Disability prevalence and trends

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Abbreviations

AAMR	American Association on Mental Retardation
ABI	Acquired brain injury
ABS	Australian Bureau of Statistics
ADHD	Attention deficit hyperactivity disorder
ADL	Activities of daily living, also Activities of Daily Living (scale)
AIHW	Australian Institute of Health and Welfare
AMD	Age-related maculopathy
ARBI	Alcohol-related brain injury
BDQ	Brief disability questionnaire
CSDA	Commonwealth/State-Territory Disability Agreement
DSM	The Diagnostic and Statistical Manual of Mental Disorders
DSP	Disability Support Pension
IADL	Instrumental Activities of Daily Living (scale)
ICD	International Classification of Diseases and Related Health Problems
ICF	International Classification of Functioning, Disability and Health
ICIDH	International Classification of Impairments, Disabilities and Handicaps
ICO	International Council of Ophthalmologists
IQ	Intellectual quotient (tests)
nes	Not elsewhere specified
nfd	Not further defined
NHPC	National Health Performance Committee
OECD	Organisation for Economic Co-operation and Development
RSE	Relative standard error
SF-12	12-item Short form scale
SMHWB	Survey of Mental Health and Wellbeing
TBI	Traumatic brain injury
WHO	World Health Organization

Glossary

Anxiety disorder	A group of mental disorders marked by excessive feelings of apprehension, worry, nervousness and stress.
Asthma	A chronic, inflammatory disease of the lung's air passages that causes widespread narrowing of the passages, obstruction to airflow, episodes of shortness of breath and chest tightness.
Autism	A pervasive developmental disorder involving disturbances in cognition, interpersonal communication, social interactions and behaviours (in particular obsessional, ritualistic, stereotyped and rigid behaviours).
Attention deficit hyperactivity disorder (ADHD)	A common childhood mental disorder showing markedly low attention and very high levels of activity. It is one of the most common forms of learning problems.
Age-related maculopathy (AMD)	The most common cause of blindness in the elderly, involving changes to the macula, the part of the eye responsible for clear, sharp vision.
Aphasia (speech)	A language disorder that results from damage to one or more of the language areas of the brain, impairing the generation and understanding of language.
Apraxia (of speech)	Apraxia (also referred to as apraxia of speech, verbal apraxia, or dyspraxia) is a speech disorder arising from damage to the relevant area of the brain's cortex involved in skilled movement. It may be developmental, or acquired from stroke, head injury, brain tumours or infections.
Bipolar disorder	A mental disorder where the person may experience depression at one time and mania at another. Formerly known as manic depression.
Cared accommodation	Hospitals, homes for the aged such as nursing homes and aged care hostels, cared components of retirement villages, and other 'homes' such as children's homes.
Cataract	A cloudiness or opacity of the lens of the eye which may cause vision problems. Cataracts are typically associated with ageing but may occur at birth.
Cerebral palsy	A non-progressive movement disorder, resulting from an injury to the immature brain in a foetus or infant.
Conduct disorder	A repetitive and persistent pattern of aggressive or otherwise antisocial behaviour, usually recognised in childhood or adolescence.

Delusion	A fixed, false, irrationally held belief that cannot be altered by rational argument. Often found in serious mental disorders such as schizophrenia. Common delusions in mental illness include beliefs that one is being persecuted or controlled by others, is very powerful or is a victim of a physical disease.
Dementia	A general and worsening loss of brain power such as memory, understanding and reasoning. Main types of dementia include Alzheimer's disease, Pick's disease, Huntington's disease and Parkinson's disease.
Depression	A common mental disorder marked by persistent sadness, loss of interest or pleasure in activities, and by decreased energy. Often involves suicidal thoughts or self-blame. It is differentiated from normal mood changes by the extent of its severity, the symptoms and the duration of the disorder.
Diabetic retinopathy	A complication of diabetes, caused by changes in the blood vessels of the retina and leading to partial or complete blindness.
Dysarthria	A speech disorder due to a weakness or incoordination of the speech muscles (but not to language problems). Dysarthria may be developmental, acquired, or a symptom of conditions such as cerebral palsy and muscular dystrophy.
Epilepsy	A tendency to have recurrent seizures (fits) indicating a disorder that arises in the brain or affects it secondarily, through a wide range of causes.
Glaucoma	An eye condition in which vision is impaired by raised pressure within the eye, resulting in damage to the optic nerve.
Hypertension	Long-term high blood pressure, which may damage the heart, brain or kidneys.
Mania	A mental disorder where the person is overexcited, overactive, and excessively and unrealistically happy and expansive, that is, the opposite of depression.
Ménière's disease	A disorder of the inner ear, involving episodes of vertigo, hearing loss and tinnitus, often with nausea and vomiting.
Migraine	A recurrent throbbing headache that typically affects one side of the head, often accompanied by nausea, vomiting and other symptoms. It is a condition resulting from spasm and subsequent overdilatation of certain arteries in the brain.
Mood disorders	Disorders in which the fundamental disturbance is a change in affect or mood to depression (with or without associated anxiety) or to elation. The mood change is usually accompanied by a change in the overall level of activity. Also known as 'affective disorders'.

Osteoporosis	Reduction in bone tissue caused by the loss of calcium from the bones, making them thinner and weaker, and thus more prone to fractures.
Otitis media	An inflammation of the middle ear usually from infection and resulting in temporary hearing loss, particularly in children.
Otosclerosis	A cause of deafness in adults affecting certain bones in the ear so they cannot conduct sound normally.
Parkinson's disease	A brain disease characterised by hand tremors, rigid limbs, difficulty in starting and stopping movements, and often mental effects.
Personality disorders	Long-term abnormal patterns of behaviour indicating personality problems, usually apparent by adolescence. They are not usually considered to represent major mental disorders but can be very maladaptive, causing problems or suffering for the person or those around them.
Refractive error	Inability of images to focus properly on the retina of the eye due to problems in how the eye bends light rays as they enter it.
Schizophrenia	A severe disorder typically beginning in late adolescence or early adulthood. It is characterised by profound disruptions in thinking, affecting language, perception, mood, behaviour, motivation and sense of self. It often includes psychotic experiences such as hearing voices or delusions.
Stroke	When an artery supplying blood to the brain suddenly becomes blocked or bleeds, often causing paralysis of parts of the body or speech problems.
Tinnitus	A continual noise in the ears or head, such as ringing, buzzing or clicking.

Summary

This report provides Australian prevalence estimates of five main disability groups: intellectual, psychiatric, sensory/speech, acquired brain injury and physical/diverse. The groups are explained and defined in terms of Australian and international definitions of disability, and of available Australian data. The report updates and expands on three previous reports (on intellectual disability, physical disability and acquired brain injury) to provide a complete picture in terms of the five groups.

The report also reviews recent trends (1981 to 1998) in the prevalence of disability and chronic conditions, and analyses changes in population patterns of disability prevalence in Australia.

Definition and classification of disability

The International Classification of Functioning, Disability and Health (ICF) (WHO 2001a) was endorsed by the World Health Assembly in May 2001 for international use to conceptualise and classify disability. In ICF, 'disability' is an umbrella term for any or all of the components: impairment, activity limitation and participation restriction, as influenced by environmental factors. Impairments are 'problems in body function or structure such as significant deviation or loss'. Activity limitations are 'difficulties an individual may have in executing activities'. Participation restrictions are 'problems an individual may experience in involvement in life situations' (WHO 2001a: 7–10). Environmental factors 'make up the physical, social and attitudinal environment in which people live and conduct their lives' (WHO 2001a: 16–17).

All the ICF components are distinct but interrelated. On the one hand, an individual's negative experience relating to any one domain of a component may be considered to constitute disability. On the other hand, the experience of disability is often complex and multidimensional. A person's functioning or disability is considered as a dynamic interaction between the health condition and environmental and personal factors (WHO 2001a: 18–19).

Disability does not include situations that are not health-related, such as participation restrictions due to socioeconomic factors. This therefore distinguishes disability from disadvantage or exclusion unrelated to health.

Disability group

In Australia, disabilities are often classified into disability groups that provide a broad categorisation of disabilities based not only on underlying health conditions and impairments but also on activity limitations and participation restrictions. These groups are generally recognised in the disability field and in legislative and administrative contexts in Australia.

This report draws on the Australian *National Community Services Data Dictionary, version 3*, the frameworks of the ICF and *International Statistical Classification of Diseases and Related*

Health Problems, 10th revision to define and classify disability (Chapter 2). The report uses four approaches to provide estimates that may suit different purposes. Prevalence estimates vary with the scope of information and severity of disabilities under consideration, and the purpose to which the estimates may be put (boxes S1 and S2).

Box S1: Approaches to the prevalence estimates of disability groups in Australia

The four approaches used to obtain the estimates in Table S1 provide a spectrum of estimates that may suit different purposes. For instance, estimates based on only the main disabling condition or all disabling conditions may be useful for epidemiological studies and studies on morbidity and disability. Estimates based on information combining disabling conditions and certain levels/severities of activity limitation or participation restriction may be used as broad summary measures in planning generic services or disability-specific support services for people with a disability.

All the estimates start with the base 'disability' population defined by the Australian Bureau of Statistics 1998 Survey of Disability, Ageing and Carers (Box 2.1). The four approaches differ in terms of their use of the survey information about impairment, main disabling condition, all disabling conditions, activity limitations and participation restrictions, as well as need for assistance with core activities (Box S2; Table 2.2).

The first three approaches range from very broad to quite specific, corresponding to an increasingly restrictive definition of the group according to severity, need for assistance or activity limitation.

The estimates based on all disabling conditions are the most inclusive of the four types of estimation. These estimates include all reported disabling conditions, whether or not these were main disabling conditions. Disability experience of people with multiple disabling conditions may be classified into more than one different disability group. The prevalence estimates of different disability groups are not mutually exclusive; that is, one person may be included in more than one group.

The approach using data on all disabling conditions and activity limitations and participation restrictions relies on multidimensional survey information. The disability groups from the previous approach are now narrowed down by applying a 'filter' — only people who have reported activity limitations or participation restrictions in one or more activities of daily or social life are retained in the group.

The approach using data on all disabling conditions and a severe or profound core activity restriction is similar to the previous approach except that a more exclusive 'filter' is used to select only people who reported a severe or profound restriction.

Estimates based on reported main disabling condition relate to conditions that were identified by the survey respondents as causing the most problems, compared with any other disabling conditions they may also have had. Using this method, the estimates of different disability groups are mutually exclusive and the numbers in each disability group total the number of people with a disability defined by the 1998 disability survey. As people may experience more than one type of impairment or disabling condition, the prevalence of a particular disability group will be underestimated if main disabling conditions only are considered.

Table S1 also provides estimates using data on main disabling conditions plus a severe or profound core activity restriction.

Prevalence estimates of disability groups in Australia

The main data source used for the estimates is the Australian Bureau of Statistics (ABS) 1998 Survey of Disability, Ageing and Carers, key terms of which are set on in Box S2. The main estimates are summarised in Table S1.

Physical/diverse disabilities were the most commonly reported disabilities. Considering all reported disabling conditions, around 3,028,500 (16.2%) of Australians of all ages reported one or more physical/diverse disabilities in 1998. Of these, 2,853,400 (15.3% of the total population) also reported one or more activity limitations or participation restrictions and, using the most narrow scope, 975,400 (5.2%) had a severe or profound core activity restriction (Table S1; Chapter 7).

Box S2: ABS 1998 Survey of Disability, Ageing and Carers: activity restrictions and their severity

***Specific restrictions** are:*

- *Core activity restrictions*
- *Schooling or employment restrictions.*

***Core activities** are:*

- *Self-care – bathing or showering, dressing, eating, using the toilet and managing incontinence*
- *Mobility – moving around at home and away from home, getting into or out of a bed or chair, and using public transport*
- *Communication – understanding and being understood by others: strangers, family and friends.*

*A **core activity restriction** may be:*

- *Profound – unable to perform a core activity or always needing assistance*
- *Severe – sometimes needing assistance to perform a core activity*
- *Moderate – not needing assistance, but having difficulty performing a core activity*
- *Mild – having no difficulty performing a core activity but using aids or equipment because of disability.*

Source: ABS 1999a.

One or more intellectual disabilities were reported by an estimated 503,000 people, or 2.7% of Australians of all ages, based on consideration of all reported conditions. Of these, 496,500 people (2.7% of the total Australians) also reported one or more activity limitations or participation restrictions, and of them 301,900 (1.6% of the total population) had a severe or profound core activity restriction (Chapter 3).

Again, focusing on estimates based on 'all disabling conditions':

- psychiatric disability was reported by 768,900 people (4.1%), of whom 757,100 (4.1%) had activity limitations or participation restrictions, and 398,300 (2.1%) had a severe or profound core activity restriction (Chapter 4)
- sensory/speech disability was reported by 1,404,600 people (7.5%), of whom 1,286,900 (6.9%) had activity limitations or participation restrictions, and 524,200 (2.8%) had a severe or profound core activity restriction (Chapter 5)
- disabilities associated with an acquired brain injury were reported by 211,100 people (1.1%), of whom 201,600 (1.1%) had activity limitations or participation restrictions, and 113,300 (0.6%) had a severe or profound core activity restriction (Chapter 6).

Table S1: Estimates of main disability groups in Australia, 1998

	Age under 65		Age 65+		All ages	
Disability group	**Number ('000)**	**% of people aged under 65**	**Number ('000)**	**% of people aged 65+**	**Number ('000)**	**% of total population**
All disabling conditions						
Intellectual	376.9	2.3	126.1	5.6	503.0	2.7
Psychiatric	504.1	3.1	264.8	11.7	768.9	4.1
Sensory/speech	685.7	4.2	718.9	31.7	1,404.6	7.5
Acquired brain injury	159.0	1.0	52.0	2.3	211.1	1.1
Physical/diverse	1,903.9	11.6	1,124.6	49.6	3,028.5	16.2
All disabling conditions and activity limitations and participation restrictions						
Intellectual	370.4	2.3	126.1	5.6	496.5	2.7
Psychiatric	493.5	3.0	263.6	11.6	757.1	4.1
Sensory/speech	597.9	3.6	689.0	30.4	1,286.9	6.9
Acquired brain injury	150.8	0.9	50.8	2.2	201.6	1.1
Physical/diverse	1,771.2	10.8	1,082.2	47.7	2,853.4	15.3
All disabling conditions and severe or profound core activity restrictions						
Intellectual	184.8	1.1	117.1	5.2	301.9	1.6
Psychiatric	209.9	1.3	188.4	8.3	398.3	2.1
Sensory/speech	218.7	1.3	305.5	13.5	524.2	2.8
Acquired brain injury	75.2	0.5	38.2	1.7	113.3	0.6
Physical/diverse	517.2	3.2	458.3	20.2	975.4	5.2
Main disabling condition						
Intellectual	209.0	1.3	*3.7	*0.2	212.7	1.1
Psychiatric	197.2	1.2	87.3	3.8	284.5	1.5
Sensory/speech	235.8	1.4	193.8	8.5	429.6	2.3
Acquired brain injury	35.7	0.2	*3.5	*0.2	39.2	0.2
Physical/diverse	1,709.7	10.4	934.4	41.2	2,644.1	14.2
Total with a disability	**2,387.4**	**14.5**	**1,222.7**	**53.9**	**3,610.1**	**19.3**
Main disabling conditions and a severe or profound core activity restriction						
Intellectual	101.3	0.6	**1.6	**0.1	103.0	0.6
Psychiatric	57.9	0.4	73.4	3.2	131.3	0.7
Sensory/speech	38.2	0.2	46.8	2.1	84.9	0.5
Acquired brain injury	10.8	0.1	**2.1	**0.1	12.9	0.1
Physical/diverse	447.9	2.7	356.5	15.7	804.4	4.3
Total with a severe/profound core activity restriction	**656.1**	**4.0**	**480.4**	**21.2**	**1,136.5**	**6.1**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: Tables 3.2, 4.4, 5.15, 6.1 and 7.3.

Trends and population patterns of disability prevalence in Australia

Trends in disability prevalence are affected by various factors, including changes in population survey methods, different patterns of change in subgroups of the population and changes in the prevalence of long-term health conditions (Chapter 8).

The age-standardised rates of severe or profound restrictions were relatively stable during the 1980s and early 1990s, remaining at around 4% of the Australian population. However, between 1993 and 1998 the rate increased from 4.3% to 5.5%. This marked increase was largely the result of changes in the 1998 survey methods, which brought more people with a disability into the scope of the survey (Chapter 8).

To understand the difference in trends among various population age groups, the age-specific prevalence rates of severe or profound core activity restrictions for the four ABS disability surveys (1981, 1988, 1993 and 1998) have been compared. These comparisons indicate that the rates for 1998 were higher in most age groups than those for the previous surveys. The increases were particularly marked among children aged 5–14, the older working-age population, and people aged 75 and over.

Exploring the changes in the prevalence and patterns of long-term health conditions can shed light on changes in reported disability prevalence. The overall prevalence of most disabling conditions increased during the period 1981–1998. There were noticeable increases in the reported rates of diseases of the ear, respiratory diseases and musculoskeletal conditions, and marked increases in intellectual and psychiatric conditions over the period 1993–1998.

Analyses of trends in three broad age groups (under 15, 15–64, and 65 and over) indicate that each of these age groups has distinct patterns of prevalence, related factors and features of policy relevance.

Changes in disability prevalence among children aged under 15 years

There has been a substantial increase in the rates of severe or profound core activity restriction among children, in particular boys. Between 1993 and 1998, the rates for males aged 5–14 increased from 2.7% to 4.9%, more than twice the average increase for males aged 15–64 (Chapter 8).

A number of factors may have contributed to this trend. The high rates for children of school age may partly reflect the effect of the educational system on the identification of disability. Some disabling conditions such as intellectual/learning may have a particular impact on school performance. Between 1993 and 1998, the main area of increase in the prevalence of disabling conditions among children of school age was intellectual/learning disabling conditions, in particular attention deficit hyperactivity disorder (ADHD). Both higher levels of diagnosis and heightened awareness among parents, educators and health professionals may have contributed to the increase in reporting of ADHD.

The change of wording in the disability survey screening question from 'slow at learning or understanding' (1993 survey) to 'difficulty learning or understanding' (1998 survey) may have increased reporting of intellectual disability, in particular among males.

Changes in disability prevalence among the population of working-age (15–64)

Among the working-age population, the age-standardised rate of severe or profound restrictions increased from 2.4% in 1993 to 3.3% in 1998, while the rates had been relatively stable at about 2.2% to 2.4% between 1981 and 1993 (Chapter 8). The increase in 1998 was particularly evident in the older working-age population, especially in the 55–59 age group.

Apart from changes in age-specific prevalence rates, population growth also resulted in an increase in the number of people with a disability through changes in population size and age structure. The 'bulge' of the baby-boom generation is currently affecting the age profile of the working-age population, as it moves progressively up the age pyramid. This demographic trend is expected to affect future disability prevalence, especially in the 55–64 year age group in the next ten years.

The age-standardised rate of musculoskeletal conditions for people aged 15–64 with a disability increased from 5.5% in 1993 to 7.5% in 1998. An additional screening question in the 1998 survey about chronic pain could have contributed substantially to the increase in the reporting of these conditions.

Changes in disability prevalence among the population aged 65+

The ageing of the population 65 years and over has had a strong impact on the prevalence of severe or profound restriction among this group. Compared with the 1981 disability survey, the three later surveys reported substantially higher rates of disability for the older population. The age-standardised rate of severe or profound restrictions for people aged 65 and over increased markedly between 1993 and 1998, from 17.1% to 19.6%. The estimated number of people with a severe or profound restriction increased considerably among those aged 75 or over (Chapter 8).

It has been suggested that about half of the increase in the rate of severe or profound restriction is due to changes in survey design and the other half is attributable to population ageing and probably an actual increase in the prevalence among the oldest age groups of the population (ABS: Davis et al. 2001; Chapter 8).

Changes in the 1998 survey screening question on learning and understanding things may have increased the number of people reporting conditions associated with dementia. The separate identification of head injury, stroke and other brain damage may have led to increased reporting of these conditions, especially stroke among the older population. Comparative analysis indicated a large increase in the rate of psychiatric disabling conditions between 1993 and 1998, and sharp increases in the rate of circulatory diseases in both the 1993 and 1998 surveys.

Trends in the prevalence of disability and chronic conditions among OECD countries

Recently reported declines in disability prevalence among the older population in some OECD countries have been a subject of vigorous debate due to the high relevance to social and economic policies. However, trends have not been consistently reported across all OECD countries. Declines in disability prevalence have been reported for the United States, Germany, France and Japan. A moderate decline in disability was reported for Sweden. Mixed age patterns of trends in prevalence were reported for Canada. No consistent decline in disability prevalence was reported in the United Kingdom and the Netherlands. In Australia, the latest population survey data indicated no decrease overall and a possible increase in disability prevalence among people aged 75 or older (Chapter 8).

The reported falling disability rates among the older population in some OECD countries have been accompanied by increases in the reported prevalence of chronic diseases or conditions. Increases were also reported in countries where no consistent decline in disability was reported, such as Australia. Thus, the reported decline in disability prevalence rates of the older population in some OECD countries cannot be attributed to a fall in the reported prevalence of chronic diseases. Hence two unsolved questions from these international comparisons are:

- Why has a decline in reported disability prevalence occurred at the same time as an increase in the reported prevalence of chronic diseases in some developed countries?
- Why have different trends (increases and decreases) in disability prevalence been reported among the OECD countries?

The most common explanations for the increase in the reported prevalence of chronic diseases are improvements in medical knowledge and diagnosis of those diseases. Other reasons may include increased propensity to report disease and illness, and a decline in mortality from some major diseases such as heart disease, stroke, vascular disease and cancer.

Little empirical evidence has been presented to explain the reported declines in disability. Some proposed factors that may be associated with this decline are education and socioeconomic status, improvements in medical care, increased use of aids and equipment, health-related behaviour changes, environmental supports, and reduction in disease and risk exposure.

It has been suggested that the increases in chronic conditions are largely limited to conditions that are less severe or less debilitating. Furthermore, advances in medicine and health care services may have contributed to a slowing down in the rate of progression of chronic diseases or to a reduction in serious consequences of those diseases. Therefore, even if the prevalence of chronic diseases increases, the prevalence of functional limitations and need for help with daily activities may not necessarily increase at the same rate.

Nevertheless, the explanations of recent trends in disability are far from adequate. As studies on disability trends among older Americans have indicated, the reported decline has generally occurred in less severe disabilities and there is no consistent evidence suggesting a decline in more severe disabilities (Schoeni et al. 2001).

Variations in survey measures and their effect on international comparison of trends in disability prevalence are important issues in identifying causes affecting the reported disability trends in different countries. A comparison of differences in survey methods and definitions of disability between the United States and Australia indicates that the reported disability prevalence may be affected by whether the presence of any impairments and chronic conditions restricting everyday activities is included as part of the survey definition of disability (Section 8.2). An increase in the reported prevalence of chronic conditions could have more impact on estimates of disability when the surveys include limiting impairments and chronic conditions in the operational definition of disability. This may affect the reported trends in disability prevalence. Focusing on long-term and severe disability may increase the comparability of disability estimates from different countries, including estimates from time-series data.

A comparison of Australian and other estimates of prevalence

Variations in operational definitions, methods and other factors resulted in great differences in the prevalence estimates of different types of disability. Table S2 presents overseas and Australian prevalence estimate ranges as detailed in chapters 3 to 7.

Table S2: Summary of overseas and Australian prevalence estimate ranges for various disability groups

	Prevalence estimate ranges	Data source	Reference
Intellectual disability	0.4%–0.5%	Administrative data from Australian states	Table 3.1
	0.3%–0.4%	Administrative data from overseas	Table 3.1
	0.4%–1.9%	Population survey data (Australian and overseas)	Table 3.1
Psychiatric disability			
Psychiatric disability	3%–8% (adults and children)	Overseas population survey data	Table 4.2
	5%–12% (adults)	Australian population survey data	Table 4.3
Mental disorders	8%–29% (adults)	Overseas population survey data	Table 4.2
	10%–18% (children)	Overseas population survey data	Table 4.2
	10%–26% (adults)	Australian population survey data	Table 4.3
	14%–18% (children)	Australian population survey data	Table 4.3
Sensory/speech disability			
Visual impairment (including blindness)	2%–18%	Self-report (overseas estimates)	Table 5.7
	1%–5%	Optometric examination (overseas estimates)	Table 5.7
	0.7%–1.0%	Self-report (Australian estimates)	Table 5.9
	4%–5%	Optometric examination (Australian estimates)	Table 5.9
Hearing impairment (including deafness)	11%–49%	Self-report (overseas estimates)	Table 5.11
	6%–16%	Audiological examination (overseas estimates)	Table 5.10
	3%–15%	Self-report (Australian estimates)	Table 5.12
	17%–39%	Audiological examination (Australian estimates)	Table 5.12
Speech impairment	1%–38% (children)	Overseas estimates	Table 5.13
	1%–2% (adults)	Self-report (overseas estimates)	Table 5.13
	1%–2% (all ages)	Self-report (Australian estimates)	Table 5.14
Acquired brain injury	91–372 per 100,000 (incidence)	Overseas estimates	Section 6.1
	57–377 per 100,000 (incidence)	Australian estimates	Section 6.1
Physical/diverse disability	10%–16%	ABS 1988, 1993 and 1998 estimates	Table 7.2

1 Introduction

This is the fourth publication in a series of Australian Institute of Health and Welfare (AIHW) reports on the definition and prevalence of different disability groups in Australia. These reports review the existing definitions, data collections and estimates of prevalence relating to some significant disability groups, and provide improved estimates of the size and profile of these groups. The reports also aim to promote discussion and contribute to the development of improved national data on the main disability groups in Australia. The previous reports focused on intellectual disability (AIHW: Wen 1997), physical disability (AIHW: Wen & Fortune 1999) and acquired brain injury (AIHW: Fortune & Wen 1999), using primarily the Australian Bureau of Statistics (ABS) 1993 disability survey data. This report updates these previous prevalence estimates and extends them to include psychiatric and sensory/speech disability groups, using the ABS 1998 disability survey data. The extended range of questions in the ABS 1998 Survey of Disability, Ageing and Carers provides new opportunities not only for updating and refining the prevalence estimates but also for analysing the health conditions underlying disability.

The main objectives of this report are to:

- update the critical reviews of existing definitions, data collections, and central issues in the estimation of prevalence relating to significant disability groups
- update and refine prevalence estimates of significant disability groups in Australia—intellectual, psychiatric, sensory/speech, acquired brain injury and physical/diverse disability groups
- discuss recent trends in disability prevalence and analyse changes in population patterns of disability prevalence in Australia.

Structure of the report

Chapter 2 summarises some relevant issues in defining, measuring and estimating disability prevalence, and discusses broad approaches to estimating disability prevalence and the main relevant data sources. Chapters 3 to 7 present overviews of existing definitions and prevalence estimates of disability groups, and provide refined estimates of prevalence and population patterns of main disability groups in Australia: intellectual (Chapter 3), psychiatric (Chapter 4), sensory/speech (Chapter 5), acquired brain injury (Chapter 6) and physical/diverse (Chapter 7). Chapter 8 discusses recent trends in disability prevalence and prevalence of chronic diseases, and examines the changes in population patterns of disability prevalence in Australia.

