3.36	(a)2.21	(a)5.19	(a)5.89
80	*	*	*	24006	99506	7.72	(a)5.13	(a)2.70	(a)2.13	(a)2.59	(a)5.02	(a)5.59
85	*	*	*	16117	80777	5.33	(a)3.09	(a)1.50	(a)1.20	(a)2.24	(a)3.83	(a)4.13
95	*	*	*	1888	5065	2.68	(a)0.19	(a)0.00	(a)0.00	(a)2.49	(a)2.68	(a)2.68

(a) Sampled population did not include any men in these age groups. Prevalence rates in these age groups assumed to be the same as those for all Australian males in corresponding age groups (Table E.31).

Table E.28: Female health expectancies, Northern Territory, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0000	0.0000	100000	488333	71.20	66.70	62.13	56.53	4.50	9.08	14.67
5	0.0439	0.0439	0.0439	97378	485900	68.11	63.49	58.78	53.04	4.62	9.32	15.07
10	0.0263	0.0527	0.0527	96970	484165	63.38	58.96	54.24	48.47	4.42	9.14	14.91
15	0.0000	0.0640	0.1489	96674	481783	58.57	54.27	49.66	43.88	4.30	8.91	14.69
20	0.0000	0.0442	0.1017	95914	476648	54.01	49.67	45.35	39.95	4.34	8.66	14.06
25	0.0294	0.0588	0.0588	94796	472261	49.62	45.23	41.08	35.90	4.39	8.54	13.71
30	0.0271	0.1081	0.1352	94115	467789	44.96	40.69	36.66	31.44	4.27	8.30	13.52
35	0.0323	0.0323	0.0323	92894	461070	40.51	36.32	32.65	27.50	4.19	7.87	13.02
40	0.0769	0.1154	0.1154	91582	454721	36.06	31.97	28.24	23.02	4.09	7.82	13.04
45	0.0714	0.1428	0.1428	90201	445525	31.57	27.81	24.22	18.91	3.76	7.35	12.66
50	0.0000	0.0909	0.2726	87864	432026	27.34	23.84	20.52	15.07	3.50	6.83	12.27
55	0.0000	0.0000	0.2500	84744	410221	23.25	19.62	16.64	11.92	3.63	6.61	11.33
60	0.1667	0.4998	0.4998	78761	373987	19.81	15.90	12.69	8.92	3.91	7.12	10.89
65	0.0000	0.0000	0.0000	70701	330264	16.78	13.30	11.49	7.29	3.47	5.28	9.49
70	0.0000	0.0000	1.0000	61030	277314	14.02	10.00	7.90	3.03	4.02	6.12	10.99
75	*	*	*	49874	222243	11.60	(a)6.68	(a)4.11	(a)3.71	(a)4.92	(a)7.49	(a)7.89
80	*	*	*	39073	168081	9.12	(a)4.14	(a)2.34	(a)2.12	(a)4.97	(a)6.78	(a)7.00
85	*	*	*	28359	171158	6.63	(a)1.95	(a)1.02	(a)0.97	(a)4.68	(a)5.61	(a)5.67
95	*	*	*	5659	16986	3.00	(a)0.14	(a)0.03	(a)0.03	(a)2.87	(a)2.97	(a)2.97

(a) Sampled population did not include any women in these age groups. Prevalence rates in these age groups assumed to be the same as those for all Australian females in corresponding age groups (Table E.32).