2 Defining and estimating disability prevalence

This chapter begins with a brief discussion on the definition and classification of disability and related health conditions. It then details the analytical approaches to estimating the prevalence of significant disability groups and related health conditions. Main data sources and methods of estimation are also discussed.

2.1 Definition and conceptual approaches

Disability definition and classification

The International Classification of Functioning, Disability and Health (ICF) was endorsed by the World Health Assembly in May 2001 (WHO 2001a). The ICF and its predecessor, the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), have been widely accepted as a framework for conceptualising disability and have been used in a range of applications. For example, the ABS has used the ICF framework and its main concepts in Australian disability surveys (e.g. ABS 1999a); the AIHW has developed an ICF Australian User Guide that includes information on applications in Australia (AIHW 2003a); and Statistics Canada has used the ICF framework in Canada's 2001 post-censal disability survey (Statistics Canada 2002a).

Disability is a multidimensional concept, relating to the body functions and structures of people, the activities they do, the life areas in which they participate, and the factors in their environment that affect these experiences (WHO 2001a). The conceptual framework of the ICF consists of three components: body functions and structures, activities and participation, and environmental factors (Figure 2.1). These components are defined 'in the context of health' to distinguish disability from other circumstances, such as poverty, that may contribute to restricting a person's participation in society. Within each component a classification structure is provided, which can be used to organise information on various domains[1] of the disability experience. For example, the activities and participation component consists of nine broad areas of life, such as self-care, mobility and communication. The first two components—body functions and structures, activities and participation—can be expressed in two ways. They can indicate neutral or positive aspects of health states summarised under the umbrella term 'functioning' or they can be used to indicate problems (impairment, activity limitation or participation restriction); these are summarised under the umbrella term 'disability'. Impairments are 'problems in body function or structure such as significant deviation or loss' in, for example, hearing or vision. Activity limitations are 'difficulties an individual may have in executing activities' such as

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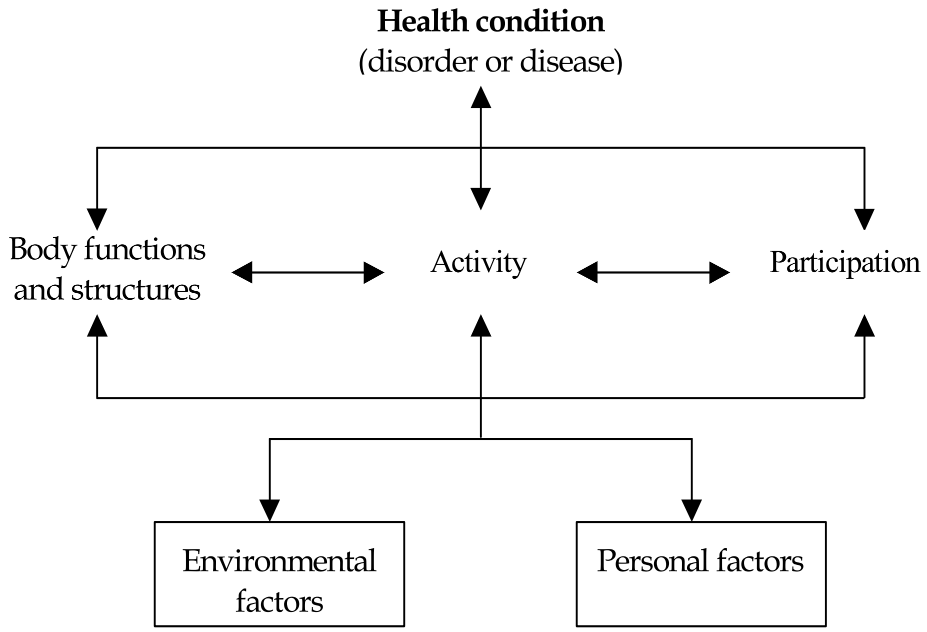
[1] A domain is a practical and meaningful set of related physiological functions, anatomical structures, actions, tasks, or areas of life (WHO 2001a:3).

eating or drinking. Participation restrictions are 'problems an individual may experience in involvement in life situations' such as participation in education and employment (WHO 2001a: 7–10).

Environmental factors and personal factors represent an important new component of the ICF in recognition of their effects on functioning and disability. Personal factors are not part of the classification because of the large social and cultural variance associated with them. Environmental factors 'make up the physical, social and attitudinal environment in which people live and conduct their lives'. Personal factors are 'the particular background of an individual's life and living' (WHO 2001a: 16–17).

All the ICF components are distinct but interrelated. On the one hand, an individual's negative experience relating to any one domain of a component may be considered to constitute disability. On the other hand, the experience of disability is often complex and multidimensional. In the ICF framework, a person's functioning in a specific domain of a component is considered as a dynamic interaction between the health condition and environmental and personal factors (WHO 2001a: 18–19).

It should be noted that ICF does not cover situations that are not health-related, such as participation restrictions due solely to socioeconomic factors (WHO 2001a). This therefore distinguishes disability from disadvantage or exclusion unrelated to health.



Source: WHO 2001a.

Figure 2.1: Interactions between components of the ICF

Use of ICF and ICD–10 to classify disability and related health conditions

ICF and the *International Statistical Classification of Diseases and Related Health Problems, 10th revision* (ICD–10) (WHO 1992) are two major international classifications used to define and classify disability and disease/disorder, respectively. While the primary purpose of the ICD provides standards for classifying diseases/disorders and causes of death, it has also been widely used as a framework and coding system to classify health conditions, including those related to disability. The ICD system is the primary classification used for the study of morbidity. In conjunction with other factors (such as socioeconomic status), morbidity can help predict or explain the prevalence and demographic pattern of disability in a country or community (e.g. Chamie 1995). Information on health conditions related to disability may be useful for disability prevention, rehabilitation and monitoring programs.

Although the ICF does not describe the 'process' of disability (i.e. the causal links between health condition, impairment, activity limitation and participation restriction), it provides a multiperspective approach to the classification and mapping of different components of disability as an interactive process. This may assist in exploring the connections between the different components of disability.

ICD provides a causal framework and diagnosis classifications for diseases, disorders and other health-related conditions. The ICF provides a 'multi-perspective framework and systematic classification of functioning and disability associated with health conditions' (WHO 2001a). The two systems are therefore complementary when they are used in describing and classifying disability and related health conditions. Information about diagnosis together with information on functioning provides a broader and more meaningful picture of the health status of the population (WHO 2001a).

2.2 Operational definitions and analytical approaches

Operational definitions and estimation of disability prevalence

Operational definitions and approaches to measuring disability vary substantially, depending on the purpose for which they are developed. For instance, definitions in population surveys on disability prevalence differ from those in eligibility for disability support services or payments. Operational definitions of disability may focus on different components of the ICF. Within any one component different information can be gathered. For example, impairment is often identified using a non-comprehensive list of selected impairments. The identification of activity limitation may focus on certain types of activities, and the identification of participation restriction may be limited to certain domains of participation.

Approaches to disability measurement and prevalence estimation also vary in terms of the severity and duration criteria used to define and identify disability. Variations across data collections also occur due to differences in the wording of survey questions, and how the data are collected (e.g. telephone interview versus personal interview).

In many population surveys relating to disability, screening devices play a crucial role in identifying disability. A screening device is generally a set of questions or measurement instruments based on the operational definition of disability being used. The screening questions are used to identify the existence of 'disability', and the components on which they focus (usually impairment or activity limitation) can substantially affect estimates of disability prevalence. Comparisons of various overseas surveys found that surveys using impairment-focused screening questions tended to result in the lowest prevalence rates, ranging from about 0.3% to 5.0% of the general population. In contrast, surveys using activity-focused screening questions tended to yield the highest prevalence rates, ranging from about 7.1% to 20.9% (Chamie 1989, 1995; WHO 1990).

Analytical approaches to estimating the prevalence of main disability groups and related health conditions.

Figure 2.2 illustrates the analytical approaches used to estimate disability prevalence and related health conditions in this report. The ICF provides an overall conceptual framework for the analytical approach (Column 1). The framework is used to map the population disability survey data items relating to this report to the corresponding ICF components and to organise the data items for prevalence estimation and analysis (Column 2). This report provides two major sets of prevalence estimates: estimates of main disability groups and estimates of some significant health conditions underlying disability (Column 3). The ICF and ICD–10 frameworks are used as the main guides for classification of disability groups and health conditions. The methods used to delineate disability groups are also as consistent as possible with the disability groupings of the *National Community Services Data Dictionary*, the *Commonwealth/State Disability Agreement Minimum Data Set Collection National Data Guide*, and previous AIHW reports in this series. The selection of diseases and health conditions for prevalence estimation is largely based on the National Health Priority Areas strategic framework for preventing chronic diseases (National Public Health Partnership 2001) and the study on burden of disease and injury in Australia (see Section 2.3). The rest of the chapter will discuss the approaches, methods and main data sources in more detail.

Disability groups in Australia

In Australia, disabilities are often classified into 'disability groups'. Disability groups, such as 'intellectual disability' and 'physical disability', provide a broad categorisation of disabilities based not only on underlying health conditions and impairments, but also on activity limitations, participation restrictions and related environmental factors. These groups are generally recognised in the disability field and in legislative and administrative contexts in Australia. Australian disability administrators, peak bodies, people with disabilities and service providers use disability groups as a basis for describing groups of people with similar experiences of disability and patterns of impairments, activity limitations, participation restrictions and related environmental factors (AIHW 2003b).

The *National Community Services Data Dictionary, version 3* provides definitions and guides for use for the Australian national disability groupings of disability. The Australian national disability groupings have been accepted for use in the Commonwealth/State Disability Agreement Minimum Data Set Collection (CSDA MDS) and have been developed and modified over almost a decade (AIHW 2003c).[2] The Australian national groupings reflect current usage/practice in the field, and can be used as a basis for collecting data that can be related to other relevant data collections such as the ABS disability surveys (AIHW 2003b).

This report presents prevalence estimates for five main disability groups: 'intellectual', 'psychiatric', 'sensory/speech', 'physical/diverse' and 'acquired brain injury' (Table 2.1). The first four disability groups are used extensively in Australian legislation and many administrative definitions (AIHW 2000a). More detail on the definitions of each specific group is included in the relevant chapters.

It is important to note that disability groupings do not classify people, rather, they categorise individuals' experience in various domains of functioning and disability.

Table 2.1: Mapping disability groupings used in the current report to *National Community Services Data Dictionary, version 3* groupings

Current report(a)	**National Community Services Data Dictionary: Australian disability groupings**(a)
Intellectual	Intellectual/learning
	Developmental delay
	Intellectual
	Specific learning/ADD
	Autism
Psychiatric	Psychiatric
Sensory/speech	Sensory/speech
	Deafblind (dual sensory)
	Vision (sensory)
	Hearing (sensory)
	Speech
Physical/diverse(a)	Physical/diverse
	Physical
Acquired brain injury(a)	Acquired brain injury
	Neurological
	Disability group not yet classified

(a) In the current report, 'Physical/diverse' excludes the category of 'Acquired brain injury', which is treated as a separate category of disability group.

Note: These groupings are also used in the CSDA MDS collections (AIHW 2003d).

Source: AIHW 2003b.

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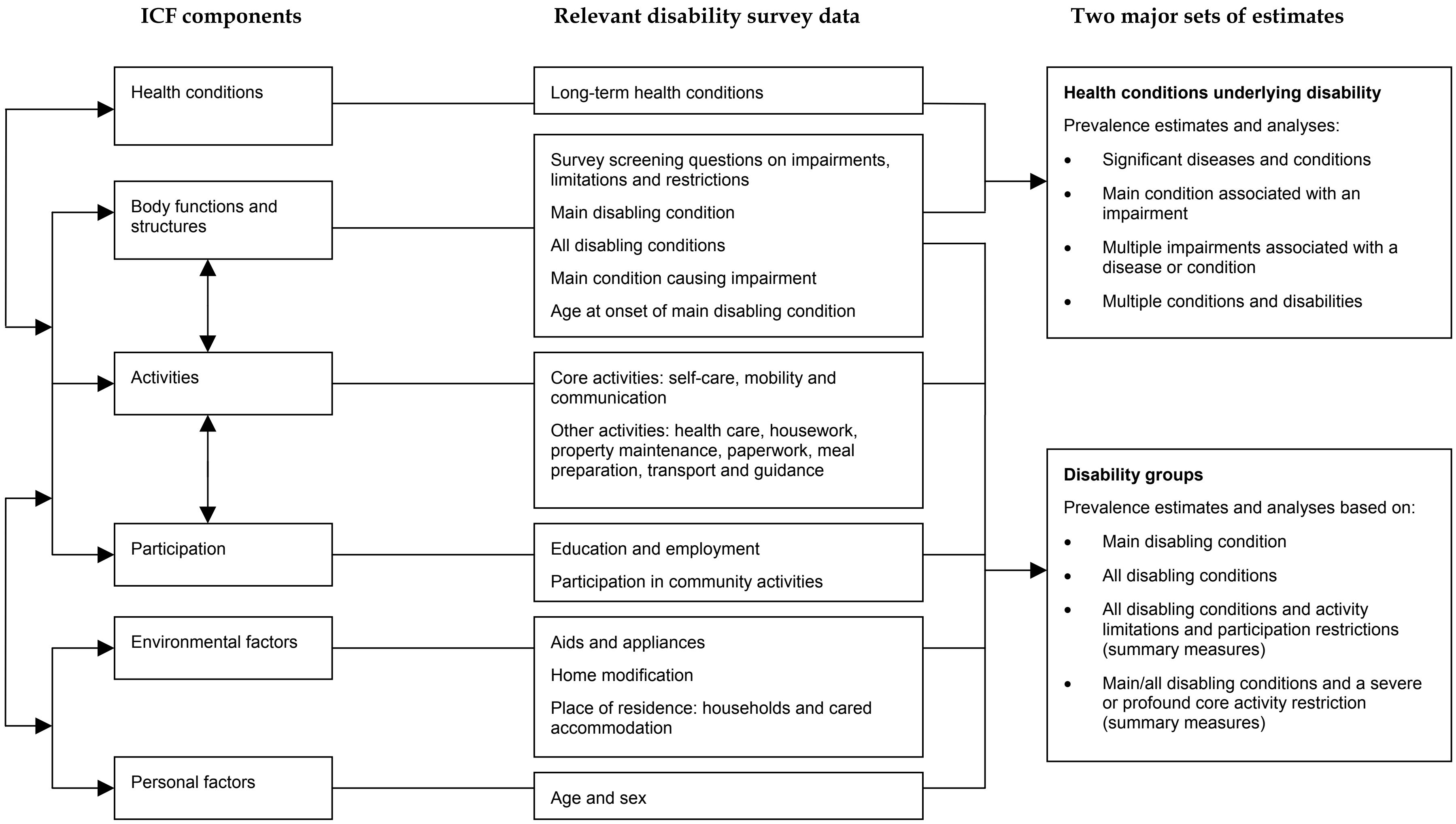
[2] The CSDA specifies responsibilities for planning, policy setting and management of disability services between the Commonwealth and the states and territories.



Sources: WHO 2001a; ABS 1999a.

Figure 2.2: Analytical approaches to estimating disability groups and related health conditions

2.3 Main data sources

This section provides an overview of the main data sources used in this report. Detailed discussions of data items are presented in relevant chapters.

The ABS 1998 Survey of Disability, Ageing and Carers is the primary data source for prevalence estimation and analysis. Other data sources used in this report include:

- ABS 1995 National Health Survey
- ABS 1997 National Survey of Mental Health and Wellbeing of Adults (SMHWB)
- the national study of people living with psychotic disorders as a part of the SMHWB and the Child and Adolescent Component of the SMHWB
- National Hospital Morbidity Database
- special studies, including the study on the burden of disease and injury in Australia.

ABS 1998 Survey of Disability, Ageing and Carers

The ABS disability surveys are an important source of national population data on disability, covering both rural and urban areas in all states and territories. Data are gathered from both households and cared accommodation (hospitals, nursing homes and hostels etc.) (ABS 1999a). Survey definitions and main data items are discussed in Section 2.4.

ABS 2001 National Health Survey

The national health surveys collect information about the health status of Australians, their use of health services and facilities, and health-related aspects of their lifestyle such as smoking, alcohol consumption and exercise (ABS 1997, 2002).

Information most relevant to disability in the national health surveys is derived from the data items about long-term conditions, which are defined as medical conditions (illness, injury or disability) that have lasted or are expected to last six months or more. The health survey data are used to extract prevalence estimates of long-term conditions for comparison with those derived from the disability surveys and other data sources.

National health surveys cover only people in households and exclude people in hospitals, nursing homes and other institutions. This may contribute to an underestimation of the prevalence of long-term conditions in the Australian population based on these data.

National Survey of Mental Health and Wellbeing

The SMHWB consists of three components: a household survey of adult Australians aged 18 years and over, a household survey of children and adolescents aged 4–17 years, and a study of low-prevalence (psychotic) disorders covering the age range 15–65 years.

The ABS 1997 SMHWB (adult component) collected information about the prevalence of a range of major mental disorders, the severity of disability associated with these disorders, and health service usage and needs for assistance as a result of mental disorders (ABS 1998). Disability was measured in the 1997 SMHWB using mainly the Brief Disability Questionnaire (BDQ). The BDQ is a standard questionnaire that contains eight questions emphasising physical aspects of disability. Respondents were asked whether they had limitations in a number of activities such as running or sports, carrying groceries, climbing stairs, bending, lifting, walking long distances and bathing or using the toilet. They were also asked whether they had cut down or stopped activities, had decreased motivation or personal efficiency, or experienced deterioration in their social relations. The Medical Outcome Study method of scoring (scale of 0–16) was used as a 'disability status' measurement for the BDQ: none (score of 0–2), mild (3–4), moderate (5–9) or severe (10 or more) (ABS 1998: 50, 57).

Some caveats about data from the 1997 SMHWB should be noted:

- The definition and measurement of disability in the SMHWB differ from those of the ABS disability surveys. Although the BDQ measures activity limitations, the scope of activity in the ABS disability surveys is much broader than that of the BDQ.
- The disability measures in SMHWB focus on disability present during the four weeks before the interview, while the ABS disability surveys focus on disability that has lasted, or is likely to last, for at least six months.
- Information about dementia-related disorders was not collected by the SMHWB but by the ABS disability survey, although those disorders contribute significantly to mental health problems and disorders among older people.
- The exclusion of people living in any type of institution from the SMHWB means that a significant group of people with mental disorders was not included.

National Hospital Morbidity Database 2000–2001

The National Hospital Morbidity Database is a compilation of electronic summary records for patients admitted to Australian hospitals. It includes data from public acute and psychiatric hospitals, private acute and psychiatric hospitals, and private free-standing day hospital facilities (AIHW 2002a).

The information in the database includes demographic and diagnosis data for patients, data on procedures undertaken, length of stay, and external cause of injury and poisoning. Diagnoses and procedures are classified and coded using the ICD–10–AM.

Records for 2000–2001 are for hospital 'separations' (i.e. discharges, transfers, deaths or changes in care type) between 1 July 2000 and 30 June 2001. Data on patients who were admitted during this period are included, provided that they also separated in this period. A record is included for each separation, so patients who separated more than once in the year have more than one record in the database.

The database is used to estimate rates of hospital separations related to acquired brain injury (Chapter 6).

The study of the burden of disease and injury in Australia

The AIHW report on the national burden of disease and injury for Australia uses the disability-adjusted life year, or DALY, to measure the total impact of mortality and non-fatal health outcomes in a consistent way across a comprehensive range of diseases and illnesses (AIHW: Mathers et al. 1999). The report provides detailed estimates for Australia of the incidence, prevalence, duration, mortality and disease burden for more than 175 disease and injury categories. It also attempts to quantify the 'burden' associated with a range of risk factors and health determinants, and with socioeconomic disadvantage.

As was noted in the report, the estimates should be considered as provisional and developmental. Further work is needed to refine the estimates of diseases and conditions and to explore how to assess the disability associated with health conditions in the Australian context. There are concerns around the acceptability of some health summary measures such as DALY, particularly from some groups of people with a disability, with regard to both the underlying concepts and the specific severity weights assigned. There is ongoing discussion about how well the severity weights (especially those derived from overseas research) reflect the views of people affected by disability and the community more broadly. The technical application of such measures will also be subject to further debate within Australia (NHPC 2001: 10).

The estimates of prevalence from this study are used to compare with the estimates from other data sources.

2.4 The four approaches to prevalence estimates

Using the ABS 1998 disability survey data as the primary data source, this report uses four approaches to provide four sets of Australian prevalence estimates for each disability group (Table 2.2):

- estimates based on main disabling condition
- estimates based on all disabling conditions
- estimates based on all disabling conditions, and activity limitations and participation restrictions
- estimates based on main/all disabling conditions and a severe or profound core activity restriction.

Explanatory notes about the terms relating to the four approaches to prevalence estimates are provided in Table 2.2.

The four approaches used to obtain the estimates provide a broad spectrum of estimates that may suit different purposes. For instance, the first two types of estimates may be useful for epidemiological studies and studies on morbidity and disability. The other two types of estimates may be used as broad summary measures in planning generic services or disability-specific support services for people with a disability because these estimates focus on people with certain activity limitations or needs for assistance, which may bring them within the target groups of particular services.

All the four approaches start with the base 'disability' population defined by the ABS 1998 disability survey. A person is identified as having a 'disability' by the survey if he/she had one or more of the impairments or limitations listed in the screening questions that had lasted, or was likely to last, for at least six months and restricts everyday activities (see Box 2.1). The four approaches differ in terms of their use of survey information about impairment, main disabling condition, all disabling conditions, activity limitations and participation restrictions as well as need for assistance with core activity restrictions. The ABS disability survey is an important source of national population disability data. An advantage of using **one** national survey data is that it can provide a suite of 'calibrated' estimates based on similar disability concepts, irrespective of causes.

Table 2.2: Terms relating to the approaches to prevalence estimates using the ABS 1998 Survey of Disability, Ageing and Carers

Terms	Working definition
Disabling condition	A disabling condition is a disease or disorder that has lasted or is likely to last for at least six months; or a disease, disorder or event (e.g. stroke, poisoning, accident etc.) that leads to an impairment or restriction that has lasted or is likely to last at six months.
Main disabling condition	If only one disabling condition is reported in the survey, this is recorded as the main disabling condition. If multiple conditions are reported, then the main disabling condition is the one identified as causing the most problems.
All disabling conditions	All disabling conditions reported by or for a person.
Activity	An activity comprises one or more tasks in daily life. In the 1998 disability survey tasks have been grouped into ten activities: self-care, mobility, communication, health care, housework, meal preparation, paperwork, property maintenance, transport and guidance.
Core activities	Core activities are self-care, mobility and communication.
Severe or profound core activity restrictions	A profound core activity restriction refers to a person who is unable to do, or always needs help with, a core activity task. A severe core activity restriction refers to a person who sometimes needs help with a core activity tasks; or has difficulty understanding or being understood by family or friends; or can communicate more easily using sign language or other non-spoken forms of communication.
Activity limitations	Activity limitations refers to a person being unable to do, or has a need for assistance, or has difficulty with, at least one of the ten activities; or uses aids and equipment; or has changes made to home environment because of his/her health condition(s).
Participation restrictions	Participation restriction refers to a person being restricted in schooling, employment or social and community participation because of his/her disability.

Note: A full list of survey questions on activity limitations and participation restrictions is presented in Appendix 2.

Source: ABS 1999a.

Estimates based on reported *main disabling condition* relate to conditions that were identified by survey respondents as causing the most problems. For instance, for people identified as having a physical disability, physical disabling conditions caused them more problems than any other disabling conditions they may also have had. In these estimates, people who reported physical disabling conditions but who also reported some other condition as their main disabling condition are excluded by this approach (for the full list of groupings of impairments and disabling conditions see Appendix 1). Using this approach, the estimates of different disability groups are mutually exclusive. The numbers in each disability group sum to give the total the number of people with a disability, as defined by the 1998 ABS disability survey.

The remaining three approaches correspond to an increasingly restrictive definition of the group, according to severity, need for assistance or activity limitation.

People may experience more than one type of impairment or disabling condition and therefore the prevalence of a particular disability group will be underestimated if main disabling conditions only are considered. The estimates based on *all disabling conditions* are the most inclusive of the four types of estimates. These estimates include all reported disabling conditions, whether or not these were reported as main disabling conditions. The disability experiences of people with multiple disabling conditions may be classified into more than one disability group.

Box 2.1: Areas of limitation, restriction or impairment identified by the ABS

Affirmative responses to any of the following categories, where the limitation, restriction or impairment has lasted or was likely to last for six months or more, 'screen' the person into the ABS survey:

- *loss of sight, not corrected by glasses or contact lenses*
- *loss of hearing, with difficulty communicating or use of aids*
- *speech difficulties (including speech loss)*
- *chronic or recurring pain that restricts everyday activities*
- *shortness of breath or breathing difficulties that restrict everyday activities*
- *blackouts, fits, or loss of consciousness*
- *difficulty learning or understanding*
- *incomplete use of arms or fingers*
- *difficulty gripping or holding things*
- *incomplete use of feet or legs*
- *a nervous or emotional condition that restricts everyday activities*
- *restriction in physical activities or physical work*
- *disfigurement or deformity*
- *head injury, stroke or any other brain damage with long-term effects that restrict everyday activities*
- *needing help or supervision because of a mental illness or condition*
- *treatment or medication for any other long-term condition or ailment and still restricted in everyday activities*
- *any other long-term condition that restricts everyday activities.*

This list creates the implicit definition of 'disability' used in the ABS 1998 Survey of Disability, Ageing and Carers (ABS 1999a). This creates the base 'disability' population that is the starting point for the prevalence estimates.

The 'all disabling conditions' approach uses not only information from responses to the screening questions but also the reported disabling conditions classified using the ICD–10. Some of the screening questions are not specific to any particular disability group, for example, the question relating to 'receiving treatment or medication for any other long-term conditions or illness and still restricted', and 'any other long-term conditions resulting in a restriction'. Hence, it is necessary to avoid relying solely on one screening question to classify disability groups.

The first two approaches use survey data relating to only one component of the ICF—impairment—as well as information on related disabling conditions. In contrast, the approach using data on *all disabling conditions and activity limitations and participation restrictions* relies on multidimensional information from the survey on impairment, disabling conditions, activity limitations, participation restrictions, and need for assistance with daily activities. This approach is closely based on a method first introduced by AIHW: Madden et al. (1995), and used to estimate the prevalence of physical disability and acquired brain injury in two earlier reports of this series (AIHW: Wen & Fortune 1999; AIHW: Fortune & Wen 1999).

The approach initially includes people who reported one or more disabling conditions relating to each of the five disability groups, whether or not these were reported as main disabling conditions. These five groups are now narrowed down by applying a 'filter'—only people who have reported limitations or restrictions in one or more activities of daily or social life are retained in these groups. These are usually expressed in terms of difficulty experienced or assistance needed with the activity (for a full list of survey questions on limitations and restrictions see Appendix 2).

The approach using data on *all disabling conditions and a severe or profound core activity restriction* is similar to the previous approach except that an additional and more exclusive 'filter' is used to select only people who reported a severe or profound core activity restriction, meaning that they sometimes or always needed personal assistance or supervision with activities of daily life (self-care, mobility and communication). This corresponds quite closely to the 'target population' of CSDA services. Services provided under the CSDA 1998 are targeted to people who need ongoing support with everyday life activities. The target group is specified as 'people with disabilities':

> 'people with disabilities' means people with a disability attributable to an intellectual, psychiatric, sensory, physical or neurological impairment or acquired brain injury (or some combination of these) which is likely to be permanent and results in substantially reduced capacity in at least one of the following:
>
> - self care/management
> - mobility
> - communication
>
> requiring ongoing or episodic support.

The estimated number of people with a severe or profound core activity restriction is generally accepted as a broad indicator of potential need for disability support services in Australia.

The approach using data on *main disabling condition and a severe or profound core activity restriction* is similar to the above approach except that only main disabling condition is considered.

Estimates at state and territory level

The 1998 ABS disability survey data for each jurisdiction are not used to produce jurisdiction-specific prevalence estimates of disability groups. Because of the relatively small sample sizes for some states and territories, such estimates would have large sampling errors. Therefore, a different approach is used to obtain the prevalence estimates for states and territories—national age- and sex-specific rates are applied to the population data of each jurisdiction, as explained below.

The estimates at state and territory level rely on underlying assumptions that each state or territory has the same age- and sex-specific prevalence rates as those of the overall Australian population and that the estimated numbers are not affected by factors other than demographic variations.

Data from the 1998 ABS Survey of Disability, Ageing and Carers confidentialised unit record file are used to derive age- and sex-specific rates of the five main disability groups nationally. These rates are then applied to the age and sex distributions of the 30 June 1998 estimated resident population (from ABS population data) in each state and territory, to calculate the estimated number of people by age and sex for each jurisdiction. The resulting numbers for each age and sex group are summed to give an estimate of the total number of people in that jurisdiction. Since the ABS population data for each jurisdiction are applied to the national age- and sex-specific disability prevalence rates, the demographic differences across states and territories are taken into account.

The approach 'all disabling conditions and activity limitations and participation restrictions' is applied to the estimates of disability groups for the jurisdictions. This approach was used in previous reports on prevalence, in which the comparison of prevalence among the jurisdictions were carried out (AIHW: Fortune & Wen 1999; AIHW: Wen & Fortune 1999).

3 Intellectual disability

3.1 A brief overview of existing definitions and estimates of prevalence

This section summarises some main issues and recent developments relating to the definition and prevalence of intellectual disability. Existing estimates of prevalence and patterns of intellectual disability, aetiology, causes and associated disabilities are discussed. A detailed critical review of the definitions and estimated prevalence of intellectual disability in Australia and internationally was presented in a previous report of this series (AIHW: Wen 1997).

Issues relating to definitions and methods of estimation

The terms 'intellectual impairment' and 'intellectual disability' are in common use. They are sometimes used interchangeably. The term 'mental retardation' is widely used in the United States. However, the term 'intellectual disability' is preferred in the disability field in Australia and is used in this report. Over the past two decades, there were many new developments in defining intellectual disability, increasingly consistent with the ICF conceptual framework. These developments are also consistent with disability policy in Australia, which adopts a multidimensional approach and includes assessment of the need for support as one of the components of definition and classification of disability (AIHW: Madden & Hogan 1997).

Historical development

Traditionally, intellectual disability has been viewed as a characteristic of a person, with the source of disability residing with the individual. This approach is based on the medical or statistical model of disability (Heber 1959, 1961; Grossman 1973, 1983). The medical model focuses on pathology and defines intellectual disability based on the presence of pathological symptoms. The statistical model defines intellectual disability by identifying a certain group of the population as 'abnormal', based on a comparison of an individual's intellectual performance with the performance of a standardised norm group. The model measures the severity of intellectual disability using standardised tests such as intelligence quotient (IQ) tests.

In contrast to the traditional approach, in the ICF framework a person's disability experience is considered as a result of the dynamic interaction between the person and the environment. Hence, the experience of disability is often complex and multidimensional (Chapter 2).

American Association on Mental Retardation manual

Ninth edition

The definition of 'mental retardation' used by the American Association on Mental Retardation (AAMR) is an internationally recognised and widely adopted definition. The ninth revision of the AAMR manual has taken significant steps away from a clinically oriented perspective towards a multidimensional approach in defining intellectual disability (Luckasson et al. 1992). Although the revision maintains three key definition criteria—significantly low intellectual functioning as measured by IQ score (approximately 70 to 75 or below), difficulties in adaptive behaviour, and manifestation before age 18—it puts more emphasis on functional and environmental considerations, and less emphasis on individual deficiency. Under the 1992 AAMR definition, the concept of adaptive behaviour is expanded with the specification of ten applicable skill areas, relating to age-appropriate functioning of the individual in the community. The ten adaptive skill areas are communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work.

This approach broadens the conceptualisation of intellectual disability and avoids sole reliance on IQ scores to rate severity. Severity has conventionally been based on the statistical distribution of IQ scores. The ninth revision of the AAMR definition introduced a new concept of 'intensities of needed supports' to replace the formal classifications of severity using IQ scores. This approach to measuring severity is more functionally relevant and oriented to service provision and outcomes (Luckasson et al. 1992). These developments are in line with the ICF conceptual framework. The ICF concept of impairment is reflected in the AAMR notion of 'significantly subaverage intellectual functioning'. The concepts of 'activity limitation and participation restriction' are represented in the AAMR definition in terms of 'limitations in two or more adaptive skill areas'.

Tenth edition

The 2002 tenth edition of the AAMR manual reflects 10 years of further developments in the field (Luckasson et al. 2002). The tenth edition retains the essential features of the ninth edition, including its functional orientation and supports emphasis. There are the three key definition criteria related to intellectual functioning, adaptive behaviour and age of onset. It continues to emphasise that the intensities of needed supports should be the primary purposes of the classification system.

The tenth edition incorporates a standard deviation criterion to the intellectual and adaptive behaviour components of the definition. An additional dimension is included in its theoretical model, which involves participation, interactions and social roles. The other four dimensions include intellectual abilities, adaptive behaviour (conceptual, social, practical skills), health and physical considerations, and context (environments and culture).

AAMR manual, ICD and ICF

There are some variations in definitions and classifications between the AAMR manual and the ICD and ICF. In the ICD–10, apart from IQ scores and functional ability, need for support is also included as one of the indicators differentiating mild from severe intellectual disability (WHO 1992). In contrast to the AAMR definition that requires the conditions to be manifested before age 18, the ICD–10 has not specified an age as a cut-off point for the developmental period to define intellectual disability, while its definition refers to the conditions as 'especially characterised by impairment of skills manifested during the developmental period'.

The intellectual function of the ICF definition includes intellectual growth, intellectual retardation, mental retardation and dementia. It excludes memory function, thought functions and higher level cognitive functions (WHO 2001a: 49).

Diagnostic and Statistical Manual of Mental Disorders

The section relating to 'mental retardation' in the American Psychiatric Association's definitions and classifications—the Diagnostic and Statistical Manual of Mental Disorders (DSM IV)—has been modified to be compatible with the AAMR definitions and has also incorporated the ten adaptive skill areas into its definition of 'mental retardation' (American Psychiatric Association 1994). Nevertheless, the DSM–IV set the criterion for significantly subaverage intellectual functioning as an IQ standard score 'approximately 70 or below', while the ninth revision of the AAMR system set the score as 'approximately 70–75 or below'. The DSM–IV measures severity on the basis of statistical distribution of IQ scores, rather than on the basis of 'intensity of supports needed'.

Australian National Community Services Data Dictionary

In defining disability groups, the Australian *National Community Services Data Dictionary, version 3* states that the intellectual/learning disability group 'is associated with impairment of intellectual functions with limitations in a range of daily activities and restriction in participation in a range of life areas' (AIHW 2003b). The broad grouping of intellectual/learning disability includes four subgroupings: development delay, intellectual disability, specific learning/attention deficit disorder and autism.

Development delay applies to conditions appearing in the early developmental period (children aged 0–5 only), with no specific diagnosis. *Intellectual disability* applies to 'conditions appearing in the developmental period (age 0–18) associated with impairment of mental functions, difficulties in learning and performing certain daily life skills, and limitation of adaptive skills in the context of community environments compared to others of the same age. Intellectual disability may be associated with Down syndrome, fragile X syndrome, tuberous sclerosis, cri-du-chat syndrome'. *Specific learning* is 'a general term referring to a group of disorders, presumed due to central nervous system dysfunction rather than an intellectual disability, covering significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical skills. Specific learning may be associated with Attention Deficit Disorder'. *Autism* refers to 'pervasive developmental disorder involving disturbances in cognition, interpersonal communication, social interactions and behaviour (in particular obsessional, ritualistic, stereotyped and rigid behaviours)'(AIHW 2003b).

The *National Community Services Data Dictionary, version 3* has been prepared to be consistent with the main approaches reflected in the ICF and the AAMR manual, and is used as a guide in defining intellectual disability in this report.

Existing estimates of prevalence of intellectual disability

Estimates of prevalence vary considerably at national local levels (AIHW: Wen 1997). The estimates of prevalence of intellectual disability are affected by various factors associated with operational definitions and methods of estimation. Australian operational definitions and estimates of prevalence of intellectual disability have been affected by the periodic revisions of the AAMR definitions and classifications, and by the variations in definitions and classifications between AAMR and other major classification systems.

Variations in prevalence estimates are attributable to various methodological and other factors. The main methodological factors include:

- use of single (using IQ test only) versus dual criteria (using both IQ test and adaptive skill areas assessment) in survey definitions
- use of different IQ cut-off scores to define intellectual disability (even if the same IQ cut-off score were used, there are variations in approaches to measuring IQ)
- selection of different population groups (children, adults, the aged or general population, including or excluding children under school age).

The non-methodological factors affecting the estimates include differences in the characteristics of the population surveyed, such as social, economic, cultural, ethnic and regional differences.

Estimates of prevalence in Australia have been based on two broad types of data sources: population survey data (used for estimates at the national level) and administrative data (used for estimates at local levels). A previous review found that estimates of overall prevalence based on administrative records to be approximately 0.4% to 0.5% in most Australian states (Table 3.1; AIHW: Wen 1997). This was similar to the findings reported in reviews of international studies, which reported estimates around 0.3% to 0.4% (McLaren & Bryson 1987).

The following estimates, based on the ABS 1993 Survey of Disability, Ageing and Carers, have been reported previously (Table 3.1; AIHW: Wen 1997):

- There were 328,000 people (1.86% of the total population) with intellectual disability, either as the main disabling condition or an associated condition, of whom 174,000 people (0.99% of the total population) also reported the need for assistance with three basic daily living activities: self-care, mobility and verbal communication.
- Using an approach based on main disabling conditions, there were 128,900 people (0.73% of the total population) with an intellectual disability. Of those, 48,000 people (0.27% of the total population) also needed assistance with the three basic daily living activities.
- About 297, 400 people (1.7% of the total population) responded positively to the 1993 survey screening question on 'slow at learning or understanding' (ABS 1996).
- There were 114,000 people (0.65% of the total population) with intellectual disability as a main disabling condition identified before the age of 18 years.

National estimates of prevalence derived from the ABS population disability surveys were higher than local estimates based on administrative records. The difference may be due to the fact that administrative records are often limited to the cases known to service agencies, which are more likely to focus on people with severe disabling conditions. In contrast, national population disability surveys, which cover samples of the entire population, are more likely to include people with both severe and mild disabling conditions.

Table 3.1: Summary of existing estimates of prevalence rates of intellectual disability

Prevalence rates (%)	Regions	Data sources and methods	Definitions and classifications
0.3–0.4	World	Agency records	Adapted definitions of AAMR/ICD–9 etc.
0.4–0.5	Australian states	Agency records	Adapted definitions of AAMR
0.42	Australia	1989–90 ABS National Health Survey (excluded people in institutions). Mental retardation/specific delays in development as a long-term condition	Adapted ICD–9 classifications
0.92	Australia	1995 ABS National Health Survey (excluded people in institutions). Mental retardation/specific delays in development as a long-term condition	Adapted ICD–9 classifications
0.65	Australia	1993 ABS Survey of Disability, Ageing and Carers. 'Intellectual' as a primary disabling condition, identified before age 18	Adapted ICIDH concepts and ICD–9 classifications, AIHW groupings
0.73	Australia	1993 ABS Survey of Disability, Ageing and Carers. 'Intellectual' as a primary disabling condition	Adapted ICIDH concepts and ICD–9 classifications, AIHW groupings
0.99	Australia	1993 ABS Survey of Disability, Ageing and Carers. 'Intellectual disability' including all relevant disabling conditions and disorders. Need ongoing support in basic daily living activities	Adapted ICIDH concepts and ICD–9 classifications, AIHW groupings
1–1.5	World	Epidemiological studies	AAMR/ICD etc.
1.4	Australia	1998 ABS Survey of Disability, Ageing and Carers, based on main disabling condition, ABS broad grouping, including 'Intellectual and developmental disorders' and 'Other mental and behavioural disorders'	Adapted ICIDH concepts and ICD–10 classifications, ABS groupings
1.7	Australia	1993 ABS disability survey, based on screening question of 'slow at learning or understanding'	All people reporting positively to the screening question of 'slow at learning or understanding'
1.86	Australia	1993 ABS Survey of Disability, Ageing and Carers. 'Intellectual disability' including all relevant disabling conditions and disorders	Adapted ICIDH concepts and ICD–9 classifications, AIHW groupings
3.0	United States	US President's Task Force and President's Panel on Mental Retardation	This 'theoretical prevalence' rate is an extrapolation from statistical models based on IQ scores

Note: Estimates in this table include the rates for total population. A detailed review of the estimates for population subgroups can be found in the previous report of this series (AIHW: Wen 1997).

Sources: Some references and discussions are in Chapter 3 of the previous report of this series (AIHW: Wen 1997); ABS 1997; AIHW 2002b.

3.2 Patterns of prevalence of intellectual disability—a review

Difference in the estimates of severe and mild intellectual disability

Estimated prevalence rates of mild intellectual disability vary substantially between different studies and among different populations, according to reviews of studies conducted over the past four decades (Roeleveld et al. 1997; Leonard & Wen 2002). It has been suggested that the smaller variations in prevalence rates of severe intellectual disability indicate that the aetiological process of severe intellectual disability is not influenced greatly by external factors (Roeleveld et al. 1997). The presence of mild intellectual disability is more likely a consequence of both polygenetic and social/environmental influence (Holland & Jacobson 2001). Studies have consistently found that the presence of mild intellectual disability is associated with low socioeconomic status, while a relationship between severe intellectual disability and socioeconomic status has not consistently been found (Drews et al. 1995).

Many international epidemiological studies suggested that the prevalence of moderate, severe or profound intellectual disability is approximately 0.3% to 0.5% in the general population (Reschly 1992). This range of prevalence estimates has been found in both developing and developed countries (Kiely 1987). Studies conducted since the 1960s have found that the prevalence rates of severe intellectual disability in children of school age is relatively stable, varying between 0.3% and 0.4% (e.g. Starza-Smith 1989; Roeleveld et al. 1997; Leonard & Wen 2002). Most of these studies defined severe intellectual disability as IQ scores less than 50.

Some Australian studies have used a definition of severe intellectual disability as IQ under 35 or IQ under 40, resulting in lower estimated prevalence rates (AIHW: Wen 1997). For instance, prevalence of severe intellectual disability was estimated as 0.16% for children born in Western Australia between 1967 and 1976 (Wellesley et al. 1992a) and 0.14% in a more recent study (Leonard & Wen 2002).

Age and sex patterns

Both national and regional estimates in Australia have indicated that prevalence rates vary with age. Rates are markedly higher among children at school age than among the adult population and are highest for those aged 10 to 14 (AIHW: Wen 1997). This general pattern is consistent with the findings from other international estimates (Kiely 1987; McLaren & Bryson 1987; Roeleveld et al. 1997). However, this pattern may not necessarily mirror the pattern of actual prevalence within the population. This age pattern of estimated prevalence rates probably partly reflects the difficulties in case identification in infancy, early childhood and adulthood. Because of the demands of formal education, intellectual disability may be most likely to be identified during school ages. Hence, a large proportion of people with an intellectual disability may be not identified until school entrance. Some children who are identified as having mild intellectual disability may achieve some level of adult independence after school years. When these people are 're-absorbed' in the general population, they are not considered as having an intellectual disability in prevalence estimation.

Other factors also affect the age pattern of prevalence rates. IQ scores can change over time both in individuals and groups (Murphy et al. 1995). Intellectual abilities may change over time and may improve by training and rehabilitation, so assessment and diagnosis should be based on the current level of functioning (WHO 1992). Higher than average mortality among people with severe intellectual disability may also help to explain the lower prevalence rate among the adult population. The death rate in the adult population with learning disability has been found to be higher than that of the general population (McGuigan et al. 1995).

Higher prevalence among males, compared with females, has been consistently reported at both regional and national levels in Australia, particularly among children and adolescents (AIHW: Wen 1997). This higher male prevalence of intellectual disability has been reported consistently for over 100 years (Partington et al. 2000).

People with an intellectual disability vary considerably in terms of the nature and extent of their disability, its causation, and their social and economic background (Holland & Jacobson 2001). Some people have genetic disorders that impact severely on their intellectual, other functional and social abilities, while some people with mild intellectual impairment may develop adequate living skills and are able to lead relatively independent lives in their adulthood.

Aetiology of intellectual disability

A number of risk factors or potential risk factors associated with intellectual disability have been suggested: low birth weight, pre-term birth, multiple births, maternal smoking and alcohol consumption, urinary tract infection and other maternal conditions (e.g. Bennett 1997; Yeargin-Allsopp et al. 1997; Stromme & Hagberg 2000; Leonard & Wen 2002).

The causes of, or risk factors for, intellectual disability are often examined in a temporal sequence, starting with those originating prenatally and continuing to those of post-neonatal origin (Murphy et al. 1998). The causes of intellectual disability are complex, and may include the presence of chromosome abnormalities, genetic disorders and environmental factors. In some cases cause cannot be identified (Holland & Jacobson 2001). Studies have found that approximately 43–70% of children with severe intellectual disability (IQ <50) had a known cause for their condition, compared with only 20–24% of those with mild intellectual disability (IQ of 50–70) (Murphy et al. 1998).

Over 500 genetic diseases or conditions are known to be associated with intellectual disability (Flint & Wilkie 1996 cited in Murphy et al. 1998). Many of these are very rare, and the size and genetic variation of the population under study often determine which conditions are reported as associated with intellectual disability (Murphy et al. 1998).

A review of various studies found that genetic conditions are the commonest known causes of intellectual disability, making up about 7–15% of all intellectual disability and 30–40% of intellectual disability due to known causes (Murphy et al. 1998). Chromosomal abnormalities account for up to 0.3% of severe intellectual disability and 4–8% of mild intellectual disability with identifiable causes. Down syndrome is the most frequent cause of intellectual disability associated with chromosomal abnormalities, accounting for about 4–12% of all intellectual disability cases and up to 22% of those cases with known aetiology.

An aetiological study of school-age children in Western Australian indicated that 40% of intellectual disabilities are known to be due to genetic causes and a further 20% are suspected to be so (Wellesley et al. 1992b). More than half of the genetic causes are prenatally detectable by genetic counselling, adequate prenatal services and screening programs.

A review of clinical genetic diagnoses in the Australian Child and Adolescent Development study found that there was significant male excess among those with intellectual disability, in particular those with autism-related conditions, those with undiagnosed non-syndromic intellectual disability, and those with X-linked monogenic disorders. A substantial proportion of undiagnosed non-syndromic intellectual disability was caused by genes on the X chromosome (Partington et al. 2000).

Associated disabilities

Evidence from many international studies indicates that a large proportion of people with intellectual disability have associated disabilities (e.g. McLaren & Bryson 1987). They are more likely to develop psychiatric disorders than those without intellectual disability (American Psychiatric Association 1994; Holland & Jacobson 2001). Since the 1980s, the concept of a 'dual diagnosis' has evolved to refer to people with intellectual disability who also have a separately diagnosed psychiatric disorder (Reber & Borcherding 1997).

In Australia, analysis of the 1993 disability survey data showed that, of people reporting intellectual as their main disabling condition, 22% had associated psychiatric disabilities and 26% also had speech problems (AIHW: Wen 1997).

Among people ageing with an early onset disability, those with Down syndrome are more likely to have hearing and vision impairments, hypothyroidism, musculoskeletal problems and congenital heart disease. The prevalence of dementia of the Alzheimer type is particularly high in people with Down syndrome (Suttie 1995). It has been reported that neuropathological features of Alzheimer's disease are presented in all post-mortems of people with Down syndrome over 40 years of age, while clinical features may only be noted in a smaller percentage prior to death (Barcikowska et al. 1989 cited in Suttie 1995: 53).

The occurrence and number of multiple conditions increases with increasing severity of intellectual disability (Murphy et al. 1998). For instance, studies have found epilepsy to occur in 4–7% of children with mild intellectual disability and in 20–32% of children with severe intellectual disability (Kiely, 1987; Murphy et al. 1998). Cerebral palsy occurred in 6–8% of children with mild intellectual disability and up to 30% of children with severe intellectual disability (Murphy et al. 1998).

When interpreting estimates of the prevalence of health conditions among people with intellectual disability it should be noted that diseases and illness may be underreported among these people because of their poor communication skills or possible insensitivity to pain and discomfort (Anderson 1993).

3.3 Estimates of prevalence of intellectual disability in Australia

Main data items and methods of estimation

This section presents estimates of prevalence of intellectual disability in Australia based on the four approaches described in Chapter 2: main disabling condition, all disabling conditions, all disabling conditions and activity limitations/participation restrictions, and main/all disabling conditions and a severe or profound core activity restriction (see Section 2.4 for details of methods). A person is initially included in the intellectual disability group if:

- a positive response was made by or for them to the screening question about having 'difficulty learning or understanding things'; and/or
- a positive response was made by or for them to one of the 17 screening questions *and* one or more intellectual impairments or disabling conditions was reported.

A full list of impairments and disabling conditions related to intellectual disability is presented in Appendix 1.

Learning disability is a subcategory of intellectual disability. It would be desirable to separate learning disability from intellectual disability in the estimation of prevalence, since some people with a learning disability may have no impairment in intellectual functioning or adaptive skill areas (American Psychiatric Association 1994). However, it is difficult to do so because of the Australian survey data limitations. People with an intellectual disability are more likely to have learning difficulties, and intellectual disability and learning disability may occur together (American Psychiatric Association 1994).

The criterion of age 18 as the cut-off point for manifestation of intellectual disability is not used in the prevalence estimation in this section. This criterion will be taken into account in Section 3.4 (Patterns of prevalence of intellectual disability in Australia).

The number of people with an intellectual disability may be underreported in the disability survey because of the sensitive nature of conditions related to intellectual disability (Parmenter 2002).

Estimates at national level

All disabling conditions

Estimates of the prevalence of intellectual disability using the four approaches are summarised in Table 3.2. Based on a consideration of all reported disabling conditions, an estimated 503,000 people in 1998, or 2.7% of Australians, reported one or more intellectual disabling conditions. Of these, 496,500 people, or 2.7% of Australians, also reported one or more activity limitations or participation restrictions and, using the narrowest scope, about 301,900 people, or 1.6% of the total population, had a severe or profound core activity restriction.

For people aged under 65, about 376,900, or 2.3% of Australians in that age group, reported an intellectual disability based on reported 'all disabling conditions'. Of these, 370,400 people, or 2.3% of the population aged under 65, also reported one or more activity limitations or participation restrictions, and of them 184,800 people (1.1% of Australians of that age group) had a severe or profound core activity restriction.

Main disabling condition

In 1998, around 212,700 people, or 1.1% of the Australian population, reported an intellectual main disabling condition. Of these, 103,000 people, or 0.6% of the Australian population, also had a severe or profound core activity restriction.

For people aged under 65, an estimated 209,000, or 1.3% of Australians in that age group, reported an intellectual main disabling condition. Of these, 101,300 people, or 0.6% of Australians under 65, had a severe or profound core activity restriction.

Table 3.2: Estimates of intellectual disability based on four approaches, by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	252.5	3.0	124.4	1.5	376.9	2.3
65+	46.8	4.7	79.3	6.2	126.1	5.6
Total	**299.3**	**3.2**	**203.7**	**2.2**	**503.0**	**2.7**
All disabling conditions and activity limitations and participation restrictions						
0–64	247.7	3.0	122.7	1.5	370.4	2.3
65+	46.8	4.7	79.3	6.2	126.1	5.6
Total	**294.5**	**3.2**	**202.0**	**2.2**	**496.5**	**2.7**
All disabling conditions and severe or profound core activity restrictions						
0–64	118.9	1.4	65.9	0.8	184.8	1.1
65+	41.3	4.2	75.8	5.9	117.1	5.2
Total	**160.2**	**1.7**	**141.7**	**1.5**	**301.9**	**1.6**
Main disabling condition						
0–64	154.4	1.9	54.5	0.7	209.0	1.3
65+	**1.6	**0.2	**2.1	**0.2	*3.7	*0.2
Total	**156.1**	**1.7**	**56.6**	**0.6**	**212.7**	**1.1**
Main disabling condition and severe or profound core activity restrictions						
0–64	72.4	0.9	28.9	0.4	101.3	0.6
65+	**0.9	**0.1	**0.8	**0.1	**1.6	**0.1
Total	**73.2**	**0.8**	**29.7**	**0.3**	**103.0**	**0.6**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: Tables A3.1 and A3.2; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

3.4 Patterns of prevalence of intellectual disability in Australia

Age and sex patterns

Prevalence estimates for 1998 show similar age and sex patterns to those for 1993. Age- and sex-specific rates peaked at age 5–14—4% based on main disabling condition and 5% based on all disabling conditions (tables A3.1 and A3.2). After this peak, rates declined slightly among adolescents, and rates for the adult population were considerably lower.

For people aged 65 or more, the rate was 0.2% based on main disabling condition. However, the rate was 5.6% based on all disabling conditions, which could include a large proportion of people who had intellectual impairments associated with dementia.

The prevalence of intellectual disability was generally higher for males than for females, particularly among children and adolescents. For people aged 65 and over, based on a consideration of all disabling conditions, the prevalence was higher for females than for males (tables 3.2, A3.1 and A3.2).

Age at onset of main disabling condition

In the ABS disability surveys, only people living in households were asked when their disabling condition first occurred, and this question was related only to their main disabling condition. In 1998 an estimated 193,600 people, or 96% of people in households with an intellectual main disabling condition, reported having that condition before age 18; over 55% reported onset of their condition before age 5, and about 40% between age 5 and 14 (Figure 3.1; Table A3.3).