Table E.29: Male health expectancies, Australian Capital Territory, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0290	0.0290	100000	495258	74.36	70.98	65.39	61.61	3.38	8.96	12.75
5	0.0579	0.1015	0.1159	98842	494029	70.22	66.80	61.30	57.47	3.42	8.92	12.75
10	0.0000	0.0000	0.0461	98752	493586	65.28	62.15	56.86	53.09	3.13	8.42	12.19
15	0.0000	0.0272	0.0407	98664	492286	60.34	57.20	51.90	48.37	3.14	8.43	11.97
20	0.0000	0.0472	0.0638	98162	489123	55.63	52.48	47.29	43.81	3.15	8.34	11.82
25	0.0113	0.0568	0.0795	97527	486495	50.98	47.80	42.82	39.40	3.17	8.16	11.58
30	0.0000	0.0685	0.0822	97081	484196	46.20	43.07	38.29	34.96	3.13	7.91	11.23
35	0.0282	0.0986	0.1267	96563	481078	41.43	38.29	33.82	30.55	3.15	7.61	10.88
40	0.0176	0.0877	0.1228	95856	477498	36.72	33.69	29.55	26.39	3.03	7.17	10.33
45	0.0555	0.1944	0.2222	95135	473225	31.98	29.02	25.19	22.19	2.96	6.78	9.79
50	0.0286	0.0571	0.1428	94020	465564	27.32	24.61	21.44	18.54	2.72	5.89	8.79
55	0.0356	0.1071	0.1071	92123	453694	22.83	20.20	17.12	14.59	2.63	5.72	8.25
60	0.0583	0.2376	0.4170	88939	429769	18.55	16.01	13.17	10.55	2.54	5.38	7.99
65	0.1730	0.2482	0.3986	82379	388288	14.81	12.37	10.24	8.35	2.44	4.57	6.46
70	0.0910	0.1819	0.3638	72392	327900	11.49	9.64	7.63	6.28	1.85	3.86	5.21
75	0.0309	0.3755	0.4788	57915	245519	8.70	6.90	4.90	4.25	1.80	3.80	4.45
80	0.3477	0.3477	0.3938	40215	156290	6.42	4.02	3.24	2.94	2.40	3.18	3.49
85	0.3833	0.7048	0.7577	22214	96434	4.59	2.70	1.28	1.05	1.90	3.31	3.54
95	*	*	*	2078	5576	2.68	(a)0.19	(a)0.00	(a)0.00	(a)2.49	(a)2.68	(a)2.68

(a) Sampled population did not include any men aged 95+. Prevalence rates in this age group assumed to be the same as those for all Australian males aged 95+ (Table E.31).

Table E.30: Female health expectancies, Australian Capital Territory, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0656	0.0656	100000	496155	80.31	73.39	65.44	62.26	6.92	14.87	18.04
5	0.0384	0.0384	0.0384	99144	495532	76.00	69.02	61.33	58.12	6.98	14.67	17.87
10	0.0000	0.0351	0.0526	99051	494854	71.07	64.27	56.57	53.37	6.79	14.49	17.70
15	0.0000	0.0289	0.0578	98885	494034	66.18	59.38	51.84	48.72	6.80	14.34	17.46
20	0.0131	0.0261	0.0392	98727	493235	61.28	54.47	47.06	44.08	6.81	14.22	17.20
25	0.0136	0.0540	0.0676	98571	492493	56.38	49.62	42.27	39.34	6.76	14.11	17.03
30	0.0000	0.0666	0.1200	98425	491719	51.45	44.75	37.59	34.73	6.70	13.86	16.72
35	0.0267	0.0800	0.1067	98254	490517	46.54	39.83	32.99	30.39	6.71	13.55	16.15
40	0.0000	0.0834	0.1042	97895	487811	41.70	35.10	28.50	26.03	6.60	13.20	15.67
45	0.0810	0.0810	0.1352	97199	484039	36.98	30.33	24.10	21.72	6.65	12.88	15.26
50	0.0000	0.0588	0.0588	96394	479467	32.27	25.97	19.69	17.56	6.30	12.58	14.71
55	0.0371	0.1111	0.1482	95313	471894	27.60	21.23	15.18	13.02	6.37	12.42	14.58
60	0.1423	0.4512	0.5540	93271	459882	23.15	16.82	11.01	9.00	6.32	12.13	14.15
65	0.0732	0.2027	0.3238	90498	439705	18.78	12.98	8.56	7.01	5.79	10.21	11.77
70	0.1969	0.4751	0.6326	84674	399445	14.87	9.06	5.01	3.98	5.81	9.86	10.90
75	0.2149	0.5963	0.6702	74316	335566	11.57	6.01	2.89	2.56	5.56	8.68	9.02
80	0.6417	0.9630	0.9630	59439	256615	8.82	3.08	1.33	1.33	5.74	7.49	7.49
85	0.6272	0.7146	0.7146	43083	244275	6.22	2.11	1.62	1.62	4.10	4.60	4.60
95	1.0000	1.0000	1.0000	7831	23505	3.00	0.00	0.00	0.00	3.00	3.00	3.00