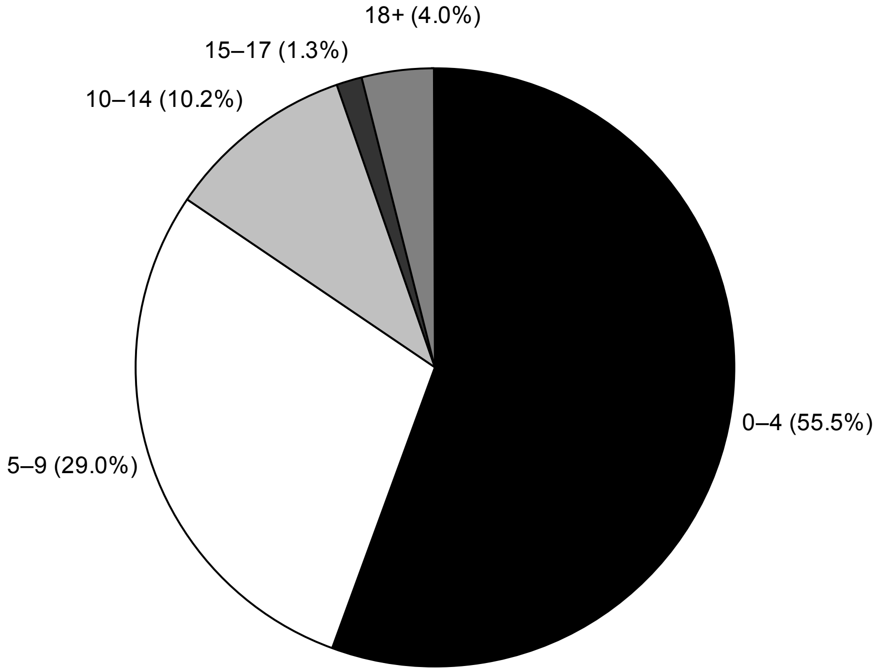
When the AAMR age criterion is applied (i.e. conditions manifesting before age 18), estimates can be calculated only on the basis of reported main disabling condition. To do this it must be assumed that for people living in cared accommodation and people who did not know the age at onset of their main condition, the proportion of those whose main condition first occurred before age 18 is the same as that of people living in households. The proportion (96%) is therefore applied to those who were living in cared accommodation and those who did not know the age at onset of their condition. The result is an estimated 204,200 people in 1998, or 1.1% of the Australian population, reporting an intellectual main disabling condition identified before age 18.

Reported cause of main disabling condition

Survey respondents were also asked about the cause of their main disabling condition. As discussed in Section 3.1, the causes for intellectual disability are complex, ranging from genetic disorders to environmental factors, and many are unidentified. Analysis of the 1998 survey data shows that about 30% of people with an intellectual main disabling condition did not know the cause of the condition. Nevertheless, genetic disorders were the most commonly reported known causes of intellectual disability in Australia. This pattern is consistent with findings from both overseas and other Australian studies on intellectual disability. Among people reporting a known cause, over 50% reported that their condition was present at birth and 17% said that their conditions were caused by disease, illness or genetic disorders (Table 3.3).

Associated diseases or conditions

Intellectual disability is associated with various diseases or conditions and some of them are significant. In 1998, 60,100 people with an intellectual disability, or 0.3% of the Australian population, reported an attention deficit hyperactivity disorder (ADHD), either as a main disabling condition or an associated condition. Of these, 42,700 were children aged under 15 (1.1% of children of that age). About 10,700 children aged under 15, or 0.3% of children of that age, reported autism and related conditions. Nearly 10,000 people reported conditions associated with Down syndrome and most of them were aged under 65.



Source: Table A3.3.

Figure 3.1:People reporting an intellectual main disabling condition, age when that condition identified, 1998

Table 3.3: People reporting an intellectual main disabling condition: cause of main disabling condition, 1998

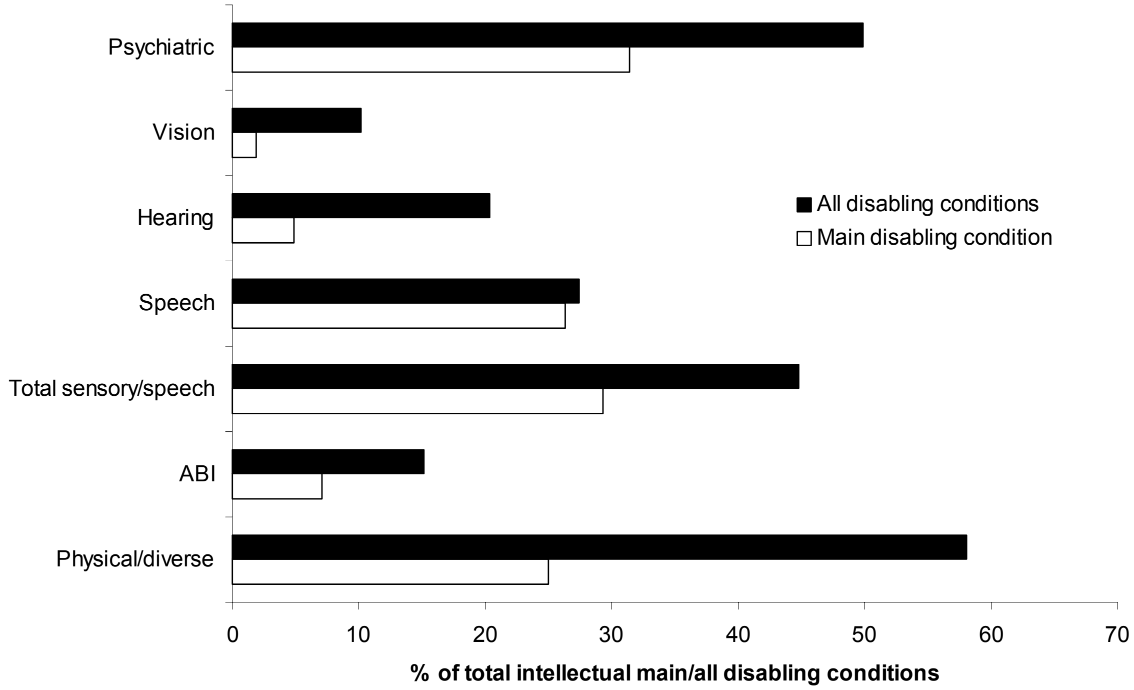
Reported cause of main disabling condition	’000	%	% of total known causes
Main condition just came on	26.9	12.7	18.2
Causes by disease, illness, hereditary	24.8	11.7	16.7
Accident/injury	**2.4	1.1	1.6
Present at birth	75.6	35.5	51.0
Old age/stress	**0.6	0.3	0.4
Personal/family problems, death	*6.0	2.8	4.1
Allergy (e.g. food, climate, medication and environment)	**2.1	1.0	1.4
Side effect of medication/medical procedure	**0.9	0.4	0.6
Cause by other factors not elsewhere specified	*8.8	4.1	6.0
Total known causes	*148.1*		*100.0*
Do not know the cause/not applicable	64.6	30.4	
Total	**212.7**	**100.0**	

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Associated disabilities

The results of the 1998 disability survey reflect the findings of international studies—that many people with an intellectual disability have multiple impairments or disabilities, and that they are at a higher risk of developing psychiatric disorders than those without intellectual disability. Figure 3.2 provides data about associated disabilities for people reporting an intellectual main disabling conditions and people reporting one or more intellectual disabling conditions. While physical/diverse disability was the most frequently associated disability for people with an intellectual disability based on all reported disabling conditions (58%), about 50% had a psychiatric disability and 45% had a sensory/speech disability. Psychiatric disorder was the most commonly associated disability (31%) for people with an intellectual main disabling condition, followed by sensory/speech disability (29%) and physical/diverse disability (25%). Speech impairments or problems (26%) were most common among the associated sensory/speech disabilities (Figure 3.2; Table A3.4).



Source: Table A3.4.

Figure 3.2: People with an intellectual disability (based on main/all disabling conditions), by reported other disabilities, 1998

Place of residence and geographic location

Among people with an intellectual disability, reported either as a main disabling condition or as an associated condition, 35% of those with a severe or profound core activity restriction were living in cared accommodation (Table 3.4). Of those aged 65 and over, 78% were living in cared accommodation, compared with 31% of people with a physical/diverse disability.

People with a severe or profound core activity restriction and an intellectual main disabling condition were much more likely to live in residential care at younger ages than were people with other main disabling conditions. At age 45–64, 42% of those with a severe or profound core activity restriction and an intellectual main disabling condition were living in cared accommodation (AIHW 2000b).

In 1998, about 60% of people with an intellectual disability lived in capital cities and 40% lived in other areas. This is generally consistent across the estimates of intellectual disability using all the four approaches (Table 3.5).

Table 3.4: Estimates of intellectual disability based on four approaches, by place of residence, 1998

	Households		Cared accommodation		Total	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	360.9	95.8	16.0	4.2	376.9	100.0
65+	34.0	27.0	92.0	73.0	126.1	100.0
Total	**395.0**	**78.5**	**108.0**	**21.5**	**503.0**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	354.4	95.7	16.0	4.3	370.4	100.0
65+	34.0	27.0	92.0	73.0	126.1	100.0
Total	**388.5**	**78.2**	**108.0**	**21.8**	**496.5**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	169.7	91.8	15.1	8.2	184.8	100.0
65+	25.7	22.0	91.4	78.0	117.1	100.0
Total	**195.4**	**64.7**	**106.5**	**35.3**	**301.9**	**100.0**
Main disabling condition						
0–64	202.4	96.9	*6.6	*3.1	209.0	100.0
65+	**2.0	**54.9	**1.7	**45.1	*3.7	100.0
Total	**204.5**	**96.1**	***8.3**	**3.9**	**212.7**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	95.1	93.9	*6.2	6.1	101.3	100.0
65+	—	0.0	**1.6	**100.0	**1.6	100.0
Total	**95.1**	**92.4**	***7.9**	***7.6**	**103.0**	**100.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 3.5: Estimates of intellectual disability based on four approaches, by geographic location, 1998

	Capital city		Balance of state		Total	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	215.0	57.0	161.9	43.0	376.9	100.0
65+	75.8	60.2	50.2	39.8	126.1	100.0
Total	**290.8**	**57.8**	**212.1**	**42.2**	**503.0**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	211.2	57.0	159.2	43.0	370.4	100.0
65+	75.8	60.2	50.2	39.8	126.1	100.0
Total	**287.0**	**57.8**	**209.4**	**42.2**	**496.5**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	106.3	57.5	78.6	42.5	184.8	100.0
65+	71.9	61.4	45.2	38.6	117.1	100.0
Total	**178.1**	**59.0**	**123.8**	**41.0**	**301.9**	**100.0**
Main disabling condition						
0–64	125.1	59.9	83.9	40.1	209.0	100.0
65+	**2.0	**54.8	**1.7	**45.2	*3.7	100.0
Total	**127.2**	**59.8**	**85.6**	**40.2**	**212.7**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	61.6	60.8	39.7	39.2	101.3	100.0
65+	**1.0	**58.1	**0.7	**41.9	**1.6	100.0
Total	**62.6**	**60.8**	**40.4**	**39.2**	**103.0**	**100.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Estimates at state and territory level

Table 3.6 provides estimates of the number of people with an intellectual disability in each state and territory. As discussed in Section 2.4, the estimates rely on underlying assumptions that each state or territory has the same age- and sex-specific prevalence rates as Australia as a whole, and that the prevalence is not affected by factors other than demographic variations. Hence, the differences in the estimates across the jurisdictions are entirely due to differences in population size, and age and sex profiles.

Table 3.6: Estimates of intellectual disability (all disabling conditions and activity limitations and participation restrictions) by states and territories, by sex and age, 1998 ('000)

	States and territories								
	NSW	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
Males									
0–64	83.3	60.4	46.7	25.1	19.2	*6.3	*4.3	*2.9	248.2
65+	16.5	12.1	*8.3	*4.0	*4.4	**1.3	**0.5	**0.1	47.0
Total	*99.8*	*72.5*	*55.0*	*29.0*	*23.5*	**7.5*	**4.8*	**3.1*	*295.3*
Females									
0–64	41.5	30.5	23.0	12.2	9.6	*3.1	**2.2	**1.3	123.5
65+	28.3	20.9	13.2	*6.7	*7.7	**2.2	**0.8	**0.1	79.8
Total	*69.8*	*51.5*	*36.2*	*18.9*	*17.2*	**5.3*	**2.9*	***1.5*	*203.2*
Persons									
0–64	124.8	90.9	69.7	37.3	28.7	9.4	*6.5	*4.3	371.7
65+	44.7	33.0	21.4	10.7	12.0	*3.4	**1.2	**0.3	126.8
Total	**169.6**	**123.9**	**91.1**	**47.9**	**40.8**	**12.8**	***7.7**	***4.5**	**498.5**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: Table A3.5; ABS 1999b; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

4 Psychiatric disability

4.1 A brief overview of existing definitions and estimates of prevalence

This section focuses on the definition and prevalence of psychiatric disability in an Australian and international context. Prevalence estimates (based both on population data and other sources) for Australia and overseas populations are reviewed, and the various methods used to obtain these are discussed.

Definitions of psychiatric disability

The wide spectrum of disabilities that come under the heading 'psychiatric disabilities' means that reaching an overall, universal definition of 'psychiatric disability' is a challenging task. The phrases 'psychiatric disability', 'mental disorder' and 'mental illness' are often used interchangeably, despite occasional efforts made in the literature to differentiate between these concepts. Prevalence studies tend to focus on estimating the proportion of people with 'mental disorders'.

Psychiatric disabilities and mental disorders

Distinguishing between 'psychiatric disabilities' and 'mental disorders' is a difficult task, and seems to be one that is rarely undertaken. Attempts that have been made to differentiate between the two have generally treated people with psychiatric disabilities as a subset of those with mental disorders. For example, people with psychiatric disabilities have been described as 'those who have a mental disorder and are disabled by it' (Commonwealth Department of Human Services and Health 1995). That is, psychiatric disabilities can be described as a disability due to a mental disorder. Similarly, the Americans with Disabilities Act distinguishes between mental disorders and psychiatric disabilities, noting that not all conditions in the DSM–IV are disabilities (ETS 2001). The definition as provided in the DSM–IV classification (see Table 4.1) specifically mentions disability as being associated with mental disorders and therefore acknowledges that there is a relationship between the two; however, the exact nature of this relationship is unclear.

Despite the above examples, much of the literature regarding prevalence rates tends to focus on people with a 'mental disorder' and not use the phrase 'psychiatric disability'. It is important, therefore, to note that most of the estimates presented in tables 4.2 and 4.3 are largely based on measures of people with mental disorders only, and should be interpreted as such. Some of the literature does attempt to capture estimates both of mental disorders and disabilities arising from them. That is, people with mental disorders were also assessed for whether or not they were disabled by their condition. Where available, both of these measures are presented in tables 4.2 and 4.3.

Classifications of mental disorders

Two major classifications of mental disorders are generally used to obtain prevalence estimates. The DSM is published by the American Psychiatric Association, the fourth revision of which (DSM–IV) is the most recently published (American Psychiatric Association 1994). The DSM–IV classification identifies 17 major types of mental disorders, which are wide-ranging in nature. Disorders covered include those diagnosed during childhood (e.g. learning, developmental, communication and mental retardation), as well as dementia, substance-related disorders, and mood, anxiety, personality and sexual disorders. Psychotic disorders—also known as 'low-prevalence' disorders—are also included in the DSM–IV. They are described in one Australian study as 'illnesses which have their origins in abnormal brain function and are characterised by fundamental distortions of thinking, perception, and emotional response' (Jablensky et al. 1999). These disorders include but are not limited to schizophrenia, bipolar affective disorders and delusional disorders. As tables 4.2 and 4.3 show, the majority of prevalence studies, both in Australia and overseas, use DSM classifications as a basis of their estimates of the prevalence of mental disorders.

The ICD–10, chapter V, deals with 'mental and behavioural disorders'. There are 11 main categories in this classification (WHO 1992). Despite the fact that the ICD–10 refers to 'mental and behavioural disorders', whilst the DSM–IV refers to 'mental disorders', they both cover the same broad range. As Table 4.1 shows, behavioural disorders are included within the DSM–IV definition of mental disorders.

Both of the above classifications vary with the specific codes used within a certain category. Despite their different structures, however, the two classifications can be mapped to one another (see, for example, NZHIS 2002). It should be noted that there is room for 'other' or 'unspecified' disorders within each category, meaning disorders can be classified even if they do not have a specific code attached.

Classification of mental functioning and disability

The ICF classifies mental functions into two broad areas—global mental functions (e.g. consciousness, orientation, and intellectual) and specific mental functions (e.g. attention, memory and psychomotor functions). The ICF is based upon all functions, and therefore covers a different and possibly wider range of human experiences than the DSM–IV or ICD–10. By using the ICF as well as the DSM–IV or ICD–10, mental disorders and psychiatric disabilities can be related to difficulties with functioning in certain specific areas, as well as associated activity limitations and participation restrictions.

Australian legislative and administrative definitions

'Mental illness' is a term used within Australian legislation. Each state and territory has legislation relating to mental health. In an Australian context, 'mental illness' is often used in preference to 'mental disorder', and essentially has the same meaning. In fact, some legislation, such as the Northern Territory Mental Health and Related Services Act (Northern Territory 2002), specifically refers to the ICD and DSM definitions.

Table 4.1: Definitions of psychiatric disability and mental disorder

Psychiatric disability	
Source	**Definition**
National Community Services Data Dictionary, version 3 (AIHW 2003b)	Psychiatric disability is associated with clinically recognisable symptoms and behaviour patterns frequently associated with distress that may impair personal functioning in normal social activity. Impairments of global or specific mental functions may be experienced, with associated activity limitations and participation restrictions in a range of areas. Supports needed may vary in range, and may be required with intermittent intensity during the course of the condition. Change in level of supports tends to be related to changes in the extent of impairment and the environment. Psychiatric disability may be associated with schizophrenias, affective disorders, anxiety disorders, addictive behaviours, personality disorders, stress, psychosis, depression and adjustment disorders.
Disability Discrimination Act 1992, Section 4 (incorporated in overall definition of disability)	'disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgement or that results in disturbed behaviour.'
Task Force on Psychiatric Disabilities (ETS 2001—USA)	Comprise a range of conditions characterised by emotional, cognitive and/or behavioral dysfunction. Diagnoses are provided in the DSM–IV–TR or the ICD–10. Note that not all conditions listed in the DSM–IV–TR are disabilities, or even impairments for the purposes of the Americans with Disabilities Act.
Mental disorder	
Source	**Definition**
Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM–IV)	'each of the mental disorders is conceptualized as a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (e.g. a painful symptom) or disability (i.e. impairment in one or more areas of functioning) or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom. In addition, this syndrome or pattern must not be merely an expectable culturally sanctioned response to a particular event, for example, the death of a loved one. Whatever its original cause, it must currently be considered a manifestation of a behavioral, psychological, or biological dysfunction in the individual. Neither deviant behavior (e.g. political, religious, or sexual) nor conflicts that are primarily between the individual and society are mental disorders unless the deviance or conflict is a symptom of a dysfunction in the individual, as described above'.
Sawyer et al. 2000	Conditions characterised by clinically significant sets of symptoms or emotional or behavioural problems associated with personal distress and impaired functioning.
Australia's Health 2002 (AIHW 2002b)	A disturbance of mood or thought that can affect behaviour and distress the person or those around them, so that the person cannot function normally.
Medical subject headings (National Library of Medicine, 2003—USA)	Psychiatric illness or diseases manifested by breakdowns in the adaptational process expressed primarily as abnormalities of thought, feeling, and behavior producing either distress or impairment of function.
World Health Report 2001 (WHO 2001b)	'Mental and behavioural disorders are not just variations within the range of 'normal', but are clearly abnormal or pathological phenomena…in order to be categorized as disorders, such abnormalities must be sustained or recurring and they must result in some personal distress or impaired functioning in one or more areas of life'.
ICD–10 (WHO 1992)	The existence of a clinically recognisable set of symptoms or behaviour associated in most cases with distress and with interference with personal functions.
Australian Mental Health Strategy (in Sawyer et al. 2000)	A recognised, medically diagnosable illness that results in the significant impairment of an individual's cognitive, affective or relational abilities.

There are several common characteristics among the various definitions presented in Table 4.1. Whether one describes a 'mental disorder' or 'psychiatric disability', the different sources generally refer to a condition (often requiring clinical diagnosis) which causes distress, and has an effect on an individual's functioning. The condition may also cause impairment and usually expresses itself through behavioural changes.

Existing estimates of prevalence of psychiatric disability

Tables 4.2 and 4.3 outline the findings of major prevalence studies carried out in Australia and overseas. Given that the majority of these estimates are based on 'mental disorders', these measures should not be taken to be equal to the proportion of people with psychiatric disabilities. In some studies, however, a measure of disability was made in addition to that of mental disorders. A measure of 'psychiatric disability' can therefore be calculated by taking the percentage of people with mental disorders who also reported (or were assessed as having) a related disability.

Most estimates for mental disorders presented in tables 4.2 and 4.3 were produced using responses from population surveys. Diagnostic criteria from DSM and/or ICD classifications were applied to individual's responses in order to determine whether or not they had a mental disorder. There were a few exceptions to this method—see 'definitions and classifications' in tables 4.2 and 4.3 for details.

International estimates for prevalence of psychiatric disabilities and mental disorders

Adult prevalence estimates

Psychiatric disabilities

The New Zealand disability survey estimated that, in 2001, 4.0% of the population over the age of 15 had a psychiatric disability. This was based on a set of screening questions which asked about the presence of a long-term 'emotional, psychological or psychiatric condition', and also specified that it causes difficulty with everyday activities (Table 4.2).

Mental disorders

Prevalence estimates for mental disorders for overseas adult populations presented in Table 4.2 range between 8% (Turkey) and 29% (United States of America). The majority of these estimates are based on 12-month prevalence rates—that is, whether the individuals in the sample experienced a mental disorder over the past 12 months. This approach allows for the episodic nature of many mental disorders. Variations of prevalence rates should be considered with reference to different age ranges sampled and the different classification systems used (for example, different versions of the DSM were used).

Prevalence estimates for children and adolescents

Psychiatric disabilities

The prevalence estimate for children (aged 0–14) with psychiatric disabilities in New Zealand in 2001 was 3%, slightly lower than for adults as cited above (Table 4.2). This estimate, based on the self-reported presence of a psychiatric/psychological condition in the New Zealand disability survey, is lower than the estimate obtained in the North Carolina longitudinal study, which estimates that 7.5% of people aged between 9 and 13 years have a psychiatric disability. The obvious variation in age range may account for this difference, as well as different methods of collection (the New Zealand estimate used self-report measures based on screening questions, whilst the North Carolina estimate used clinical assessments).

Mental disorders

Table 4.2 shows a range of mental disorder estimates for children and adolescents based on 6-month prevalence rates. These range from 9.5% (England and Wales) to 18.1% (Ontario, Canada). A meta-analysis carried out by Waddell et al. (2002) estimated the overall prevalence of mental disorders in children to be around 14%. The 2001 WHO *World Health Report* quoted comparable figures, estimating that between 10% and 20% of children have one or more mental and behavioural disorders, based on the results of seven international studies (WHO 2001b). Although overall studies of children and adolescent mental disorders have produced smaller prevalence estimates than for most adult populations, it should be noted that often studies of this nature refer only to a selected range of disorders specific to children, and therefore may not capture information on other disorders. Also, the vast majority of estimates of child/adolescent mental disorders are based on not only diagnostic criteria but also impairment criteria. That is, not only must appropriate symptoms be present but they must be causing some sort of impairment in the child's everyday life.

Prevalence of psychotic disorders and associated disability

Twelve-month prevalence estimates from two household surveys completed in Great Britain estimated that around half a per cent of the population (5 per 1,000 in 2000 and 4 per 1,000 in 1993) experienced psychotic disorders (O'Brien et al. 2002; Jenkins et al. 1997). Not all of those with a psychotic disorder were found to be disabled by it—in fact, in 2000 about half of those identified as having a psychotic disorder (49%) indicated that they had difficulties with one or more activities of daily living (O'Brien et al. 2002).

Australian estimates for prevalence of psychiatric disabilities and mental disorders

ABS Survey of Mental Health and Wellbeing (SMHWB)

This survey, carried out in 1997 and 1998, deals with three main prevalence estimates:

- mental disorders (and associated disabilities) of the adult population (18 years and over) in 1997
- mental disorders of children and adolescents (4–17 years) in 1998
- psychotic, or 'low-prevalence', disorders for adults (18–64 years) in 1997–98.

Adult prevalence estimates—mental disorders

Estimates from this survey, based on household data, indicate that around 18% of adults (aged 18 years and over) experienced a mental disorder in the 12 months prior to the survey (Table 4.3). It is important to note that this survey did not attempt to cover all mental disorders. For example, data on dementia and related disorders were not collected, and personality disorder estimates were not incorporated into the overall prevalence estimates due to the difference in the way they were collected. Hence it is likely that the overall prevalence of mental disorders in the population is underestimated (ABS 1998).

Adult prevalence estimates — psychiatric disabilities

Two estimates of psychiatric disability of Australian adults can be calculated based on additional measures used in the SMHWB, both of which are presented in Table 4.3. Based on the Medical Outcomes Study 12-item Short Form (SF-12) scale, 68% of adults in the survey who were identified as having mental disorders also had a mild, moderate or severe disability. This equates to an estimated 12% of the total adult survey population. The other estimate is based on the Brief Disability Questionnaire (BDQ). According to this measure, 44% of people with a mental disorder also experienced disability, or around 8% of the total adult survey population. The SF-12 uses a 12-point scale to assess the presence and severity of disability, whilst the BDQ uses a five-item role functioning subscale (Sanderson & Andrews 2002).

It is important to note the difference in disability measures used between this 1997 survey, and the 1998 ABS Survey of Disability, Ageing and Carers (see Section 2.3 for more details).

Child and adolescent prevalence estimates of mental disorders

The SMHWB estimated the six-month prevalence of mental disorders in children and adolescents (ages 4–17) to be around 14% (Table 4.3). This estimate was based on the identification of depressive disorder, conduct disorder and ADHD. Note that data on anxiety disorders were not collected, so this value may be an underestimate (Sawyer et al. 2000). Diagnoses were based on interviews held with parents (for those aged 4 to 12 years), or with adolescents themselves (for those aged 13 to 17 years).

Estimates of psychotic (low-prevalence) disorders

The estimate of one-month prevalence of psychotic disorders was 4.7 per 1,000 adults (that is, just under half a per cent). This was comparable to 12-month estimates found in Great Britain (see above). The Australian measure was based on a sample of people attending mental health services, and therefore may not have captured a full estimate of people with psychotic disorders in the general population. Just under half (47%) of people identified as suffering from psychotic disorders were assessed as seriously impaired in their ability to function in everyday social and occupational domains (based on the Social and Occupational Functioning Assessment Scale) (Jablensky et al. 1999). This proportion, considered in combination with the above prevalence estimate, equates to approximately 2.2 per 1,000 adults in the general population (0.2%) suffering a serious impairment of functioning resulting from a psychotic disorder.