Table E.31: Male health expectancies, Australia, 1988

Age	Prevalence rates			Life table		Health expectancy (years)						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0396	0.0396	100000	494809	73.08	69.90	61.01	58.39	3.18	12.07	14.69
5	0.0263	0.0635	0.0749	98845	493918	68.92	65.71	56.91	54.26	3.21	12.01	14.66
10	0.0257	0.0798	0.0941	98732	493367	64.00	60.91	52.29	49.70	3.09	11.71	14.30
15	0.0103	0.0447	0.0579	98581	491751	59.09	56.13	47.77	45.24	2.96	11.33	13.85
20	0.0105	0.0515	0.0732	98044	488259	54.40	51.47	43.24	40.76	2.93	11.16	13.64
25	0.0150	0.0645	0.0852	97258	484470	49.82	46.92	38.83	36.44	2.90	11.00	13.38
30	0.0137	0.0671	0.0871	96544	481041	45.17	42.33	34.42	32.12	2.84	10.75	13.05
35	0.0178	0.0797	0.1029	95878	477615	40.47	37.67	29.98	27.76	2.80	10.49	12.71
40	0.0250	0.1107	0.1426	95148	473298	35.76	33.03	25.59	23.47	2.73	10.17	12.29
45	0.0294	0.1237	0.1521	94096	466729	31.13	28.50	21.40	19.42	2.63	9.73	11.71
50	0.0341	0.1658	0.2040	92480	456292	26.63	24.10	17.35	15.48	2.53	9.27	11.15
55	0.0450	0.2449	0.2893	89817	438891	22.33	19.90	13.63	11.90	2.43	8.71	10.44
60	0.0604	0.3763	0.4353	85378	410345	18.36	16.03	10.46	8.86	2.33	7.90	9.50
65	0.0860	0.3538	0.4729	78303	367531	14.77	12.55	8.13	6.70	2.22	6.64	8.07
70	0.1066	0.4037	0.5081	68162	307753	11.58	9.49	5.86	4.86	2.09	5.72	6.72
75	0.1185	0.4506	0.5300	54347	230763	8.86	6.85	3.97	3.30	2.01	4.89	5.56
80	0.2644	0.5902	0.6781	37690	146690	6.65	4.48	2.36	1.89	2.18	4.29	4.77
85	0.3852	0.7067	0.7564	21381	98205	4.87	2.84	1.35	1.12	2.02	3.52	3.75
95	0.9286	1.0000	1.0000	2185	5864	2.68	0.19	0.00	0.00	2.49	2.68	2.68

Table E.32: Female health expectancies, Australia, 1988

Age	*Prevalence rates*			*Life table*		*Health expectancy (years)*						
x_i	s_i	h_i	d_i	l_i	L_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
0	0.0000	0.0265	0.0265	100000	495897	79.45	73.43	65.47	63.44	6.02	13.98	16.01
5	0.0247	0.0483	0.0574	99078	495172	75.18	69.11	61.20	59.16	6.08	13.98	16.03
10	0.0133	0.0527	0.0685	98989	494770	70.25	64.29	56.50	54.49	5.96	13.75	15.76
15	0.0091	0.0383	0.0531	98908	494096	65.30	59.41	51.81	49.88	5.90	13.50	15.43
20	0.0138	0.0468	0.0638	98708	492887	60.43	54.57	47.10	45.24	5.86	13.33	15.19
25	0.0186	0.0595	0.0738	98450	491651	55.58	49.77	42.45	40.67	5.81	13.14	14.91
30	0.0170	0.0607	0.0746	98209	490358	50.71	44.98	37.84	36.14	5.73	12.87	14.58
35	0.0244	0.0833	0.1026	97921	488663	45.86	40.19	33.25	31.61	5.66	12.60	14.25
40	0.0327	0.1090	0.1283	97521	486169	41.03	35.47	28.79	27.24	5.56	12.24	13.79
45	0.0309	0.1273	0.1476	96894	482101	36.28	30.84	24.51	23.04	5.44	11.77	13.24
50	0.0483	0.1752	0.1988	95876	475676	31.64	26.30	20.38	19.00	5.34	11.25	12.64
55	0.0528	0.1922	0.2201	94271	465429	27.13	21.94	16.57	15.28	5.19	10.56	11.85
60	0.0636	0.2440	0.2789	91723	449481	22.81	17.75	12.93	11.75	5.06	9.88	11.06
65	0.0899	0.2860	0.3593	87808	425217	18.71	13.75	9.64	8.58	4.96	9.07	10.13
70	0.1434	0.3824	0.4593	81881	388230	14.87	10.01	6.63	5.88	4.85	8.24	8.99
75	0.2290	0.4894	0.5407	72790	331934	11.39	6.70	4.16	3.73	4.70	7.23	7.67
80	0.3680	0.6250	0.6689	59166	251743	8.41	3.91	2.25	2.01	4.49	6.15	6.40
85	0.6816	0.8280	0.8432	41048	224348	5.98	1.76	0.94	0.86	4.22	5.04	5.12
95	0.9542	0.9907	0.9907	7065	21205	3.00	0.14	0.03	0.03	2.86	2.97	2.97