Other Australian prevalence estimates

Psychiatric disabilities

Clayer et al. (1991) estimated that in rural South Australia, based on the General Health Questionnaire (GHQ-28), around 5% of adults (aged 18 and over) experienced disability related to a mental health disorder (Table 4.3).

Mental disorders

The National Health Survey of 2001 estimated a point-prevalence estimate of mental disorders of 9.6%, and the South Australian Mental Health Survey 19.5% (Table 4.3). These estimates measure the percentage of people with a mental disorder at a given point in time. Rural South Australian 6-month estimate was found to be even higher, at 26.4%. The wide range between these estimates could be partially explained by the different data collection methods applied (telephone versus in-person), the different populations investigated (urban, rural or both) and the classifications used (DSM, general health questionnaire or self-report).

The Western Australian Child Health Survey (1993) estimated that around 18% of children and adolescents (aged 4–16 years) experienced a mental disorder in the 6 months prior to the survey (Table 4.3). This is comparable with international estimates described above, but slightly higher than the value obtained in the Australian ABS SMHWB (14%; see above).

Table 4.2: Existing estimates of prevalence rates of psychiatric disabilities and mental disorders, international

Prevalence rates (%)	Regions	Age group	Data sources and methods	Definitions and classifications	Source
Psychiatric disabilities (adults and children/adolescents)					
4.0	New Zealand	15+	2001 New Zealand Disability Survey	Self-report, based on screening questions[(a)]	Statistics NZ 2002a
3.0	New Zealand	0–14	2001 New Zealand Disability Survey	Self-report, based on screening questions[(b)]	Statistics NZ 2002a
7.5	USA (North Carolina)	9–13	Longitudinal study of children and adolescents, North Carolina	DSM–IV diagnosis, and disability measure based on restricted participation	Ezpelata et al. 2001
Mental disorders (adults)					
20.0 (12 month)	USA	18+	Epidemiologic Catchment Area Study, 1980–1983	Diagnosis based on DSM–III and ICD–8	Clayer et al. 1995; Reiger et al. 1993
22.4 (12 month)	Brazil	18+	São Paulo Epidemiological Catchment Area, 1994–1996	DSM–III–R diagnosis	WHO International Consortium 2000
15.3 for females, 18.9 males (6 month)	Canada	18+	Edmonton Survey of Psychiatric Disorders, 1983–1986	DSM–III diagnosis	Goldner et al. 1999
23.2 (12 month)	Netherlands	18–64	Netherlands Mental Health Survey and Incidence Study (NEMESIS), 1996	DSM–III–R diagnosis	Goldner et al. 1999
20.6 (6 month)	New Zealand	18–64	Christchurch Psychiatric Epidemiology Study, 1986	DSM–III diagnosis	Wells et al. 1989; Clayer et al. 1995
29.1 (12 month)	USA	18–54	US National Comorbidity Survey, 1990–1992	Diagnosis based on DSM–III–R and ICD–10	WHO International Consortium 2000
8.4 (12 month)	Turkey	18–54	Mental Health Profile of Turkey	DSM–III–R diagnosis	WHO International Consortium 2000
19.9 (12 month)	Canada (Ontario)	18–54	Mental Health Supplement to the Ontario Health Survey, 1990–1991	DSM–III–R diagnosis	WHO International Consortium 2000
12.6 (12 month)	Mexico	18–54	Epidemiology of Psychiatric Comorbidity Project, 1995	DSM–III–R diagnosis	WHO International Consortium 2000
24.4 (12 month)	Germany	18–25	Early Developmental Stages of Psychopathy, 1995	DSM–IV diagnosis	WHO International Consortium 2000
Mental disorders (children)					
9.5 (6 month)	England & Wales	5–15	Survey of mental health of children and adolescents in England and Wales, 1999	ICD–10 diagnosis with strict impairment criteria	Meltzer et al. 2000; Waddell et al. 2002
18.1 (6 month)	Canada (Ontario)	4–16	Ontario Child Health Study	DSM–III diagnosis with impairment severity criteria	Waddell et al. 2002
12.8 (6 month)	USA	9–17	Mental Health Methods for the Epidemiology of Child and Adolescent Mental Disorders Study	DSM–III–R diagnosis with impairment criteria	Waddell et al. 2002
12.7 (6 month)	Canada (Quebec)	6–14	Quebec Child Mental Health Survey	DSM–III–R diagnosis with impairment criteria	Waddell et al. 2002

(a) ‘Psychiatric/psychological disability’ is defined for adults (aged 15 or over) as ‘people who, because of a long term emotional, psychological or psychiatric condition, have difficulty with or are stopped from doing everyday activities that people their age can usually do, including communicating, mixing with others or socialising’.

(b) ‘Psychiatric/psychological disability’ is defined for children (aged 14 or less) as ‘children who, because of a long-term emotional, behavioural, psychological, nervous or mental health problem, are limited in the kind or amount of activity they can do at home, school or play’.

Table 4.3: Existing estimates of prevalence rates of psychiatric disabilities and mental disorders, Australia

Prevalence rates (%)	Regions	Age group	Data sources and methods	Definitions and classifications	Source
Psychiatric disabilities (adults)					
7.8	Australia	18+	ABS National Survey of Mental Health and Wellbeing, 1997 (adult component)	Brief Disability Questionnaire (BDQ) (mild, moderate or severe disability)	ABS 1998
12.0	Australia	18+	ABS National Survey of Mental Health and Wellbeing, 1997 (adult component)	SF-12 (mild, moderate or severe disability)	Sanderson & Andrews 2002
5.2	South Australia	18+	1991 Riverland Study—rural South Australia	Activities of Daily Living (ADL) questionnaire	Clayer et al. 1991
Mental disorders (adults)					
17.7 (12 month)	Australia	18–99	ABS National Survey of Mental Health and Wellbeing, 1997 (adult component)	Diagnosis based on DSM–IV and ICD–10	ABS 1998; Andrews et al. 1999; Andrews et al. 2001
19.5 (point)	South Australia	18+	South Australia Mental Health Survey, 1997	General Health Questionnaire (GHQ-28) (telephone survey)	Taylor et al. 2000
9.6 (point)	Australia	All ages	National Health Survey, 2001	Self-reported health conditions	ABS 2002
26.4 (6 month)	South Australia	18+	1991 Riverland Study—rural South Australia	Diagnosis based on DSM–III–R and General Health Questionnaire (GHQ-28)	Clayer et al. 1991; Clayer et al. 1995
Mental disorders (children/adolescents)					
14.1 (6 month)	Australia	4–17	ABS National Survey of Mental Health and Wellbeing, 1998 (child and adolescent component)	DSM–IV diagnosis with impairment criteria	Sawyer et al. 2000
17.7 (6 month)	Western Australia	4–16	Western Australia Child Health Survey, 1993	Parent Child Behaviour Checklist	Zubrick et al. 1995

Prevalence of specific mental disorders

Depression

Depression is one of the most prevalent of all mental disorders, with the World Health Organization (WHO) estimating that around 9.5% of females and 5.8% of males will suffer depression worldwide in any given year (WHO 2001b). Australian estimates produced similar findings—the ABS 1997 SMHWB found that around 5% of the Australian population had a depressive disorder. Prevalence rates for females (6.8%) were double that of males (3.4%) (Andrews et al. 1999).

Schizophrenia

Schizophrenia is one of the most prevalent of the psychotic (low-prevalence) disorders. Goldner et al. (2003) conducted a meta-analysis of eight international schizophrenia prevalence studies, and provided a 'best estimate' prevalence of 0.34%, based on estimates ranging from 0.2–0.9%. Analysis of Canadian administrative health data produced a slightly higher one-year prevalence estimate range of 0.42–0.45% between 1996 and 1999 (Goldner et al. 2003). Around half of the psychotic disorders identified in 1997–1998 as part of the ABS SMHWB were types of schizophrenia (based on both ICD–10 and DSM–III–R conditions).

4.2 Estimates of prevalence of psychiatric disability in Australia

Main data items and methods of estimation

This section presents estimates of psychiatric disability using four approaches to the ABS 1998 disability survey data. These are based on estimates of main disabling condition, all disabling conditions, all disabling conditions and activity limitations/participation restrictions, and main/all disabling conditions and a severe or profound core activity restriction (see Section 2.4 for details of methods). A person is initially included in the psychiatric disability group if:

- a positive response was made by or for them to one or more of the following screening questions:
  'whether is restricted by a nervous or emotional condition',
  'whether needs help/supervision because of a mental illness or condition'; and/or
- a positive response was made by or for them to one or more of the 17 screening questions and one or more psychiatric disorders or disabling conditions was reported (for detailed codes for psychiatric disorders and disabling conditions see Appendix 1).

Since the disability surveys collect self-reported data, the number of people with psychiatric disability could be underestimated because of the sensitive nature of some conditions. Some people may not have reported certain psychiatric conditions such as schizophrenia, and alcohol- and drug-related conditions.

It should be noted that the definition and measurement of disability in the ABS disability surveys differ from the ABS SMHWB (see Section 2.3).

Estimates at national level

All disabling conditions

Table 4.4 shows prevalence estimates for the Australian population based on the four different approaches using the 1998 Survey of Disability, Ageing and Carers.

Around 768,900 people in 1998, or 4.1% of the Australian population, had one or more psychiatric disabling conditions. This proportion fell to 2.1% for those who also reported a severe or profound core activity restriction (398,300 people).

Numbers of people reporting a psychiatric disability based on all conditions and an activity limitation were very similar to those above—757,100 overall (4.1% of the population), and 493,500 for those under 65 years (3.0% of the under-65 population).

Table 4.4: Estimates of psychiatric disability based on four approaches, by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64 years	245.1	3.0	259.0	3.2	504.1	3.1
65+ years	86.7	8.7	178.1	13.9	264.8	11.7
Total	**331.8**	**3.6**	**437.1**	**4.7**	**768.9**	**4.1**
All disabling conditions and activity limitations and participation restrictions						
0–64 years	239.2	2.9	254.3	3.2	493.5	3.0
65+ years	86.3	8.7	177.3	13.9	263.6	11.6
Total	**325.6**	**3.5**	**431.5**	**4.6**	**757.1**	**4.1**
All disabling conditions and severe or profound core activity restrictions						
0–64 years	103.5	1.2	106.5	1.3	209.9	1.3
65+ years	57.2	5.8	131.1	10.3	188.4	8.3
Total	**160.7**	**1.7**	**237.6**	**2.5**	**398.3**	**2.1**
Main disabling condition						
0–64 years	86.1	1.0	111.0	1.4	197.2	1.2
65+ years	26.4	2.7	60.9	4.8	87.3	3.8
Total	**112.5**	**1.2**	**171.9**	**1.8**	**284.5**	**1.5**
Main disabling condition and severe or profound core activity restrictions						
0–64 years	28.0	0.3	29.9	0.4	57.9	0.4
65+ years	21.7	2.2	51.7	4.0	73.4	3.2
Total	**49.7**	**0.5**	**81.6**	**0.9**	**131.3**	**0.7**

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Main disabling condition

In 1998, a total of 284,500 people (1.5% of the Australian population) reported their main condition as psychiatric (Table 4.4). Of these, 131,300 (0.7% of the population) also reported that they had a severe or profound core activity restriction.

Of all Australians aged under 65 years, 197,200 (1.2%) reported a main condition of psychiatric disability. Around a third of these (57,900 or 0.4% of the under-65 population) also had a severe or profound core activity restriction.

4.3 Patterns of psychiatric disability in Australia

Age and sex patterns

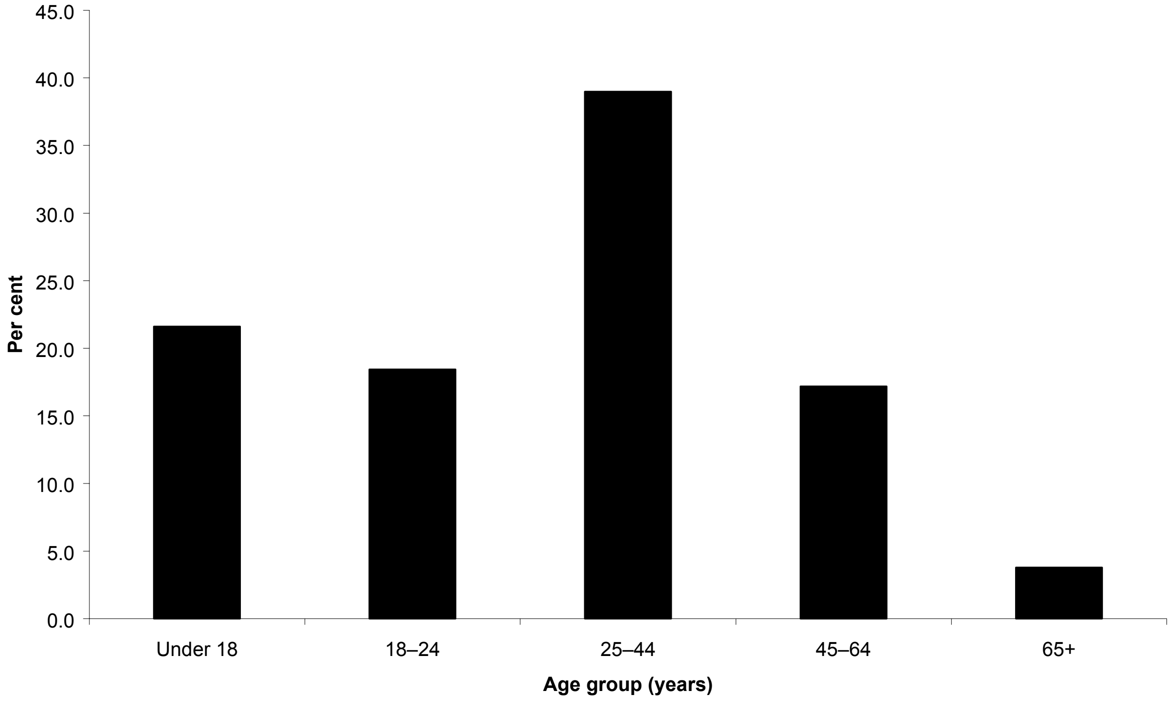
When considering all disabling conditions, around 3% of people aged under 65 years reported a psychiatric disability, whilst this proportion was much higher for those 65 years and over (12%) (Table 4.4).

Rates of reporting psychiatric disability generally rose with age (tables A4.1 and A4.2). When considering all reported conditions, the percentage of people with a psychiatric disability was highest for those aged 65 or over (12%) (Table A4.1). This proportion was higher for females (14%) than males (9%). The next highest proportion was for those aged 45–64 years (6% and 5% respectively).

More females (4.7% of the female population) than males (3.6%) reported psychiatric as one of their disabling conditions in the 1998 survey (Table 4.4). This sex difference is mainly age-related, due to the fact that there were more females aged over 65 than males. There is also a sex difference when considering main conditions reported, with 1.8% of females and 1.2% of males reporting a psychiatric disability.

Age at onset of main disabling condition

Almost two-fifths (39%) of people with a main psychiatric condition reported an age of onset between 25 and 44 years (Figure 4.1 and Table A4.3). Just over one-fifth (22%) were under the age of 18 when their psychiatric disability occurred. Around 4% of people indicated an age of onset of their main condition after the age of 65 years.



Source: Table A4.3.

Figure 4.1: People with a psychiatric main disabling condition: age when that condition identified, 1998

Cause of main disabling condition

The cause of a main psychiatric condition, as reported in the survey, varied between those aged under 65 and over 65 years (Table 4.5). For people under 65 years, over a quarter (53,600 of 197,200 or 27%) reported that their psychiatric condition was caused by personal/family problems or death. The next most frequent cause reported was that the condition 'just came on' (27,300 or 14%). A further two causes were identified by around 11% of people, namely stress (22,200) and 'other factor' (21,000). Another 11% of people aged under 65 years did not know the cause of their main condition.

For the 65 and over age group, the main cause most often identified was old age (24,800 people or 28%). The next most common response was disease, illness or hereditary causes (19,200 or 22%). A further 12,100 people (14%) in the 65 and over age group said that the condition 'just came on'. Around 14% of this age group did not know the cause of their psychiatric condition.

Table 4.5: People reporting a psychiatric main disabling condition: cause of main disabling condition, 1998

	Age group (years)					
	0–64		65+		All ages	
Reported cause of main disabling condition	**'000**	**%**	**'000**	**%**	**'000**	**%**
Main condition just came on	27.3	13.8	12.1	13.9	39.4	13.9
Caused by disease, illness, hereditary	15.4	7.8	19.2	22.0	34.6	12.2
Accident/injury	10.3	5.2	**1.1	**1.3	11.4	4.0
Working conditions, work, overwork	16.7	8.5	**0.5	**0.6	17.2	6.0
Present at birth	*4.6	*2.4	**0.6	**0.7	*5.3	*1.8
Old age	—	0.0	24.8	28.4	24.8	8.7
Stress	22.2	11.3	*4.2	*4.8	26.4	9.3
Personal/family, death	53.6	27.2	*8.0	*9.2	61.6	21.6
Allergy (e.g. food, climate, medication and environment)	**0.6	**0.3	—	0.0	**0.6	**0.2
Side effect of medication/medical procedure	**0.7	**0.4	—	0.0	**0.8	**0.3
Smoking	**0.1	**0.0	**0.2	**0.2	**0.2	**0.1
Pregnancy/childbirth	**2.7	**1.4	—	0.0	*2.7	*1.0
Cause by other factor NES	21.0	10.7	*4.1	*4.7	25.2	8.8
Do not know what caused main condition	21.9	11.1	12.5	14.3	34.3	12.1
Total	**197.2**	**100.0**	**87.3**	**100.0**	**284.5**	**100.0**

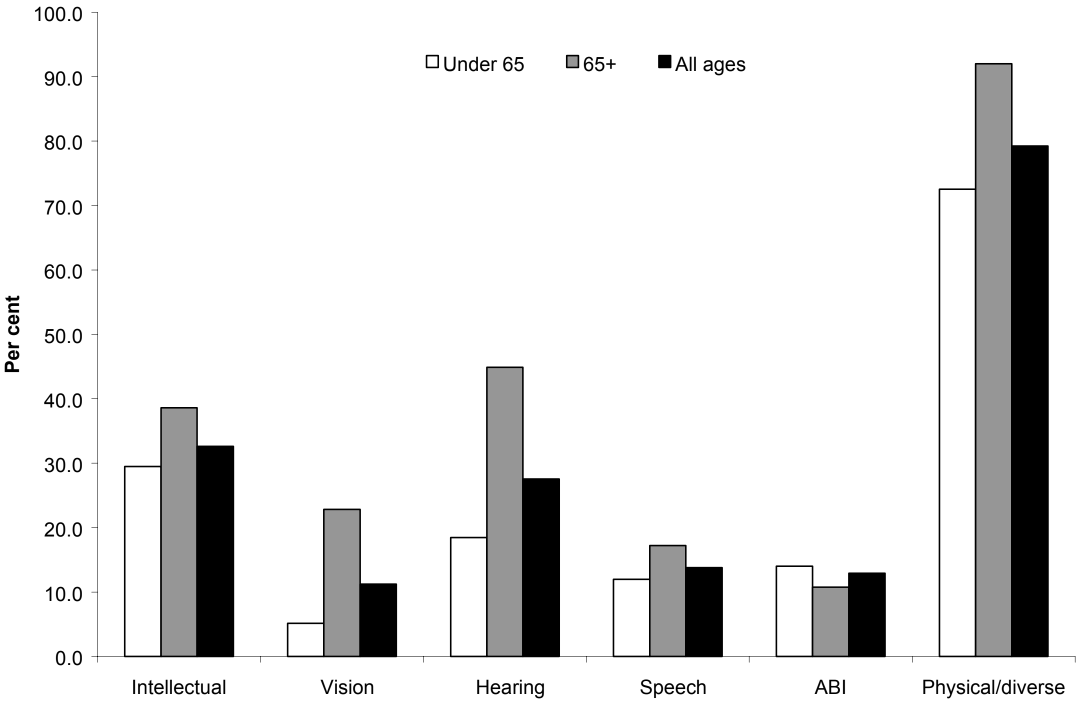
Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Associated disabilities

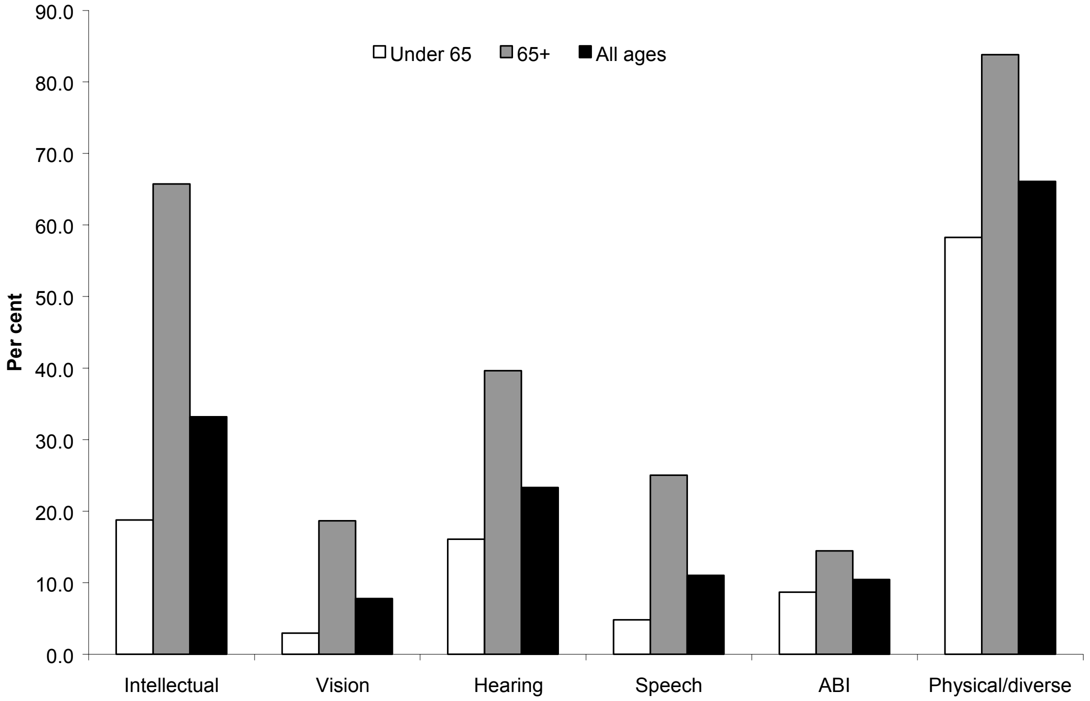
When considering all disabling conditions, 79% of people with a psychiatric condition also reported a physical/diverse disability (Figure 4.2 and Table A4.4). People aged over 65 (92%) were much more likely than those under 65 (73%) to do so. Around a third of people (33%) reported an intellectual disability as well as psychiatric. Hearing was the most commonly reported sensory/speech disability in combination with psychiatric disabilities (28%)—people over 65 (45%) had a higher rate of reporting this combination than people under 65 (19%).

For people reporting a main disabling condition of psychiatric, the proportion who also reported a physical/diverse disability was lower, at 66% (Figure 4.3 and Table A4.4). Again this proportion was much higher for those over the age of 65 years (84%) than those under 65 (58%).



Source: Table A4.4.

Figure 4.2: People reporting a psychiatric disability (all disabling conditions), by reported other disabilities, by age group, 1998



Source: Table A4.4.

Figure 4.3: People reporting a psychiatric disability (main disabling condition), by reported other disabilities, by age group, 1998

Place of residence

Around 83% of people with a psychiatric disabling condition lived in households (Table 4.6). Of people over 65 years, 43% were in cared accommodation.

Around 78% of people with a psychiatric main condition lived in households (Table 4.6). The remaining 22% lived in cared accommodation. People aged 65 and over were much more likely to live in cared accommodation (68%) than those aged under 65 (2%). Both age groups were slightly more likely to be living in cared accommodation when severe or profound core activity restrictions are considered (79% for over 65, 6% for under 65).

Table 4.6: Estimates of psychiatric disability based on four approaches, by place of residence, 1998

	Households		Cared accommodation		Total	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	487.9	96.8	16.2	3.2	504.1	100.0
65+	151.2	57.1	113.6	42.9	264.8	100.0
Total	**639.0**	**83.1**	**129.9**	**16.9**	**768.9**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	477.3	96.7	16.2	3.3	493.5	100.0
65+	150.0	56.9	113.6	43.1	263.6	100.0
Total	**627.3**	**82.8**	**129.9**	**17.2**	**757.1**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	195.3	93.0	14.7	7.0	209.9	100.0
65+	77.0	40.9	111.4	59.1	188.4	100.0
Total	**272.2**	**68.3**	**126.1**	**31.7**	**398.3**	**100.0**
Main disabling condition						
0–64	192.5	97.6	*4.7	*2.4	197.2	100.0
65+	28.2	32.3	59.1	67.7	87.3	100.0
Total	**220.6**	**77.6**	**63.8**	**22.4**	**284.5**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	54.3	93.8	*3.6	*6.2	57.9	100.0
65+	15.4	21.0	58.0	79.0	73.4	100.0
Total	**69.7**	**53.1**	**61.5**	**46.9**	**131.3**	**100.0**

Note: Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Geographic location

For all disabling conditions, the overall proportion of people with a psychiatric disability in capital cities was 60% (Table 4.7). People under 65 years were slightly more likely (61%) than those over 65 years (58%) to be living in a capital city. Approximately 64% of people reporting a main condition of psychiatric lived in capital cities. People under 65 were again slightly more likely to be living in capital cities than those over 65 (65% compared to 63%).

Table 4.7: Estimates of psychiatric disability based on four approaches, by geographic location, 1998

	Capital city		Balance of states		Total	
	’000	**%**	**’000**	**%**	**’000**	**%**
All disabling conditions						
0–64	306.4	60.8	197.7	39.2	504.1	100.0
65+	152.3	57.5	112.5	42.5	264.8	100.0
Total	**458.6**	**59.6**	**310.2**	**40.4**	**768.9**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	298.7	60.5	194.8	39.5	493.5	100.0
65+	151.4	57.4	112.2	42.6	263.6	100.0
Total	**450.1**	**59.4**	**307.0**	**40.6**	**757.1**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	124.6	59.3	85.3	40.7	209.9	100.0
65+	114.1	60.5	74.3	39.5	188.4	100.0
Total	**238.6**	**59.9**	**159.7**	**40.1**	**398.3**	**100.0**
Main disabling condition						
0–64	127.1	64.5	70.0	35.5	197.2	100.0
65+	54.8	62.8	32.5	37.2	87.3	100.0
Total	**182.0**	**64.0**	**102.5**	**36.0**	**284.5**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	36.1	62.4	21.7	37.6	57.9	100.0
65+	46.0	62.7	27.3	37.3	73.4	100.0
Total	**82.2**	**62.6**	**49.1**	**37.4**	**131.2**	**100.0**

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Estimates at state and territory level

State and territory estimates of numbers of people with psychiatric disability in 1998, based on national rates, range from just over 262,000 in New South Wales to 5,600 in the Northern Territory (Table 4.8; see Section 2.4 for details of the method used to obtain these numbers).

Table 4.8: Estimates of psychiatric disability (all disabling conditions and activity limitations and participation restrictions) by states and territories, by sex and age, 1998 ('000)

	States and territories								
	NSW	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
Males									
0–64	81.4	59.0	44.7	23.9	19.0	*6.0	*4.1	**2.6	240.6
65+	30.6	22.3	15.3	*7.4	*8.1	**2.3	**0.9	**0.3	87.1
Total	*112.0*	*81.3*	*59.9*	*31.3*	*27.0*	**8.4*	**4.9*	**2.9*	*327.7*
Females									
0–64	87.0	64.2	47.0	24.9	20.5	*6.5	*4.4	**2.4	256.9
65+	63.4	46.6	29.7	14.9	16.9	*4.8	**1.8	**0.4	178.6
Total	*150.4*	*110.9*	*76.7*	*39.8*	*37.4*	*11.3*	**6.2*	***2.7*	*435.5*
Persons									
0–64	168.4	123.3	91.6	48.8	39.5	12.5	*8.5	*5.0	497.6
65+	94.1	68.9	45.0	22.3	25.0	*7.2	**2.6	**0.6	265.7
Total	**262.4**	**192.2**	**136.6**	**71.1**	**64.5**	**19.7**	**11.1**	***5.6**	**763.3**

Note: Estimates marked with * have an associated RSE of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

5 Sensory/speech disability

5.1 A brief overview of existing definitions and estimates of prevalence

This section begins by summarising some main issues about definitions, classifications and prevalence of sensory (visual and hearing) and speech disabilities. Existing estimates of prevalence and patterns of sensory/speech disability, and causes of visual and hearing impairment, are also discussed.

Issues relating to definitions and methods of estimation

Definitions of visual impairment and disability

The terminology used to describe vision loss is often inconsistently applied (ICO 2002), with various meanings and definitions attributed to general terms such as visual disability, visual impairment, low vision and blindness. To counteract this problem, the International Council of Ophthalmologists (ICO) recommended and defined a core set of common terms to be used in reporting survey and population-based estimates (ICO 2002). These terms, used throughout this section, are vision loss, visual impairment and functional vision.

Vision loss is a generic term used to describe both visual impairment and loss of functional vision (ICO 2002). Both the ICO and the ICF define vision loss as being attributable to changes that occur both at the organ level and at the person level. Visual impairment (or function) relates to the structure and function of the eye, and any changes that cause structural or functional problems. In turn, functional vision (otherwise, visual disability) refers to the individual's ability to perform activities or participate in social, economic and domestic spheres, as a result of their visual impairment (ICO 2002; WHO 2001a).

Population survey data on vision loss predominantly report findings based on levels of visual impairment, including diseases and disorders of the eye(s).

Visual impairment

Visual impairment is defined, and hence measured, as the best-corrected visual acuity (i.e. the ability to read and detect fine details or objects at a distance), best-corrected visual field (the area simultaneously visible to one eye without movement) or both.[3] Many prevalence estimates, however, use visual acuity only as their measure of visual impairment, despite the importance of visual field loss as a component of severe visual impairment (Taylor et al. 1997; WHO 1979). The fact that visual field loss can exist independent of visual acuity loss

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[3] Best-corrected visual acuity and visual field refers to the best possible visual acuity and visual field achievable with or without the use of vision aids.

(ICO 2002) suggests that prevalence estimates based solely on visual acuity might underestimate the real prevalence rate.

Visual impairment may occur in one or both eyes and result in complete (blindness) or partial (low vision) vision loss (WHO 1979).

Blindness

The WHO defines blindness as having a visual acuity of less than 3/60 or a corresponding visual loss of less than 10° in the better eye with best possible correction (WHO Study Group on the Prevention of Blindness 1973; Table 5.1). This standard definition was developed after a WHO review discovered over 60 different definitions of blindness in use in different countries. The WHO definition of blindness has been widely accepted, and is incorporated into the ICD–10 where it has undergone further refinement into three ranges of visual acuity (category groups 3, 4 and 5). The ICO (1978, cited in ICO 2002) relates these category groups to profound visual impairment, near-blindness and blindness respectively.

Some epidemiological studies, however, choose to operate variants of the WHO definition of blindness, such as the Melbourne Visual Impairment Project in Australia (see, for example, Van Newkirk et al. 2000, 2001). These variants generally relate to different degrees of visual acuity, and sometimes visual field loss, applied to indicate level of impairment. Given the range of definitions still in use, the ICO (2002) has defined blindness as 'having such little vision that light perception is absent and/or other senses (vision substitution skills) must be mainly relied upon'.

Legal blindness

The concept of legal blindness emerged with the advent of social security systems. Legal blindness is a term generally used by governments to define the conditions by which a person is eligible for special benefits and services. It is a single cut-off point used solely to determine eligibility. For example, in Australia, a person deemed legally (or permanently) blind is immediately qualified to receive the Disability Support Pension (DSP) (FaCS 2002).[4] In the United Kingdom, registration as a (legally) blind person under the National Assistance Act is required before assessment can be made for the receipt of benefits (such as the Disability Living and Attendance Allowances) and services (RNIB 2001). Access to social security in the United States of America is also determined by a prescribed definition of legal blindness (US Social Security Administration 2003). Table 5.1 lists definitions of legal blindness in Australia, the United Kingdom and the United States.

Low vision

Low vision, sometimes referred to as partial blindness or partial sight, covers all conditions of less than normal vision, excluding blindness (ICO 2002). Levels of low vision as defined by WHO (see Table 5.1) are covered in ICD–10 by category groups 1 and 2, based on ranges of visual acuity. These groups relate to moderate and severe visual impairment respectively (ICO 1978, cited in ICO 2002) but consistency in application of these categories varies, particularly in epidemiological studies.

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[4] Some people who have a visual impairment but do not meet the guidelines for permanent blindness may still qualify for the DSP under the general qualification criteria.

Table 5.1: Definitions of visual impairment (blindness, legal blindness and low vision)

Source	Definition
	Blindness
WHO (1973)	Visual acuity of less than 3/60 (0.05) or corresponding visual loss (a field less than 10º in the better eye with best possible correction). This relates to loss of walk-about vision.
ICD–10 (WHO 1992)	Category groups 3 (visual acuity of less than 3/60), 4 (visual acuity of less than 1/60) and 5 (no light perception), relating to blindness in one or both eyes.
ICO (2002)	Total vision loss, no light perception, or where individuals have to rely predominantly on vision substitution skills such as other senses.
	Legal blindness
Guide to Social Security Law (Australia) (FaCS 2002)	Visual acuity less than 6/60 (20/200) in both eyes *or* constriction to within 10º of fixation in the better eye irrespective of corrected visual acuity *or* combination of visual defects resulting in the same degree of visual impact as that occurring above.
Social Security Administration (USA) (2003)	Visual acuity with best correction in the better eye or worse than or equal to 20/200 or a visual field extent of less than 20º in diameter.
RNIB (2001)(a)	Acuity below 3/60 or 1/18 *or* acuity better than 3/60 but below 6/60 with a very restricted visual field.
	Low vision
WHO (1973)	Visual acuity of less than 6/18 (0.3) but equal to or better than 3/60 (0.05) in the better eye with the best possible correction. This relates to visual impairment categories 1 and 2 in ICD–10.
ICD–10 (WHO 1992)	Category groups 1 (visual acuity of less than 6/18) and 2 (6/60), relating to low vision in one or both eyes.
Charman (1985)	Visual acuity of less than 20/40 but better than 20/200 in the better eye.(b)
RNIB (2001)	Visual acuity from 3/60 to 6/60 with a full field *or* visual acuity up to 6/24 with moderate restriction of visual field *or* visual acuity of 6/18 or better with a gross field defect (e.g. hemaniopia) or a marked constriction of the field (e.g. glaucoma or retinitis pigmentosa).

(a) These definitions apply to the 1948 UK National Assistance Act, where people wanting to access services because of their visual impairment need to register as blind or with a visual impairment on the UK Blind or Partially Sighted Register.

(b) This definition is used in most states in the USA to assess whether a person can obtain a drivers licence.

Functional vision

Functional vision as defined by the ICF relates level of visual impairment (e.g. visual acuity and visual field functions) with associated activity limitations or participation restrictions (Table 5.2). A scale of difficulty (or performance qualifier) indicates the level of difficulty experienced in performing, for example, everyday tasks with relation to a specified visual impairment. The ICO proposes a similar approach, in this case relating visual impairment with ability to perform activities of daily living, and job or social-related tasks. Both recognise the importance of environmental factors, specifically personal and non-personal assistance, in the experience of visual disability.

Causes of visual impairment

Cataracts, trachoma and glaucoma are the leading causes of blindness and other visual impairments, especially in developing countries, and are responsible for 70% of blindness worldwide (WHO 1997). Other significant causes include childhood blindness, diabetic retinopathy, onchocerciasis (river blindness), ocular injuries, age-related maculopathy (AMD), retinal diseases, congenital abnormalities and, to a lesser extent, alcoholism, smoking, accidents and over-use of prescription drugs (Gilbert & Foster 2001; Mitchell et al. 1999; Roodhooft 2002). Of these conditions, only childhood blindness and congenital abnormalities are present at birth; the others are acquired during a person's lifetime.

Table 5.2: Definitions and classifications of functional vision

Source	Definition
ICF (WHO 2001a)	Level of difficulty participating or performing activities related to a visual impairment (either structural or functional), in the presence or absence of assistance.
ICO (2002)	Ability to perform activities of daily living due to blindness or low vision, in the presence or absence of aids.
National Community Services Data Dictionary, version 3 (AIHW 2003b)	Vision disability encompasses blindness and vision impairment (not corrected by glasses or contact lenses), which can cause severe restrictions…in the ability to participate in community life.
Vision Australia Foundation (2002)	Vision loss that is severe enough to impede performance of vocational, recreational and/or social tasks, but still allows some useful visual discrimination.

Refractive error, a condition easily corrected by the use of glasses or contact lenses, also contributes to a significant proportion of visual impairment worldwide (Dandona & Dandona 2001). In developed countries, it is a common diagnosis for mild, moderate and severe visual impairment (Attebo et al. 1996; Klein et al. 1991; Tielsch et al. 1990; Van Newkirk et al. 2001) and contributes to a not insignificant proportion of blindness in developing countries (see Dandona & Dandona 2001 for a review). It is estimated that the number of people with a visual impairment could be halved simply by the provision of new spectacles (Taylor et al. 1997).

Diabetic retinopathy, cataract, glaucoma, AMD and uncorrected refractive error contribute to the majority of cases of vision loss amongst the Australian population aged 40 years and over (Attebo et al. 1996; Van Newkirk et al. 2000, 2001; Weih et al. 2000). AMD is the primary cause of vision loss in people aged 70 years and over, with the frequency of causation increasing exponentially with age (Mitchell et al. 1995). Compared with other leading causes, glaucoma and diabetic retinopathy tend to account for a higher proportion of cases of vision loss in the 40–60 year age group.

Definitions of hearing impairment and disability

Loss of hearing is generally defined in terms of a hearing impairment in one or both ears and resulting in complete (deafness) or partial (hearing-impaired) hearing loss. Hearing loss can be caused by a conductive or sensorineural hearing impairment. Conductive hearing impairments occur where there is interference in the transmission of sound from the outer canal to the inner ear while sensorineural hearing impairments are caused by damage to the cochlea or the auditory nerve. A sensorineural hearing impairment does not only affect the ability to hear speech at reduced loudness levels but may also cause sound distortion and other problems affecting the processing of speech. The ICD–10 includes conductive and sensorineural hearing loss along with other forms of hearing loss, such as that caused by noise or ototoxic drugs (WHO 1992).

Hearing impairments are also categorised according to whether the hearing loss occurred before (prelingual) or after (postlingual) the development of language. Most people with a prelingual hearing impairment were born deaf or with a profound or severe hearing loss. Prelingual deafness can lead to a severe and lasting language impairment (Wake et al. forthcoming, cited in Wake 2002) although very early detection may help children to achieve 'normal' language skills (Moeller 2000; Yoshinaga-Itano et al. 1998).

The severity of a hearing impairment is rated by degree of hearing loss. The WHO (1991) defines deafness (or profound hearing loss) as a permanent unaided hearing threshold for the better ear of 81 dB or greater, or where the individual is unable to hear and understand even a shouted voice (Table 5.3). Definitional variations, however, do occur. In Australia, for example, the definition of deafness is an unaided hearing threshold for the better ear of 91 dB or greater, or where the individual may hear loud sounds but does not rely on hearing as a primary form of communication (as adapted from Stabb 1994). Communication, and specifically the use of visual skills such as lip reading and sign language for communication, has been increasingly incorporated into definitions of deafness, particularly by peak organisations and in some epidemiological studies. The language of communication also forms the basis of Deaf culture, a community of people who were born deaf and regard themselves as a distinct cultural group characterised by their reliance on visual forms of communication.

Lesser degrees of hearing loss are categorised on the basis of hearing threshold and/or the ability to hear words projected at different volumes. In Australia, reliance on visual skills is also used in defining more severe cases of hearing loss. These ranges are given in Table 5.4.

Grades of impairment are different for children under the age of 15. According to WHO (1991), a 'disabling' hearing impairment in children is defined as a permanent unaided hearing threshold for the better ear of 31 dB or greater.

Table 5.3: Definitions and classifications of hearing impairment and disability

Source	Definition
	Deafness
WHO (1991)	Unaided hearing threshold for the better ear of 91dB or greater. Unable to hear and understand even a shouted voice.
Australian Deafness Forum (as adapted from Stabb 1994)	Unaided hearing threshold for the better ear of 91dB or greater. May hear some loud sounds and does not rely on hearing as primary channel for communication.
ICD–10 (WHO 1992)	Conductive and sensorineural deafness (including congenital deafness) and other hearing loss.
	Other hearing impairment
WHO 1991 (Adults)	Unaided hearing threshold for the better of between 26 and 80 dB (covers slight, moderate and severe impairment). Differential ability to hear words spoken at increasingly louder volume and distances.
WHO 1991 (Children under 15)	Unaided hearing threshold for the better ear of 31dB or greater.
Australian Deafness Forum (as adapted from Stabb 1994)	Unaided hearing threshold for the better ear of between 25 and 90 dB (covers mild, mild to moderate, moderate to severe, and severe hearing loss). Differential ability to understand speech in noisy to quiet environments and increasing reliance on visual forms of communication.
ICD–10 (WHO 1992)	Conductive and sensorineural hearing loss and other hearing loss (e.g. noise-induced).
	Hearing disability
ICF (WHO 2001a)	Level of difficulty participating or performing activities related to a hearing impairment (either structural or functional), in the presence or absence of assistance.
National Community Services Data Dictionary, version 3—Disability grouping (AIHW 2003b)	Hearing disability encompasses deafness, hearing impairment, and hearing loss, which can cause severe restrictions in communication, and in the ability to participate in community life.

The definitional acknowledgment that a hearing impairment affects the ability to communicate, and a consequent need to rely on alternative forms of communication, captures in part the experience of a hearing disability. As for visual disability, the ICF expands this further again, relating the impact of a hearing impairment on ability to perform other activities and to participate in the social and economic world (Table 5.3). This emphasis on the disabling nature of a hearing impairment is also recognised in the definition of hearing disability given in the *National Community Services Data Dictionary*, where hearing disability is conceived as causing 'severe restrictions in communication, and in the ability to participate in community life' (AIHW 2003b).

Table 5.4: Severity of hearing impairment, WHO and Australian definitions

Grade of impairment	Corresponding audiometric ISO value	Performance
	World Health Organization[(a)]	
No impairment	25 dB or better	No or very slight hearing problems. Able to hear whispers.
Slight impairment	26–40 dB	Able to hear and repeat words spoken in normal voice at 1 metre.
Moderate impairment	41–60 dB	Able to hear and repeat words using raised voice at 1 metre.
Severe impairment	61–80 dB	Able to hear some words when shouted into better ear.
Profound impairment (deafness)	81 dB or greater	Unable to hear and understand even a shouted voice.
	Australia[(b)]	
Normal hearing	0–20 dB	No effects in good listening environment.
Mild hearing loss	25–30 dB	Understanding speech can be difficult. Has difficulty understanding in a noisy environment.
Mild to moderate impairment	40–60 dB	Has trouble hearing and understanding in ideal conditions. Unable to follow what is said in large open areas.
Moderate to severe impairment	56–70 dB	Communicates with significant difficulty under all conditions. Needs visual clues.
Severe hearing loss	71–90	Unable to hear normal speech, depends on visual clues such as speechreading or sign language.
Profound hearing loss (deafness)	91 dB or greater	May hear some loud sounds. Does not rely on hearing as primary channel for communication.

Sources: (a) WHO1991. (b) Adapted from *Rexton Guide to Better Hearing* (Stabb 1994).

Causes of hearing impairment

Hearing is related to factors such as age, heredity, noise exposure, infection and health status (Rosenhall et al. 1999). Loss of hearing is strongly correlated with age and sex (see discussion in later section) and extrinsic factors, including noise exposure, diseases and conditions such as tinnitus, Ménière's disease, otitis media, otosclerosis, and ototoxic drugs (e.g. Davis 1987; Nadol 1993). Lifestyle factors such as diet, alcohol and smoking have also been suggested as causes of hearing impairment (Cruickshanks et al. 1998; Dengerink et al. 1987; Fried et al. 1998; Stephens et al. 1991) although Parving (1995) warns that these associations remain controversial and under dispute.

Loss of hearing in children in developed regions such as Europe is largely attributable to prenatal causes (inheritance, foetal infection and malformation) and, to a lesser extent, postnatal (diseases such as otitis media and meningitis) and perinatal factors (Parving 1995). A study of the effect of such factors on hearing impairment in European children also found that 20% of cases were of unknown cause (Parving 1995). The proportion of 'unknown cause' in reports on hearing loss in European children ranged from 11% to 42% (see Parving 1995 for a review).

Definitions of speech impairment and disability

Speech disabilities affect how people speak and how others understand them. While the implications of a speech disability on a person's literacy, behaviour and social skills are duly recognised, speech disability is almost universally defined in terms of impairment.

Classification and terminology used to describe speech impairments are particularly fraught with inconsistency, in particular the use of different interpretations for the same terminology or different terminologies for the same meaning (Blum-Harasty & Rosenthal 1992; Enderby & Philipp 1986). Some of these problems reflect disagreement regarding what constitutes a speech impairment, and how severe a speech or language problem needs to be for it to be described as an impairment. Another issue is the differentiation between disorder and delay, which is critical for identifying, and estimating the prevalence of, speech impairments in children (Wake & Reilly 2001). A speech or language 'disorder' relates to those abilities considered to have developed in a manner distinct from what is considered 'usual' whereas a delay relates to abilities considered to be below that expected for a child's chronological age (Law et al. 1998).

No broad-scale classification exists for speech disability. Speech impairments are generally defined in terms of two broad aetiological groups—speech disorders and language disorders—and for this reason are often referred to as communication impairments or disorders. Speech and language disorders form a heterogenous group as they can be secondary to a variety of underlying medical and surgical problems or part of general or specific developmental disorders (Enderby & Philipp 1986).

Speech disorders are disorders of motor speech production and include stuttering, dysarthria, apraxia and voice disorders. In adults, speech disorders tend to be acquired, caused by stroke, degenerative diseases (e.g. Parkinson's disease, multiple sclerosis), infections or brain tumours. In children, speech disorders are often congenital or a symptom of conditions such as cerebral palsy or muscular dystrophy.

Language disorders affect the ability to produce language. Developmental language disorders or delays in children can be associated with hearing and cognitive impairments, autism or a physical disability. Acquired language disorders like aphasia may also be experienced by children but are more commonly caused by later damage to the part of the brain responsible for language function.

This broad grouping into speech and language disorders is, however, not always observed since speech impairments of phonology/articulation, fluency and voice are sometimes classified separately again (see, for example, Blum-Harasty & Rosenthal 1992). There has also been an increasing acceptance of an additional category 'pragmatic impairment', or impairment of linguistic knowledge, in the speech pathology field (Gallagher 1991). Pragmatic impairment may manifest itself as unusual language construction, or difficulty associated with using pragmatic cues in conversation, turn taking and comprehension. ICD-10 and ICF classifications of speech and language disorders cover most of these conditions although ICD–10 includes stuttering (and cluttering) under 'Mental and behavioural disorders' and differentiates language disorders into those experienced during childhood (classified under 'Disorders of psychological development') and those acquired in adult years.

While the categorisation of speech and language disorders described above focuses on the structures and functions of the body responsible for speech and language production, there is also an emphasis on the ability to produce and receive verbal communication. This ability to speak, or understand spoken words, forms part of what the ICF defines as the activity of communication. Implicit in only some of these definitions, yet recognised by the ICF, is the individual's ability to converse, i.e. to start, sustain and end a conversation with one or more persons. Some diagnostic testing of speech and language disorders involves assessing conversation skills, but most tend to focus on actual production of sounds and the ability to string words into sentences. The ICF classifies the structures and functions associated with speaking, their impact on communicating, and hence an individual's ability to participate in the wider community. The importance of communication and participation is recognised in the *National Community Services Data Dictionary* definition of a speech disability (Table 5.5)

Table 5.5: Definitions and classifications of speech impairment and disability

Source	Definition
	Communication disorder (speech disorder/speech impairment)
Various authors e.g. Enderby & Philipp (1986); Blum-Harasty & Rosenthal (1992)	Communication disorders are a broad classification of disorders (or impairments) that affect speech and language production. Speech disorders are impairments of motor speech production and language disorders affect the ability to produce (and understand) language. These disorders affect the production of sounds and words, the sorting of words into sentences, and the ability to speak (and understand) those sentences.
	Speech disability
ICF (WHO 2001a)	Level of difficulty participating or performing activities related to a speech impairment (either structural or functional), in the presence or absence of assistance.
National Community Services Data Dictionary, version 3—Disability grouping (AIHW 2003b)	Speech disability encompasses speech loss, impairment and/or difficulty in communication, which can cause severe restrictions in communication, and in the ability to participate in community life.

Existing estimates of prevalence and patterns of sensory/speech disability

Blindness and visual impairment

Estimates of visual impairment and blindness are based on population survey data using either optometric examination or self-report methods to derive estimates. Different definitions of visual impairment and blindness are employed in studies relying on optometric examinations, which can compromise overall comparison of prevalence rates. Furthermore, clinical studies tend to focus specifically on the age group (above the age of 40 years) most commonly associated with declining vision.

International estimates: blindness

Prevalence estimates of blindness in different parts of the world are given in Table 5.6. While most of these estimates are based on the WHO/ICD–10 definition of blindness, three estimates derive from application of the US definition of legal blindness.

The prevalence of blindness in 'established market economies' (i.e. Western Europe, North America, Australia, Japan and New Zealand), based on the WHO/ICD–10 definition of blindness, is around 0.3% (Table 5.6; Thylefors et al. 1995). Individual developed countries, such as the Netherlands and the United States, have somewhat higher rates of blindness of 0.5% and 0.7% respectively (Klaver et al. 1998; Tielsch et al. 1990), although it must be noted that these population survey groups did not include children and young adults. Rates of blindness generally increase when the US definition of legal blindness is applied—to 0.8% in the Netherlands, and 0.5% and 1.2% in the United States. The UK estimate of 0.2% is especially low but this was based on registers of blind people for access to social security payments and probably represents an underestimate of the true rate.

Table 5.6: Summary of existing estimates of prevalence rates of blindness, based on optometric examinations, international

Prevalence rate (%)	Regions	Age group	Data sources	Definitions and classifications
0.2	United Kingdom	16 years+	UK Register of Blind People: HMSO 1982 (cited in See et al. 1998)	WHO definition (ICD–10)
0.5	USA	40 years+	The Beaver Dam Eye Study: Klein et al. 1991	US definition of legal blindness
0.7	USA	40 years+	The Baltimore Eye Survey: Tielsch et al. 1990	WHO definition (ICD–10)
1.2	United States	40 years+	The Baltimore Eye Survey: *ibid.*	US definition of legally blind
0.6	USA	50 years+	The Framingham Study: Leibowitz et al. 1980	Visual acuity of less than 6/60
0.5	Netherlands	55 years+	The Rotterdam Study: Klaver et al. 1998	WHO definition (ICD–10)
0.8	Netherlands	55 years+	The Rotterdam Study: *ibid.*	US definition of legally blind
0.3	Established market economies(a)	All ages	Programme for the Prevention of the Blind: Thylefors et al. 1995	WHO definition (ICD–10)
0.3	Eastern Europe/Russia	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)
0.5	Latin America	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)
0.6	China	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)
0.7	Middle East	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)
0.8	Asia and Islands	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)
1.0	India	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)
1.4	Sub-Saharan Africa	All ages	Programme for the Prevention of the Blind: *ibid.*	WHO definition (ICD–10)

(a) Includes Western Europe, North America, Australia, Japan and New Zealand.

International estimates: visual impairment

Estimates of visual impairment (low vision and blindness combined)[5] are given in Table 5.7, based on self-report and optometric examination.

Self-reported visual impairment in New Zealand and Canada was estimated at 2.1% and 2.5% respectively of the population aged 15 years and over (Table 5.7). These were based on screening questions which asked the respondent if they had experienced, in the last 6 months or longer, any difficulty reading newsprint, or seeing a person standing 4 metres away. A much higher prevalence was found in the United States where around 9–10% of the survey population aged 18 years and over reported they had at least some trouble with their vision.

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[5] Published estimates of visual impairment generally do not separate blindness from low vision prevalence numbers.

When a much older population group (aged 70 years and over) was interviewed, 18%, or almost double the previous estimate, reported a visual impairment. These estimates were derived from respondents indicating they had experienced trouble seeing, even when wearing glasses or contact lenses.