Table E.33: Standard errors of health expectancies, Australian States, 1981

Age	Standard error (years) - Males							Standard error (years) - Females						
x_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
New South Wales														
0	0.02	0.13	0.16	0.17	0.03	0.06	0.08	0.02	0.15	0.17	0.18	0.06	0.08	0.10
20	0.02	0.13	0.16	0.16	0.03	0.06	0.09	0.02	0.15	0.17	0.18	0.06	0.08	0.10
40	0.02	0.13	0.15	0.15	0.03	0.06	0.09	0.02	0.15	0.16	0.17	0.06	0.09	0.10
60	0.02	0.13	0.14	0.13	0.03	0.07	0.09	0.02	0.14	0.14	0.14	0.07	0.09	0.10
80	0.03	0.19	0.15	0.13	0.08	0.14	0.17	0.02	0.13	0.11	0.11	0.10	0.12	0.12
Victoria														
0	0.02	0.14	0.18	0.19	0.03	0.07	0.10	0.02	0.16	0.19	0.21	0.07	0.09	0.11
20	0.02	0.13	0.18	0.19	0.03	0.07	0.10	0.02	0.16	0.19	0.20	0.07	0.10	0.11
40	0.02	0.13	0.17	0.17	0.03	0.07	0.11	0.02	0.16	0.18	0.19	0.08	0.10	0.11
60	0.02	0.13	0.16	0.14	0.03	0.08	0.11	0.02	0.15	0.16	0.15	0.08	0.10	0.12
80	0.03	0.19	0.18	0.15	0.08	0.15	0.19	0.02	0.14	0.11	0.10	0.13	0.14	0.15
Queensland														
0	0.03	0.16	0.20	0.21	0.04	0.08	0.12	0.03	0.19	0.23	0.23	0.09	0.12	0.15
20	0.03	0.16	0.20	0.20	0.04	0.09	0.13	0.03	0.19	0.23	0.23	0.09	0.13	0.15
40	0.03	0.16	0.19	0.19	0.04	0.09	0.13	0.03	0.19	0.21	0.21	0.09	0.13	0.15
60	0.03	0.16	0.17	0.15	0.05	0.10	0.14	0.03	0.18	0.19	0.17	0.10	0.13	0.16
80	0.04	0.22	0.20	0.16	0.10	0.16	0.19	0.03	0.16	0.14	0.11	0.15	0.17	0.18
South Australia														
0	0.04	0.17	0.22	0.24	0.05	0.09	0.12	0.04	0.19	0.23	0.24	0.10	0.13	0.15
20	0.04	0.17	0.21	0.23	0.05	0.09	0.12	0.04	0.19	0.22	0.24	0.10	0.13	0.15
40	0.04	0.16	0.21	0.21	0.06	0.09	0.12	0.03	0.19	0.21	0.22	0.10	0.13	0.15
60	0.03	0.16	0.19	0.17	0.06	0.10	0.13	0.03	0.18	0.18	0.18	0.11	0.14	0.15
80	0.05	0.22	0.19	0.15	0.15	0.19	0.23	0.03	0.16	0.11	0.11	0.16	0.19	0.19

Table E.33: Standard errors of health expectancies, Australian States, 1981 *(continued)*