Table 5.7: Summary of existing estimates of prevalence rates of visual impairment (including blindness), international

Prevalence rate (%)	Regions	Age group	Data sources	Definitions and classifications
Self-report				
2.1	New Zealand	15 years+	2001 Disability Survey: Statistics New Zealand 2002b	For a period of 6 months or more, experienced difficulty seeing ordinary newsprint or clearly seeing the face of someone from 4 metres away
2.5	Canada	15 years+	2001 Participation and Activity Limitation Survey: Statistics Canada 2002b	For a period of 6 months or more, experienced difficulty seeing ordinary newsprint or clearly seeing the face of someone from 4 metres
9.0	USA	18 years+	1998 National Health Interview Survey: Pleis & Coles 2002	Level of trouble with seeing (even when wearing glasses or contact lenses)
9.8	USA	18 years+	1997 National Health Interview Survey: Blackwell et al. 2002	Level of trouble with seeing (even when wearing glasses or contact lenses)
18.1	USA	70 years+	1994 National Health Interview Survey: Campbell et al. 1999	Level of trouble with seeing (even when wearing glasses or contact lenses)
Optometric examination				
4.5	USA	40 years+	Baltimore Eye Study: Tielsch et al. 1990	WHO (ICD–10 visual impairment categories 1 and 2)
4.7	USA	40 years+	Beaver Dam Eye Study: Klein et al. 1991	Visual acuity of between 20/40 to 20/63 (mild impairment) and 20/80 to 20/160 (moderate impairment)
1.4	Netherlands	55 years+	The Rotterdam Study: Klaver et al. 1998	WHO (ICD–10 visual impairment categories 1 and 2)
3.8	Netherlands	55 years+	The Rotterdam Study: *ibid.*	US definition of visual impairment
2.9	World	All ages	Programme for the Prevention of Blindness: Thylefors et al. 1995	WHO (ICD–10 visual impairment categories 1 and 2)

Prevalence estimates based on optometric testing focused on an older population group than the self-report measures. These estimates ranged from 1.4% in the Netherlands to 4.5% and 4.7% in the United States. While the number of estimates listed in Table 5.7 are too small to make any comment on the relationship between definition and prevalence rates, there is some indication that lower rates are derived if the WHO definition of low vision is applied. This is suggested by a higher prevalence rate of visual impairment among people 55 years and over in the Netherlands, from 1.4% when the WHO definition of visual impairment was applied to 3.8% when the US definition of visual impairment was used.

Australian estimates: blindness

The Melbourne Visual Impairment Project estimated the prevalence of bilateral blindness (i.e. blind in both eyes) in Victorians aged 40 years and over at around 0.2%, regardless of whether the WHO or a modified definition of blindness was employed (Taylor et al. 1997; Van Newkirk et al. 2001) (Table 5.8). When the US definition of legal blindness was applied, prevalence of blindness in the Victorian population rose slightly to 0.3%. This rate is lower than found in the Blue Mountains Eye Study, where it was estimated that 0.7% of the survey population were blind according to the US definition of legal blindness. This group were, on average, much older than the people tested in the Melbourne Visual Impairment Project.

Table 5.8: Summary of existing estimates of prevalence rates of blindness, based on optometric examinations, Australia

Prevalence rate (%)	Region	Age group	Data sources	Definitions and classifications
0.2	Melbourne	40 years+	Melbourne Visual Impairment Project: Taylor et al. 1997	WHO definition (ICD–10)
0.3	Melbourne	40 years+	Melbourne Visual Impairment Project: Taylor et al. 1997	US definition of legal blindness
0.7	Blue Mountains	49 years+	The Blue Mountains Eye Study: Attebo et al.1996	US definition of legal blindness
0.2	Victoria	40 years+	Melbourne Visual Impairment Project: Van Newkirk et al. 2001	Modified version of WHO definition: visual acuity of less than 3/60 in the better eye and/or a corresponding visual field loss of 5° or less
5.2[(a)]	Melbourne	40 years+	Melbourne Visual Impairment Project: Van Newkirk et al. 2000	Modified version of WHO definition: visual acuity of less than 3/60 in the better eye and/or a corresponding visual field loss of 5° or less

(a) This prevalence estimate was calculated from an insitutionalised population with an average age of 82 years.

Australian estimates: visual impairment

Self-reported rates of visual impairment, including blindness, in Australia were around 1% (Table 5.9). These estimates were based on reports of a sight problem that had lasted 6 months or more, and excludes any condition normally corrected by glasses or contact lenses. Optometric examination produced higher prevalence estimates of 4–5%, which may partly be due to the generally older population sample tested. These groups were aged at least 40 years whereas the self-report population covered all ages. The lowest estimate, as found for blindness, was based on the WHO definition but alternative definitions increased the prevalence rate by less than 1%.

Detailed research on the epidemiology of vision loss among Indigenous Australians is limited but available data indicate that Indigenous eye health is considerably worse than for other Australians (Taylor 1997, 2001). For example, the prevalence of cataract in Indigenous Australians is estimated at 3.6% compared to 0.8% of non-Indigenous Australians (National Trachoma and Eye Health Program Survey, as cited in Taylor 2001), and 31% of diabetic Indigenous Australians living in Western Australia have diabetic retinopathy, compared with 20% of non-Indigenous Australians with diabetes (Stanton et al. 1985).

Table 5.9: Summary of existing estimates of prevalence rates of visual impairment (including blindness), Australia

Prevalence rate (%)	Regions	Age group	Data sources	Definitions and classifications
Self-report				
0.7	Australia	All ages	1993 Survey of Disability, Ageing and Carers: ABS 1993	Loss of sight, not corrected by glasses or contact lenses—ABS screening question
1.0	Australia	All ages	1995 National Health Survey: ABS 1997	Long-term sight problems that can not be corrected by glasses or contact lenses
0.8	Australia	All ages	2001 National Health Survey: ABS 2002	Long-term sight problems that can not be corrected by glasses or contact lense.
Optometric examination				
3.9	Australia	40 years+	Melbourne Visual Impairment Project: Taylor et al. 1997	WHO (ICD–10 visual impairment categories 1 and 2)
4.2	Australia	40 years+	Melbourne Visual Impairment Project: Van Newkirk et al. 2001	Visual acuity of less than 6/12 to 6/18 and homonymous hemaniopia (Australian and US less than driving vision) to less than 6/60 to 3/60 and field between 10 and 5º constriction (severe impairment)
4.7	Australia	49 years+	Blue Mountains Eye Study: Attebo et al. 1996	Visual acuity of 20/40 or worse in the better eye.

Age and sex patterns of prevalence

The prevalence of low vision and blindness rises markedly with age. For example, the prevalence of visual impairment in persons participating in the Blue Mountains Eye Study was 0.8% for those aged 49–54 years, increasing to 42% of persons over the age of 85 years (Attebo et al. 1996). Similar marked increases in prevalence with age have been observed in other cited clinical studies and in population surveys. An increased risk in blindness is especially evident past the age of 65 years (Attebo et al. 1996; Klein et al. 1991; Tielsch et al. 1990).

Visual impairment tends to be more frequent in females, before and after adjusting for age, but some studies have failed to find such an association (e.g. Klaver et al. 1998; Tielsch et al. 1990). It has been suggested that females may be more susceptible than males to conditions leading to loss of vision (Attebo et al. 1996; Klein et al. 1991).

Hearing impairment

Hearing impairments are estimated to be the most prevalent disability in western countries (Wilson 1997). Furthermore, in the UK, hearing impairments top the disability league for number of years of a person's life affected (Haggard 1993, cited in Wilson et al. 1999). Published prevalence estimates of hearing impairment describe a broad range of hearing problems, and the majority of estimates listed in Table 5.10 are the sum of mild through to profound (i.e. deafness) impairment reported in different populations.

Data on the prevalence of hearing impairment are taken from a mixture of audiological examination and self-report methods (see below for a discussion of the validity of these approaches).

International estimates

For children, prevalence estimates are almost exclusively based on audiological examination. Data on the prevalence of childhood hearing impairment is scant and there has been an increasing call in Europe (and Australia) for a nationally coordinated approach to neonatal hearing screening (Parving 1999; Wake 2002). It has been estimated that bilateral, permanent hearing impairments are present in 1.2 to 5.7 per 1,000 live births (as cited in Yoshinaga-Itano et al. 1998). Estimates of hearing impairment in children in England, Denmark and northern Finland were somewhat lower, between 0.1 and 0.3% (Davis & Parving 1993; Mäki-Torkko et al. 1998) (Table 5.10).

Adult estimates come from both self-report surveys and audiological testing. In contrast to visual impairment, prevalence estimates of hearing impairment based on audiological examinations are generally lower than rates estimated from self-report methods (tables 5.10 and 5.11). Estimates based on audiological examinations and using the same audiological criteria ranged from 6% in a rural community in Denmark to 12% in Finland and 16% in the United Kingdom (Table 5.10).

Table 5.10: Summary of existing estimates of prevalence of hearing impairment, based on audiometric testing, international

Prevalence rate (%)	Region	Age group	Data sources	Definitions and classifications
Children				
0.1[(a)]	Finland (North)	Birth cohort: 1973–1992	Neonatal testing: Mäki-Torkko et al. 1998	dB hearing threshold of ≥40 or worse in the better-hearing ear
0.2[(a)]	England	Birth cohort: 1983–1988	Neonatal testing: Davis and Parving 1993	dB hearing threshold of ≥40 or worse in the better-hearing ear
0.3[(a)]	Denmark	Birth cohort: 1982–1987	Neonatal testing: Davis and Parving 1993	dB hearing threshold of ≥40 or worse in the better-hearing ear
Adults				
16.1	United Kingdom	15 years+	Davis 1989	dB hearing threshold of ≥25 or worse in the better-hearing ear
5.5	Denmark	31–50 years	Karlsmose et al. 1999	dB hearing threshold of ≥25 or worse in the better-hearing ear
12.0	Finland	45 years+	Uimonen et al. 1999	dB hearing threshold of ≥25 or worse in the better-hearing ear

(a) These rates are derived from neonatal hearing impairment screening conducted in the respective countries.

The range of self-report estimates is also considerable, from 10.7% in Sweden to 48.5% in the United States (Table 5.11). Some of this may again be due to the effect of different age cohorts but Rosenhall et al. (1999) have also argued that variation may be explained, in part, by differences in methodology. Particular issues concern the application of different definitions of 'hearing problem', and the methodologies employed in self-report–based studies, such as the administering of questions, type and expression of question(s) asked, and type and level of responses. The methodology summarised in Table 5.11 reflects this variation.

Table 5.11: Summary of existing estimates of prevalence of hearing impairment, based on self-report, international

Prevalence rate (%)	Region	Age group	Data sources	Methods
10.7	Sweden	16–84 years	Rosenhall et al. 1999	Q: 'Can you hear without difficulty what is said in conversation between several persons, with or without using a hearing aid?' R: Yes or no
14.0	Denmark	31–50 years	Karlsmose et al. 1999	Q: 'Have you experienced any hearing problems lasting more than one year?' R: Yes or no
18.2	USA	48 years+	Wiley et al. 2000	Hearing Handicap Inventory for the Elderly (Screening Version) (HHIE-S)
48.5	USA	50 years+	Wallhagen et al. 2001	Q: 'How much difficulty do you have, even with a hearing aid a) hearing and understanding words in a normal conversation; b) hearing words over the telephone; c) hearing well enough to carry on a conversation in a noisy room?' R: A great deal (3) Some (2) A little (1) None (0) Scores were summed for each of the three questions. A score of: 0 = no hearing impairment 1–3 = mild hearing impairment 4+ = moderate or more severe hearing impairment The estimate is a sum of the mild and moderate+ population.
33.2	USA	70 years+	1994 National Health Interview Study: Campbell et al. 1999	Q: 'Which statement best describes your hearing (with or without a hearing aid)?' R: (a) Good (b) a little trouble (c) lot of trouble or (d) deaf? Estimate is sum of positive responses to a little and a lot of trouble and deaf options.
17.0	USA	18+ years	1998 National Health Interview Survey: Pleis & Coles 2002	Q: 'Which statement best describes your hearing (with or without a hearing aid)?' R: (a) Good (b) a little trouble (c) lot of trouble or (d) deaf? Estimate is sum of positive responses to options b to d.
19.3	Sweden	75–80 years	Rosenhall et al. 1987	Q: 'Can you hear without difficulty what is said in conversation between several persons, with or without using a hearing aid?' R: Yes or no

Australian estimates

Self-reported rates of hearing impairment in Australia were somewhat lower than reported in other western countries (Table 5.12). The estimate derived from the 1993 Survey of Disability, Ageing and Carers is much lower (2.6%) than found in the 1995 and 2001 National Health Surveys (around 9–10%) and the South Australian Health Omnibus Survey (15%). This is probably due to the first estimate being based on the hearing impairment or related condition reported as a 'main disabling condition'.

Only two current estimates of hearing impairment based on audiological examination are published for Australia. The prevalence of hearing impairment in the South Australian population aged 15 years and over was estimated at 16.6%, much lower than the 39% found in the Blue Mountains Hearing Study. The latter population group, however, was on average much older than the South Australian population.

Table 5.12: Summary of existing estimates of prevalence of hearing impairment, Australia

Prevalence rate (%)	Region	Age group	Data sources	Definitions and classifications
Self-report				
15.3	South Australia	15 years+	Wilson et al. 1999	Screening question: trouble hearing what people say in a quiet room (speaking loudly, quietly, whispering or none of these)[(a)]
2.6	Australia	All ages	1993 Survey of Disability, Ageing and Carers: ABS 1996	Hearing impairment or related condition as main disabling condition
9.2	Australia	All ages	1995 National Health Survey: ABS 1997	Long-term hearing problems, such as deafness or hearing loss.
10.6	Australia	All ages	2001 National Health Survey: ABS 2002	Long-term hearing problems, such as deafness or hearing loss.
Audiological examination				
16.6	Australia (South Australia)	15 years+	South Australian Health Omnibus Survey: Wilson et al. 1999	dB hearing threshold of ≥25 or worse in the better-hearing ear
39.0	Australia (Blue Mountains)	55 years+	Blue Mountains Hearing Study: Mitchell 2002	dB hearing threshold of ≥25 or worse in the better-hearing ear

(a) Screening question from the South Australian Health Omnibus Survey.

Age and sex patterns of prevalence

The prevalence of hearing impairment, like visual impairment, increases with age (Mitchell 2002; Davis 1989; Karlsmose et al. 1999; Rosenhall et al. 1987, 1999; Uimonen et al. 1999; Wallhagen et al. 2001; Wiley et al. 2000; Wilson et al. 1999), particularly after the age of 50 years. In Sweden, for example, 2.4% of the population aged 16–24 reported a hearing impairment compared with 30% of the population aged 75 years and over.

Males are generally found to have higher rates of hearing impairment than females (Campbell et al. 1999; Karlsmose et al. 1999; Wallhagen et al. 2001; Wiley et al. 2000; Wilson et al. 1999), although this was only apparent for the under-55s in some populations (e.g. Rosenhall et al. 1999). If comparing rates for the worse ear, the prevalence of hearing impairment in South Australian males was double that of females (Wilson et al. 1999). No sex differentiation in prevalence of hearing impairment, however, was found for the UK population (Davis 1989).

Audiological examination versus self-report

The validity of audiological versus self-report techniques to gather information on hearing impairment has been contested in the literature. For some authors, the measurement of hearing impairment by application of pure-tone audiometery is the most appropriate procedure to follow since the application of self-report surveys is subject to potentially high levels of 'erroneous' reporting. For example, comparison made by Wilson et al. (1999) of self-reported prevalence rates with audiometric examinations results found both a high false positive and false negative rate. Other studies, however, determined reasonable or 'modest' correlations between rates derived from audiological and self-report methods (Davis 1989; Pedersen & Rosenhall 1991; Reuben et al. 1998; Rudberg et al. 1993; Ventry & Weinstein 1983; Wiley et al. 2000). Comparability of rates, however, for different degrees of hearing loss was not necessarily consistent from study to study. Wiley et al. (2000) reported that rates were most comparable when participants had a severe hearing impairment whereas Davis (1989) found that self-report rates correlated best with mild and moderate hearing impairments, arguing that self-assessed hearing is an efficient screen only for these levels of hearing impairment.

Nonetheless, the strength of self-assessed hearing impairment retains some acceptance in the hearing research community, as this method indicates not only the extent of the hearing impairment but, just as importantly, the level of restriction or limitation the impairment exacts on the individual (Rosenhall et al. 1999; Weinstein et al. 1995). Furthermore, a person who has been assessed audiologically as having a hearing impairment may not necessarily report the impairment as having a significant impact on their lives (Weinsten et al. 1995; Wiley et al. 2000).

Speech disability

Estimating the prevalence of speech disability is fraught with difficulty, based primarily on the absence of both a universally accepted or applied classification system (see previous and Beitchman 1985) and diagnostic techniques to identify speech and language disorders (Beitchman et al. 1986; Enderby & Philipp 1986; Healey et al. 1981, cited in Fein 1983). Many population estimates are underestimates since they specifically focus on speech disorder, thus preventing any count of the prevalence of language disorder, which is considered to have more serious psychosocial effects on children (and adults) than pure speech defects (Cantwell & Baker 1980).

Two additional factors compromise the attainment of accurate population estimates, particularly for the adult population. Most population estimates exclude institutional data, thus ignoring the 'significant' numbers of people living in institutions who have speech disabilities (Beitchman et al. 1986; Fein 1983). Furthermore, there is a tendency to report speech impairment in specific disability population groups, such as those who have suffered a stroke or an acquired brain injury (see Chapter 6), rather than the population as a whole.

With this in mind, the estimates given below represent the most inclusive data so far published.

International estimates

The majority of study on the prevalence of speech disability centres on children, particularly pre-school and primary school-aged children. The range of estimates is quite large (Table 5.13 and see Beitchman et al. 1986 and Blum-Harasty & Rosenthal 1992 for a review). Household interviews drawn from the US National Health Interview Survey give an estimate of around 1–2% for children under the age of 18 years. These were based on the head of household reporting a child (or children) in the family currently stuttering, stammering or having some form of speech 'defect' (but see below: Australian estimates). Testing of speech and language disorders by speech clinicians presented much larger estimates. Around 4% of 6-year-old children in the Upper Midwest of the USA, 19% of five-year-old children in the Ottawa-Carleton region of Canada, and 38% of primary school-aged children in the United Kingdom were determined to have a speech disorder, language disorder or both. The wide range in these estimates might be due to the form of diagnostic testing used.

Adult estimates were all derived from the United States and self-report methods. Similarly for children, around 1% of adults in the National Health Interview Survey reported having a speech disability, as a stutter, stammer or other speech impairment. First-year university students reported a slightly higher prevalence, at 2%. These students were also assessed by clinicians through their ability to take part in conversation and read aloud without making mistakes.

Table 5.13: Summary of existing estimates of prevalence of speech disability, international

Prevalence rate (%)	Region	Age group	Data sources	Methods, definitions and classifications
Children				
0.9	USA	<5 years	1977 National Health Interview Survey: Fein 1983	Household head interview
19.0	Ottawa–Carleton (Canada)	5 years	Beitchman et al. 1986	Testing by speech clinician
3.8	Upper Midwest (USA)	6 years	Shriberg et al. 1999	Testing by speech clinician
37.8	UK	Grades 1–2, 4–6	O'Connor 1987, cited in Blum-Harasty and Rosenthal 1992	Testing by speech clinician
1.9	USA	5–14	1977 National Health Interview Survey: Fein 1983	Household head interview
4.6	USA	All grades	Diaz 1985	Questionnaire to school
1.8	USA	<18 years	1988 National Health Interview Survey: Shewan and Malm 1990	Household head interview
Adults				
2.4	USA	17–18	Culton 1986	Self-reported, conversation and reading aloud
0.8	USA	15 years+	1977 National Health Interview Survey: Fein 1983	Household interview
1.0	USA	15 years+	1981 National Health Interview Survey: Shewan and Malm 1990	Household interview

Australian estimates

Few Australian estimates of speech disability are available, and those that are come from self-report population surveys. The prevalence of speech disability in children under 14 years was estimated at 1.7%. For Australians overall, estimates were similar, around 1% (Table 5.14).

Wake & Reilly (2001) have questioned the prevalence rate of speech disability in children, arguing that the data used by Keating et al. (2001) cited in Table 5.14 do not differentiate between disorder and delay and, more importantly, are based on self-report methods which are not necessarily accurate. Studies have shown that parents are accurate judges of some speech/language problems, such as language difficulties in young children, but are not so good at detecting similar problems in older children (Wake & Reilly 2001). Furthermore, the wording of questions affects how a parent will respond. For example, less than 2% of parents in the National Health Survey reported their child having a speech impairment but more than 20% of parents indicated positively to a question asking if they had concerns about how their child talks and uses speech sounds. It is conceivable that these sorts of question-wording issues flow into adult self-report where individuals may not so readily respond affirmatively to questions using words such as impairment.

Table 5.14: Summary of existing estimates of prevalence of speech disability, Australia

Prevalence rate (%)	Region	Age group	Data sources	Methods, definitions and classifications
1.7	Australia	0–14	1995 National Health Survey: Keating et al. 2001	Speech impediment or disability that has lasted or likely to last for six months or more
1.2	Australia	All ages	1993 Survey of Disability, Ageing and Carers: ABS 1996	Speech difficulties—ABS screening question
0.7	Australia	All ages	1995 National Health Survey: ABS 1997	Speech impediment or disability that has lasted or likely to last for six months or more

5.2 Estimates of prevalence of sensory/speech disability in Australia

Main data items and methods of estimation

Using the 1998 ABS disability survey data, this section provides estimates of sensory/speech disability using the four approaches: main disabling condition, all disabling conditions, all disabling conditions and activity limitations/participation restrictions, main/all disabling conditions and a severe or profound core activity restriction (see Section 2.4 for details of methods). A person is initially included in the sensory/speech disability group if:

- a positive response was made by or for them to one or more of the following screening questions: 'loss of sight (not corrected by glasses or contact lenses', 'loss of hearing where communication is restricted, or an aid to assist with, or substitute for, hearing is used', 'has speech difficulties'; and/or
- a positive response was made by or for them to one or more of the 17 screening questions and one or more sensory/speech impairments or disabling conditions was reported (for detailed codes for sensory/speech impairments and disabling conditions see Appendix 1).

The 1998 disability survey identified a more restricted population with hearing loss than did the 1993 survey. The 1993 survey screening question simply asked about whether the respondents had a loss of hearing. In the 1998 survey, a restriction criterion was added to the screening question to select people who had a loss of hearing and were restricted in communication or were using an aid to assist with hearing.

Estimates at national level

All disabling conditions

Estimates of the prevalence of sensory/speech disability using the four approaches are summarised in tables 5.15 and 5.16. Overall, in 1998, there were 1,404,600 people, or 7.5% of Australians, who had a sensory or speech impairment as a disabling condition. Of these, 1,286,900, or 6.9% of Australians, reported one or more activity limitations or participation restrictions and, of these, about 524,200, or 2.8% of the population, had a severe or profound core activity restriction (Table 5.15).

For people aged under 65 years, there were 685,700 people, or 4.2% of the population in that age group, with a sensory/speech disability. Hearing impairments were the predominant disabling condition (2.7%), followed by speech impairment (1.1%) (Table 5.16). For those under 65 years with a severe or profound core activity restriction, the prevalence of speech impairments was 0.7%, compared with 0.6% for hearing and 0.2% for visual impairments.

Table 5.15: Estimates of sensory/speech disability based on four approaches, by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	445.8	5.4	239.9	3.0	685.7	4.2
65+	347.2	35.0	371.7	29.1	718.9	31.7
Total	**793.0**	**8.5**	**611.6**	**6.5**	**1,404.6**	**7.5**
All disabling conditions and activity limitations and participation restrictions						
0–64	384.6	4.6	213.2	2.6	597.9	3.6
65+	324.4	32.7	364.6	28.6	689.0	30.4
Total	**709.0**	**7.6**	**577.9**	**6.2**	**1,286.9**	**6.9**
All disabling conditions and severe or profound core activity restrictions						
0–64	136.0	1.6	82.7	1.0	218.7	1.3
65+	111.7	11.3	193.8	15.2	305.5	13.5
Total	**247.7**	**2.7**	**276.5**	**2.9**	**524.2**	**2.8**
Main disabling condition						
0–64	155.5	1.9	80.3	1.0	235.8	1.4
65+	101.8	10.3	92.0	7.2	193.8	8.5
Total	**257.3**	**2.8**	**172.3**	**1.8**	**429.6**	**2.3**
Main disabling condition and severe or profound core activity restrictions						
0–64	25.0	0.3	13.6	0.2	38.2	0.2
65+	18.7	1.9	28.1	2.2	46.8	2.1
Total	**43.3**	**0.5**	**41.6**	**0.4**	**84.9**	**0.5**

Sources: Tables A5.1 and A5.2; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 5.16: Estimates of type of sensory/speech disability, based on four approaches, by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males						Females						Persons					
	Visual		Hearing		Speech		Visual		Hearing		Speech		Visual		Hearing		Speech	
	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%
All disabling conditions																		
0–64	77.7	0.9	288.1	3.5	117.1	1.4	51.7	0.6	152.0	1.9	57.6	0.7	129.4	0.8	440.1	2.7	174.6	1.1
65+	81.5	8.2	293.4	29.6	29.8	3.0	138.8	10.9	268.1	21.0	39.6	3.1	220.3	9.7	561.5	24.8	69.3	3.1
Total	**159.2**	**1.7**	**581.5**	**6.3**	**146.9**	**1.6**	**190.5**	**2.0**	**420.1**	**4.5**	**97.1**	**1.0**	**349.8**	**1.9**	**100,1.6**	**5.4**	**244.0**	**1.3**
All disabling conditions and activity limitations and participation restrictions																		
0–64	63.7	0.8	246.3	3.0	108.0	1.3	45.6	0.6	136.4	1.7	52.1	0.6	109.3	0.7	382.7	2.3	160.0	1.0
65+	77.7	7.8	273.7	27.6	29.5	3.0	137.3	10.8	262.5	20.6	39.6	3.1	215.0	9.5	536.2	23.6	69.1	3.0
Total	**141.3**	**1.5**	**520.0**	**5.6**	**137.5**	**1.5**	**183.0**	**2.0**	**398.9**	**4.3**	**91.6**	**1.0**	**324.3**	**1.7**	**918.9**	**4.9**	**229.1**	**1.2**
All disabling conditions and severe or profound core activity restrictions																		
0–64	20.6	0.2	54.1	0.7	81.9	1.0	16.1	0.2	36.4	0.4	39.6	0.5	36.6	0.2	90.4	0.6	121.5	0.7
65+	42.8	4.3	78.7	7.9	25.7	2.6	87.4	6.8	126.3	9.9	37.0	2.9	130.1	5.7	205.0	9.0	62.7	2.8
Total	**63.3**	**0.7**	**132.8**	**1.4**	**107.6**	**1.2**	**103.4**	**1.1**	**162.7**	**1.7**	**76.6**	**0.8**	**166.7**	**0.9**	**295.4**	**1.6**	**184.2**	**1.0**
Main disabling condition																		
0–64	24.7	0.3	102.7	1.2	28.1	0.1	16.1	0.2	57.2	0.7	*7.0	*0.0	40.8	0.2	159.9	1.0	35.1	0.2
65+	27.7	2.8	73.6	7.4	**0.5	**0.3	44.8	3.5	47.1	3.7	**0.1	**0.1	72.5	3.2	120.7	5.3	**0.6	**0.0
Total	**52.4**	**0.6**	**176.3**	**1.9**	**28.6**	**0.3**	**60.9**	**0.6**	**104.3**	**1.1**	***7.1**	***0.1**	**113.2**	**0.6**	**280.6**	**1.5**	**35.7**	**0.2**
Main disabling condition and severe or profound core activity restrictions																		
0–64	*4.7	*0.1	*7.9	*0.1	12.0	0.1	**1.9	**0.0	9.0	0.1	*2.7	*0.0	*6.6	*0.0	16.9	0.1	14.7	0.1
65+	12.4	1.2	*6.3	*0.6	0.0	0.0	20.6	1.6	*7.4	*0.6	**0.1	**0.0	32.9	1.5	13.7	0.6	**0.1	**0.0
Total	**17.1**	**0.2**	**14.2**	**0.2**	**12.0**	**0.1**	**22.5**	**0.2**	**16.4**	**0.2**	***2.8**	***0.0**	**39.6**	**0.2**	**30.6**	**0.2**	**14.8**	**0.1**

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Around 718,900 people aged 65 years and over, or 32% of Australians in that age group, reported having a sensory/speech disability. About half of these (305,500) also had a severe or profound core activity restriction. These people represented 14% of Australians aged 65 years plus. Prevalence rates were highest for hearing impairments, both for people with a disability in general (25%) and those with a severe or profound core activity restriction (9%). Visual impairments were the next most common impairment, reported by 10% of the population aged 65 years and over, and 6% of this population with severe or profound core activity restriction.