Age	Standard error (years) - Males							Standard error (years) - Females						
x_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
Western Australia														
0	0.04	0.19	0.24	0.24	0.05	0.11	0.15	0.04	0.22	0.25	0.26	0.13	0.18	0.20
20	0.04	0.19	0.23	0.23	0.05	0.11	0.15	0.04	0.22	0.25	0.25	0.13	0.18	0.20
40	0.04	0.19	0.23	0.22	0.05	0.12	0.16	0.04	0.22	0.24	0.23	0.14	0.18	0.21
60	0.04	0.20	0.21	0.18	0.06	0.13	0.17	0.04	0.21	0.20	0.18	0.14	0.19	0.21
80	0.06	0.27	0.24	0.22	0.12	0.17	0.21	0.04	0.17	0.11	0.09	0.21	0.25	0.25
Tasmania														
0	0.08	0.24	0.28	0.29	0.06	0.12	0.16	0.07	0.27	0.33	0.33	0.12	0.16	0.21
20	0.07	0.24	0.27	0.28	0.06	0.13	0.17	0.07	0.27	0.32	0.33	0.12	0.16	0.21
40	0.06	0.24	0.27	0.26	0.06	0.13	0.17	0.06	0.27	0.31	0.30	0.12	0.16	0.21
60	0.06	0.24	0.24	0.22	0.07	0.15	0.19	0.06	0.27	0.28	0.25	0.13	0.18	0.23
80	0.09	0.30	0.20	0.17	0.17	0.28	0.30	0.06	0.24	0.21	0.15	0.19	0.22	0.26
Australia														
0	0.01	0.07	0.09	0.09	0.02	0.03	0.05	0.01	0.08	0.10	0.10	0.04	0.05	0.06
20	0.01	0.07	0.09	0.09	0.02	0.04	0.05	0.01	0.08	0.09	0.10	0.04	0.05	0.06
40	0.01	0.07	0.08	0.08	0.02	0.04	0.05	0.01	0.08	0.09	0.09	0.04	0.05	0.06
60	0.01	0.07	0.08	0.07	0.02	0.04	0.06	0.01	0.07	0.08	0.07	0.04	0.05	0.06
80	0.02	0.10	0.09	0.07	0.04	0.08	0.09	0.01	0.07	0.06	0.05	0.06	0.07	0.07

Note: Standard errors calculated from abridged life tables are shown for selected ages.

Table E.34: Standard errors of health expectancies Australian States, 1988

Age	Standard error (years) - Males							Standard error (years) - Females						
x_i	LE	SHFLE	HFLE	DFLE	SHLE	HLE	DLE	LE	SHFLE	HFLE	DFLE	SHLE	HLE	DLE
New South Wales														
0	0.02	0.15	0.20	0.20	0.04	0.10	0.12	0.02	0.17	0.21	0.21	0.08	0.11	0.13
20	0.02	0.14	0.19	0.18	0.04	0.10	0.12	0.02	0.16	0.20	0.20	0.08	0.12	0.13
40	0.02	0.14	0.17	0.17	0.04	0.10	0.12	0.02	0.16	0.19	0.18	0.08	0.12	0.13
60	0.02	0.14	0.14	0.12	0.04	0.11	0.13	0.01	0.15	0.15	0.14	0.08	0.12	0.14
80	0.02	0.20	0.13	0.10	0.10	0.18	0.19	0.01	0.12	0.08	0.06	0.13	0.15	0.16
Victoria														
0	0.03	0.19	0.23	0.23	0.05	0.14	0.15	0.02	0.21	0.24	0.24	0.10	0.15	0.16
20	0.03	0.18	0.22	0.21	0.05	0.14	0.16	0.02	0.20	0.23	0.23	0.10	0.15	0.16
40	0.03	0.18	0.20	0.19	0.06	0.14	0.16	0.02	0.20	0.22	0.21	0.10	0.16	0.16
60	0.03	0.17	0.16	0.14	0.06	0.15	0.17	0.02	0.18	0.17	0.16	0.11	0.16	0.17
80	0.02	0.21	0.10	0.07	0.13	0.22	0.23	0.02	0.14	0.07	0.07	0.15	0.18	0.18
Queensland														
0	0.03	0.19	0.25	0.24	0.04	0.13	0.16	0.03	0.21	0.26	0.27	0.12	0.17	0.18
20	0.03	0.19	0.24	0.23	0.04	0.14	0.16	0.03	0.21	0.26	0.26	0.12	0.17	0.18
40	0.03	0.19	0.23	0.21	0.04	0.14	0.17	0.02	0.20	0.24	0.24	0.12	0.17	0.18
60	0.02	0.18	0.19	0.16	0.05	0.15	0.18	0.02	0.20	0.20	0.19	0.13	0.18	0.19
80	0.03	0.25	0.17	0.12	0.10	0.22	0.25	0.02	0.17	0.12	0.11	0.19	0.22	0.22
South Australia														
0	0.04	0.20	0.27	0.27	0.06	0.14	0.16	0.04	0.22	0.28	0.28	0.13	0.17	0.18
20	0.03	0.20	0.26	0.26	0.06	0.14	0.16	0.03	0.21	0.26	0.27	0.13	0.17	0.18
40	0.03	0.20	0.25	0.24	0.06	0.15	0.17	0.03	0.21	0.25	0.25	0.13	0.17	0.18
60	0.03	0.19	0.20	0.18	0.07	0.16	0.17	0.03	0.19	0.19	0.19	0.14	0.18	0.19
80	0.03	0.26	0.17	0.15	0.15	0.25	0.26	0.03	0.15	0.06	0.06	0.20	0.22	0.21
Western Australia														
0	0.04	0.21	0.28	0.27	0.07	0.16	0.19	0.04	0.24	0.30	0.30	0.15	0.19	0.21
20	0.04	0.20	0.27	0.26	0.07	0.16	0.19	0.03	0.24	0.29	0.29	0.15	0.19	0.21
40	0.03	0.20	0.25	0.24	0.08	0.16	0.20	0.03	0.23	0.28	0.27	0.16	0.19	0.22
60	0.03	0.21	0.21	0.17	0.08	0.17	0.21	0.03	0.23	0.22	0.20	0.17	0.20	0.22
80	0.04	0.26	0.07	0.04	0.18	0.24	0.23	0.03	0.15	0.07	0.06	0.24	0.23	0.23

Table E.34: Standard errors of health expectancies, Australian States, 1988 *(continued)*

Age	Standard error (years) - Males							Standard error (years) - Female						
x_i	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*	*LE*	*SHFLE*	*HFLE*	*DFLE*	*SHLE*	*HLE*	*DLE*
Tasmania														
0	0.07	0.29	0.38	0.38	0.06	0.21	0.24	0.09	0.34	0.39	0.40	0.17	0.26	0.27
20	0.06	0.29	0.37	0.36	0.06	0.21	0.24	0.09	0.34	0.37	0.37	0.17	0.26	0.28
40	0.06	0.28	0.35	0.33	0.06	0.22	0.25	0.09	0.33	0.34	0.34	0.18	0.27	0.28
60	0.06	0.27	0.27	0.24	0.07	0.23	0.27	0.09	0.30	0.25	0.24	0.19	0.28	0.29
80	0.08	0.36	0.26	0.24	0.13	0.27	0.30	0.05	0.23	0.11	0.07	0.29	0.32	0.31
Northern Territory														
0	0.17	0.98	0.87	0.82	0.41	0.85	0.77	0.20	1.54	2.35	2.00	0.90	1.14	1.19
20	0.16	1.02	0.87	0.82	0.43	0.89	0.82	0.19	1.59	2.44	2.07	0.94	1.19	1.24
40	0.16	1.09	0.89	0.81	0.47	0.97	0.89	0.20	1.65	2.53	2.14	0.99	1.25	1.30
60	0.19	1.33	0.92	0.80	0.61	1.24	1.13	0.21	1.82	2.81	2.33	1.15	1.45	1.48
80	0.31	2.64	1.41	1.05	1.44	2.61	2.73	0.24	1.89	1.02	0.89	2.26	2.60	2.63
Australian Capital Territory														
0	0.11	0.98	0.73	0.70	0.14	0.26	0.39	0.11	0.66	0.63	0.61	0.52	0.60	0.66
20	0.11	0.99	0.72	0.69	0.15	0.26	0.40	0.10	0.66	0.62	0.59	0.52	0.60	0.66
40	0.11	1.01	0.71	0.67	0.15	0.27	0.41	0.10	0.66	0.60	0.56	0.53	0.61	0.67
60	0.11	1.06	0.68	0.61	0.16	0.28	0.43	0.10	0.64	0.52	0.45	0.55	0.64	0.70
80	0.16	2.12	0.73	0.62	0.31	0.31	0.36	0.11	0.50	0.28	0.28	0.84	0.73	0.73
Australia														
0	0.01	0.09	0.12	0.12	0.02	0.06	0.07	0.01	0.10	0.13	0.12	0.05	0.07	0.08
20	0.01	0.09	0.11	0.11	0.02	0.06	0.07	0.01	0.10	0.12	0.12	0.05	0.07	0.08
40	0.01	0.09	0.10	0.10	0.02	0.06	0.07	0.01	0.10	0.11	0.11	0.05	0.07	0.08
60	0.01	0.08	0.08	0.07	0.03	0.07	0.08	0.01	0.09	0.09	0.08	0.05	0.08	0.08
80	0.01	0.11	0.06	0.04	0.05	0.10	0.11	0.01	0.07	0.04	0.03	0.08	0.09	0.09

Note: Standard errors calculated from abridged life tables are shown for selected ages.

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Other related publications

Lee SH, Smith LR, d'Espaignet E and Thomson N (1987) *Health differentials for working age Australians.* AIH, Canberra.

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