The prevalence estimate of sensory/speech disability using the approach 'all disabling conditions and activity limitations/participation restrictions', was 1,286,900 people, or 7% of the Australian population, in 1998. The prevalence of Australians aged under 65 years based on this approach was 3.6%, or 597,900 people; the prevalence for Australians 65 and over, 30% or 689,000 people. Hearing impairments were again the most reported sensory/speech disability but prevalence rates were markedly different between the two main age groups: 2% (under 65 years) compared with 24% (65 years and over).

Main disabling condition

In 1998, there were 429,600 people, or 2.3% of the Australian population, with a sensory/speech disability as a main disabling condition. Of these, 84,900, or 0.5% of the population, also had a severe or profound core activity restriction.

For people aged under 65 years, 235,800 people, or 1.4% of Australians in that age group, reported a sensory or speech main disabling condition (Table 5.15). More than half of this age group (159,900 people) had a hearing impairment (1.0% of the under 65 population) (Table 5.16). Around 40,800 had a visual impairment and 35,100 a speech disability, both accounting for 0.2% of the population in this age group.

A severe or profound core activity restriction was reported by 38,200 or 0.2% of people aged under the age of 65 years and with a sensory/speech disability as a main disabling condition. Again, hearing impairments were the most common disabling condition, with 16,900 or 0.1% of this population reporting such an impairment, but the prevalence of speech disabilities was also calculated at 0.1% of the population (14,700 people). Only 6,600 people under the age of 65 years reported a visual impairment.

For people aged 65 years and over, there were 193,800, or 8.5% of Australians in that age group, with a sensory/speech disability as a main disabling condition. The prevalence of hearing and visual impairments was greater for this age group compared with the under-65s. Most people 65 and over with a sensory/speech disability as a main disabling condition had a hearing impairment—120,700 people or 5.3% of the age group. Around 72,500 people had a visual impairment with a rate of 3.2%. Speech disabilities were considerably less common.

Around 46,800 people aged 65 years and over and with a sensory/speech main disabling condition also reported a severe or profound core activity restriction. This group accounted for 2.1% of the population in this age group. Over two-thirds of this group (32,900) had a visual impairment with a prevalence rate of 1.5%. A hearing impairment was reported by 13,700, or 0.6%, of Australians in this group.

5.3 Patterns of prevalence of sensory/speech disability in Australia

Age and sex patterns

The prevalence of sensory/speech disabilities generally rises as age increases, peaking at the age group 65 years and over with the highest rates of 32% based on all disabling conditions and 9% based on main disabling condition (tables A5.1 and A5.2). Children aged 5–14 years had higher rates of sensory/speech disabilities than people in any other age group under 45 years. Males and females showed similar age-related trends but males tended to have higher rates of sensory/speech disability than females for every age group. However, females aged 65 years and over with a severe or profound core activity restriction had slightly higher rates than males.

Rates of visual and hearing impairment as a main disabling condition and based on all disabling conditions also generally increased with age, peaking at the age group 65 years and over (tables A5.3 and A5.4). These rates, for both visual and hearing impairments, were higher using the 'all disabling conditions' approach, particularly for the older age groups. For example, 5% of people aged 65 years and over reported a hearing impairment as their main disabling condition whereas 25% of people of the same age group had a hearing impairment as a disabling condition. This could be attributed to a general loss of hearing as individuals get older.

All age groups reported speech impairments but this condition was mostly associated with children under the age of 14 years. Children 4 years and under had a rate of 0.5% based on main disabling condition and 1.7% based on all disabling conditions; rates for children aged 5–14 were 0.7% and 2.6% respectively.

Age at onset of main disabling condition

The age at onset of a main sensory/speech disability coincided with the very early and later years of life (Table 5.17). Nearly a quarter (23%) of people with a sensory/speech main disabling condition acquired the condition under the age of 4 years and another fifth (20%) after the age of 65 years.

Visual impairments tended to first occur either before the age of 4 (15%) or over the age of 65 (40%). Around 17% of hearing-impaired people also reported an age of onset at 4 years and under but no obvious age trend occurred past the childhood years, the exception being a somewhat higher onset at the ages 35 to 54 years compared with other adult age groups. The onset of speech impairments showed the most distinctive pattern. Of the people who reported having a speech impairment as their main disabling condition, all indicated that the age of onset was before the age of 18 years. The majority of these (87%) were under the age of 4 when they acquired their speech impairment.

Table 5.17: People reporting a sensory/speech main disabling condition, age when that condition identified, 1998

	Visual		Hearing		Speech		Sensory/speech	
Age at onset	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
0–4	16.6	15.4	46.8	17.1	31.1	87.2	94.5	22.6
5–9	*6.0	*5.6	15.4	5.6	*3.7	*10.5	25.2	6.0
10–14	*2.7	*2.5	9.8	3.6	**0.2	**0.4	12.7	3.0
15–19	**3.2	**2.9	*8.6	*3.2	**0.7	**1.9	11.8	2.8
20–24	*3.5	*3.2	15.5	5.7	—	0.0	19.0	4.5
25–29	*2.7	*2.5	13.0	4.7	—	0.0	16.3	3.9
30–34	**1.8	**1.6	13.4	4.9	—	0.0	15.2	3.6
35–39	**2.3	**2.2	21.9	8.0	—	0.0	24.3	5.8
40–44	*3.3	*3.1	21.0	7.7	—	0.0	24.3	5.8
45–49	*6.3	*5.8	13.6	5.0	—	0.0	20.0	4.8
50–54	*3.3	*3.1	24.5	9.0	—	0.0	27.8	6.7
55–59	*7.7	*7.1	13.7	5.0	—	0.0	21.3	5.1
60–64	*5.2	*4.8	15.9	5.8	—	0.0	21.2	5.1
65–69	11.0	10.2	16.3	5.9	—	0.0	27.3	6.5
70–74	13.0	12.0	9.5	3.5	—	0.0	22.5	5.4
75–79	11.5	10.6	9.0	3.3	—	0.0	20.4	4.9
80–84	*5.2	*4.8	*4.0	*1.5	—	0.0	9.2	2.2
85+	*2.7	*2.5	**1.9	**0.7	—	0.0	*4.5	*1.1
Total persons	**108.1**	**100.0**	**273.8**	**100.0**	**35.6**	**100.0**	**417.5**	**100.0**

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Reported cause of main disabling condition

Around 25% of people with a visual impairment reported their condition had ‘just come on’. Another 20% attributed their visual impairment to a disease, illness or hereditary condition and 17% to old age (Table 5.18).

The work environment was the leading reported cause of hearing impairment as a main disabling condition (29%), followed by disease, illness or hereditary condition (17%). Working conditions, type of work or overwork was the most important cause of hearing impairment in both the under-65 and over-65 age groups.

The majority of speech disabilities were reported as being either present at birth (33%) or having just come on (27%). However, 33% of people with a speech impairment as a main disabling condition reported not knowing the cause of their condition.

Table 5.18: People reporting a sensory/speech main disabling condition: cause of main disabling condition, by type of sensory/speech disability, 1998

	Visual						Hearing						Speech					
	0–64		65+		Total		0–64		65+		Total		0–64		65+		Total	
Reported cause of main disabling condition	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
Main condition just came on	*8.0	*19.6	20.0	27.5	27.9	24.7	17.0	10.6	18.3	15.1	35.3	12.6	9.4	26.9	—	0.0	9.4	26.8
Disease, illness or hereditary	*8.0	*20.5	14.3	19.7	22.6	20.0	32.9	20.6	15.4	12.8	48.2	17.2	**0.7	**1.9	**0.0	**6.1	**0.7	**2.0
Accident/injury	*8.3	*20.4	**1.7	**2.4	10.1	8.9	*8.4	*5.2	*4.0	*3.3	12.4	4.4	—	0.0	—	0.0	—	0.0
Working conditions, work, overwork	**0.2	**0.4	**0.8	**1.1	**0.9	**0.8	44.4	27.8	37.0	30.6	81.4	29.0	**0.7	**2.0	—	0.0	**0.7	**2.0
Present at birth	9.0	22.2	**1.9	**2.6	10.9	9.6	22.9	14.3	**1.9	**1.6	24.8	8.8	11.0	31.2	**0.5	**86.0	11.5	32.6
Old age	**1.4	**3.3	17.9	24.7	19.2	17.0	*2.7	*1.7	14.0	11.6	16.7	6.0	—	0.0	—	0.0	—	0.0
Stress	**0.5	**1.3	**0.8	**1.1	**1.3	**1.2	—	0.0	**0.6	**0.5	**0.6	**0.2	**0.2	**0.4	—	0.0	**0.2	**0.4
Personal/family death	—	0.0	—	0.0	—	0.0	—	0.0	**0.0	**0.0	**0.0	**0.0	**0.7	**2.1	—	0.0	**0.7	**2.1
Allergy	—	0.0	**0.7	**0.9	**0.7	**0.6	**1.0	**0.6	—	0.0	**1.0	**0.3	—	0.0	—	0.0	—	0.0
Side-effect of medication/medical procedure	—	0.0	**1.3	**1.8	**1.3	**1.1	**0.7	**0.4	**0.9	**0.7	**1.6	**0.6	—	0.0	—	0.0	—	0.0
Smoking	—	0.0	**0.0	**0.1	—	0.0	—	0.0	**0.0	**0.0	—	0.0	—	0.0	—	0.0	—	0.0
Pregnancy/childbirth	—	0.0	0	0.0	—	0.0	**0.7	0.4	—	0.0	**0.7	**0.2	—	0.0	—	0.0	—	0.0
Cause by other factors NES	—	0.0	*4.4	*6.0	*4.4	*3.9	11.5	7.2	13.1	10.9	24.7	8.8	**0.8	**2.4	—	0.0	**0.8	**2.4
Do not know what caused condition	*5.0	*12.2	*8.8	*12.1	13.8	12.2	17.8	11.1	15.3	12.7	33.1	11.8	11.6	33.1	**0.0	**8.1	11.7	33.1
Not applicable	—	0.0	—	0.0	—	0.0	—	0.0	**0.1	**0.1	**0.1	**0.0	—	0.0	—	0.0	—	0.0
Total	**40.8**	**100.0**	**72.5**	**100.0**	**113.2**	**100.0**	**160.0**	**100.0**	**120.7**	**100.0**	**280.6**	**100.0**	**35.1**	**100.0**	**0.6**	**100.0**	**35.3**	**100.0**

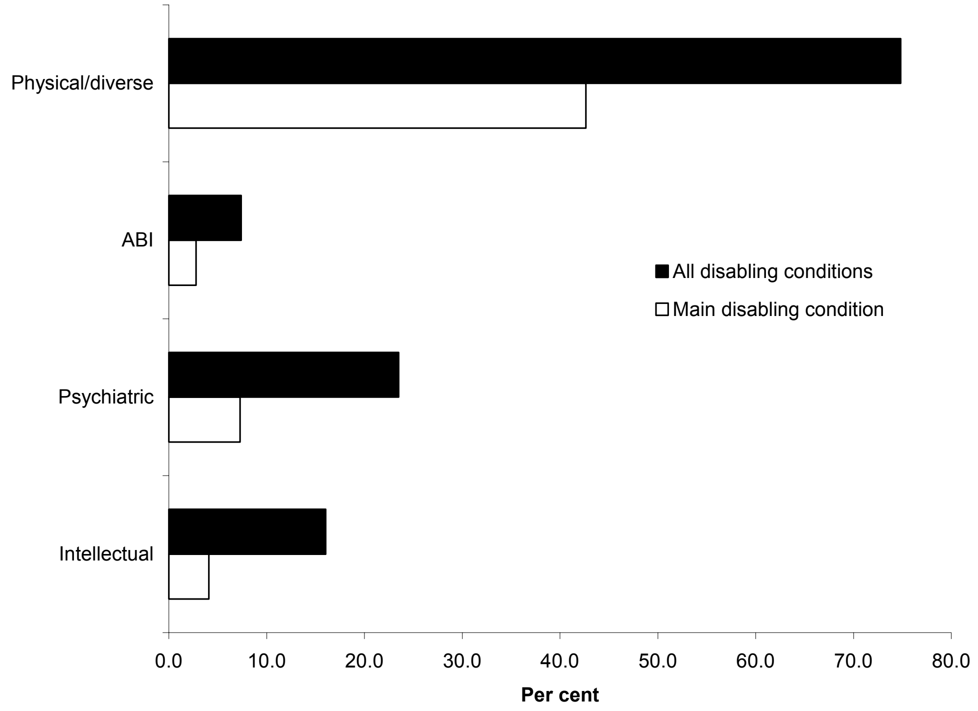
Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Associated disabilities

While physical/diverse disability (75%) was the most frequently associated disability for people with a sensory/speech disability based on all reported disabling conditions, around 24% also had a psychiatric disability and 16% an intellectual disability (Figure 5.1; Table A5.5). Among people with severe or profound restrictions, this association with psychiatric and intellectual disabling conditions rises to 25% and 17% respectively.

Physical/diverse disabilities were the most commonly associated disability (43%) with a sensory/speech main disabling condition. This was especially apparent for people with sensory/speech disabilities aged over 65 (65%) compared with people under the age of 65 years (24%).



Source: Table A5.5.

Figure 5.1: People reporting a sensory/speech disability (based on main/all disabling conditions), by reported other disabilities, 1998

Significant diseases or conditions

All disabling conditions

The prevalence of cataract (0.4%), retinal disorder (0.2%) and glaucoma (0.3%) was slightly higher when reported as a disabling, rather than a main disabling, condition. Again, people aged 65 years and over had a higher prevalence of these conditions (1–2%) than people aged under 65 years (0.1%). Females also reported a much higher prevalence of these conditions compared with males. For example, the prevalence of cataract as a disabling condition was 3.3% of females compared with 2.2% of males.

As found for main disabling condition, noise exposure (1.8%) and 'other non-ear disease-related causes' (1.3%) had the highest prevalence of all hearing impairment-associated conditions. Increasing age parallelled an increase in the prevalence of these and other listed conditions, including congenital conditions. The greatest difference between the sexes in the prevalence of a specific hearing impairment-associated disease or condition was again noise exposure, at 3.3% for males and 0.3% for females. The difference between males aged under and over 65 years was even more marked—1.9% and 14.8% respectively.

The prevalence of speech impediments as a disabling condition was 0.4%. Again, speech impediments were most common for children aged 0–4 (0.7%) and 5–14 (1.3%), and for males rather than females, for each age group but especially so for those aged 5–14 (1% compared with 0.2%).

Main disabling condition

The prevalence of significant diseases associated with visual impairment i.e. glaucoma, retinal disorder and cataracts, were uniform, at 0.1%. While the prevalence of these diseases was largely the same for each sex, people over the age of 65 years had a higher prevalence of these conditions (around 0.7%) compared with people under the age of 65 years (<0.1%).

Noise exposure (0.4%) and 'other non-disease related causes' (0.6%) were the most prevalent of diseases and conditions associated with hearing impairment, followed by congenital conditions at 0.2%. The prevalence of noise-induced hearing impairment was particularly high in males compared with females, especially for the age groups 45–64 (1.3% compared with <0.1%) and 65 years and over (2.7% compared with 0.3%). A high prevalence of hearing impairment-related diseases and conditions was associated with older age, especially after the age of 45 years. The exception was congenital conditions, which was equally prevalent for each age group, at around 0.2–0.3%.

The prevalence of a speech impediment as a main disabling condition associated with a speech disability was 0.3%. Speech impediments were mostly reported by children aged 0–4 (0.4%) and 5–19 (0.9%) years. Males also reported slightly higher rates of speech impediment than females (0.2% to <0.1% respectively), and this was especially apparent in the age group 5–19 years (0.7% to 0.2%).

Place of residence and geographic location

The majority (>90%) of people with a sensory/speech disability, reported either as a main disabling condition or as an associated condition, resided in households (Table 5.19). The only marked difference was found for people aged 65 and over and with a severe or profound core activity restriction—65% of this group lived in household accommodation if they reported a sensory/speech disability as an associated condition.

Table 5.19: Estimates of sensory/speech disability based on four approaches, by place of residence, 1998

	Households		Cared accommodation		Total	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	672.0	98.0	13.7	2.0	685.7	100.0
65+	606.3	84.3	112.6	15.7	718.9	100.0
Total	**1,278.3**	**91.0**	**126.3**	**9.0**	**1,404.6**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	584.2	97.7	13.7	2.3	597.9	100.0
65+	576.6	83.8	112.5	16.2	688.0	100.0
Total	**1,160.8**	**90.2**	**126.1**	**9.8**	**1,286.9**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	205.3	93.9	13.3	6.1	218.7	100.0
65+	197.0	64.5	108.5	35.5	305.5	100.0
Total	**402.3**	**76.8**	**121.9**	**23.2**	**524.2**	**100.0**
Main disabling condition						
0–64	235.4	99.8	**0.4	**0.2	235.8	100.0
65+	185.3	95.7	*8.4	*4.3	193.7	100.0
Total	**420.7**	**97.9**	**8.9**	**2.1**	**429.6**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	37.8	99.0	**0.4	**0.1	38.2	100.0
65+	39.5	84.5	*7.2	*15.5	46.8	100.0
Total	**77.3**	**91.0**	**7.7**	**9.0**	**84.9**	**100.0**

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

In 1998, about 60% of people with a sensory/speech disability lived in capital cities, compared with 40% in other part of the states. This was consistent across all estimates of sensory/speech disability using all four approaches (Table 5.20).

Estimates at state and territory level

Tables 5.21 and A5.6 provides estimates of sensory/speech disability by states and territories. As discussed in Section 2.4, the estimates rely on underlying assumptions that each state or territory has the same age- and sex-specific prevalence rates as those of the national average and that the estimated numbers are not affected by factors other than demographic variations. Hence, the differences in the estimates across the jurisdictions are entirely due to their demographic variations. States with larger populations, therefore, had higher estimates than states with smaller populations. For instance, Victoria had an estimated 328,500 people with a sensory/speech disability. In contrast, Tasmania with its smaller population had an estimate of 34,200 people.

Table 5.20: Estimates of sensory/speech disability based on four approaches, by geographic location, 1998

	Capital city		Balance of state		Total	
	’000	%	’000	%	’000	%
All disabling condition						
0–64	405.2	59.1	280.5	40.9	685.7	100.0
65+	430.4	59.9	288.5	40.1	718.9	100.0
Total	**835.6**	**59.5**	**569.0**	**40.5**	**1,404.6**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	352.4	58.9	254.4	41.1	597.9	100.0
65+	412.0	59.8	277.1	40.2	689.0	100.0
Total	**764.4**	**59.4**	**531.5**	**41.4**	**1,286.9**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	128.8	58.9	89.9	41.1	218.7	100.0
65+	189.1	61.9	116.4	38.1	305.6	100.0
Total	**317.9**	**60.6**	**206.3**	**39.4**	**524.3**	**100.0**
Main disabling condition						
0–64	141.5	60.0	94.3	40.0	235.8	100.0
65+	114.6	59.1	79.2	40.9	193.7	100.0
Total	**256.1**	**59.6**	**173.5**	**41.4**	**429.5**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	22.7	59.5	15.5	40.5	38.2	100.0
65+	28.2	60.3	18.6	39.7	46.8	100.0
Total	**50.9**	**60.0**	**34.1**	**40.0**	**85.0**	**100.0**

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 5.21: Estimates of sensory/speech disability (all conditions and activity limitations and participation restrictions) by states and territories, by sex and age, 1998 (’000)

	States and territories								
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males									
0–64	131.7	95.2	71.9	38.1	30.7	9.8	*6.3	*4.0	387.8
65+	115.5	83.7	57.4	27.8	30.3	*8.8	*3.3	**1.0	327.8
Total	247.1	178.9	129.3	65.9	61.0	18.7	9.7	*5.0	715.6
Females									
0–64	73.1	53.8	39.5	20.9	17.2	*5.5	*3.6	**2.0	215.6
65+	130.8	95.8	61.2	30.5	34.9	10.0	*3.7	**0.7	367.7
Total	203.9	149.6	100.7	51.4	52.1	15.5	*7.3	*2.8	583.3
Persons									
0–64	204.7	149.0	111.4	59.0	47.9	15.3	10.0	*6.0	603.4
65+	246.2	179.5	118.6	58.3	65.2	18.8	*7.0	**1.7	695.5
Total	**451.0**	**328.5**	**230.0**	**117.3**	**113.1**	**34.2**	**17.0**	***7.7**	**1,298.9**

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Sources: Table A5.6; ABS 1999b; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

6 Acquired brain injury

6.1 A brief overview of existing definitions and estimates of prevalence

This section summarises some main issues and recent developments regarding the definition and prevalence of disabilities related to acquired brain injury (ABI). A comprehensive review of the definition, incidence and prevalence of ABI in Australia was presented in the previous report in this series (AIHW: Fortune & Wen 1999).

Issues relating to definitions and methods of estimation

Terms and definitions

The term 'acquired brain injury' is most widely used as an umbrella term to describe disabilities arising from any damage to the brain acquired after birth, regardless of cause. Brain injury acquired at birth or very early in life is sometimes included in the scope of ABI, but more often included within the intellectual disability group. A number of related terms are in common use, such as 'head injury', 'brain damage' and 'traumatic brain injury'. Throughout this chapter, the term ABI is used to cover all acquired damage to the brain, regardless of cause. The term 'traumatic brain injury' (TBI) is used to refer to acquired brain injury caused by a traumatic event. The term 'head injury' is used to mean injury to the head where brain damage is likely but cannot be ascertained.

ABI can result in the deterioration of cognitive, physical, emotional or independent functioning. Causes of ABI include traumatic accidents, neurological diseases, stroke and substance abuse. In international disability groupings, ABI is often mapped to the broad 'physical/diverse' group (see, for example, AIHW 2003b). However, ABI is recognised as a separate disability group in the disability field, and in legislative and administrative contexts in Australia. This in part reflects the fact that the needs and experience of people with ABI are recognised as being different from those of people with other types of disability. For example, people with ABI often experience a range of physical, social and emotional difficulties due to the complex nature of ABI (AIHW 2000a; AIHW: Fortune & Wen 1999).

Definitions of ABI used in different contexts vary. The *National Community Services Data Dictionary, version 3* defines ABI as being:

> used to describe multiple disabilities arising from damage to the brain acquired after birth. It can occur as a result of accidents, stroke, brain tumours, infection, poisoning, lack of oxygen, degenerative neurological disease etc. Effects include deterioration in cognitive, physical, emotional or independent functioning' (AIHW 2003b).

A similar definition of ABI is found in the *National Policy on Services for People with Acquired Brain Injury*:

> injury to the brain which results in deterioration in cognitive, physical, emotional or independent functioning. ABI can occur as a result of trauma, hypoxia, infection, tumour, substance abuse, degenerative neurological diseases or stroke. These impairments to cognitive abilities or physical functioning may be either temporary or permanent and cause partial or total disability or psychosocial maladjustment (Department of Human Services and Health 1994).

Both definitions are quite broad, covering brain injury resulting from a range of causes and leading to impairments that may be temporary or permanent and may result in disability. The *National Policy on Services for People with Acquired Brain Injury* states that its main concern is people with ABI who need personal assistance or supervision with activities of daily living. Some studies of brain injury in Australia have used this definition (e.g. Backhouse 1997).

Definitions associated with disability support services tend to be more specific with regard to the severity and duration of disability attributed to ABI, reflecting service eligibility criteria. The definition of disability in the 1998 Commonwealth/State Disability Agreement mentions ABI specifically as a disability group (CSDA 1998).

It is difficult to define the scope of the ABI group, as it can result from a variety of causes and lead to a range of types of disability. Individuals with ABI-related disability often have impairments in more than one domain (e.g. physical, cognitive and psychosocial). There is also scope for overlap between ABI and other disability groups (AIHW: Fortune & Wen 1999). For instance, disability related to some degenerative neurological diseases may be classified as ABI or as neurological disability in the physical/diverse group (see Chapter 7; AIHW: Wen & Fortune 1999). In Australia, people with brain injury acquired before, during or shortly after birth are more likely to be included in the intellectual disability group by service providers or representative organisations.

Operational definitions of ABI

Most studies of ABI incidence focus on morbidity and mortality, rather than disability. Many such studies are based on hospital data and use rates of hospitalisation (admissions or separations) as indicative of incidence. The operational definitions used in incidence studies often focus on diagnoses and symptoms associated with brain injury, rather than long-term effects, since information on the long-term effects of brain injury is not generally available at the time of occurrence of the injury.

The operational definitions used in studies of ABI incidence are often based on a list of selected diagnosis categories from the ICD. Variations in the list of categories result in different estimates of incidence. Differences may also reflect variations in methods of estimation. For example, some studies are based on information on the principal diagnosis only (the main diagnosis leading to the hospitalisation for ABI), while others are based on information on all diagnoses, that is, on hospitalisations for which the ABI-related condition was not the ‘main’ cause but may have contributed to the need for hospitalisation. Many other factors, such as different policies of hospital admission and rates of readmission for a single injury, can also cause variation in rates of hospitalisation, independently of any variation in incidence rates. (AIHW: Fortune & Wen 1999: Chapter 3).

In contrast to incidence studies, the prevalence of disability attributable to ABI is commonly estimated using data from population surveys. Operational definitions therefore effectively depend on the survey questions or definitions. For example, the 1998 ABS disability survey's definition of ABI includes head injury or brain damage—both present at birth or acquired after birth—reflecting the wording of the screening questions used to identify ABI. The three questions asked people whether they have 'ever had' a head injury, stroke or any other kind of brain damage (ABS unpublished 1998 Survey of Disability, Ageing and Carers Questionnaire). An example of a slightly different definition is found in the Canadian Health and Activity Limitation Survey, which only includes brain injury acquired after birth.

Existing estimates of incidence, prevalence and patterns of ABI

Estimates of the incidence of ABI

Estimates of incidence are largely based on hospital admission or separation data. However, while rates of hospitalisation may be indicative of incidence, they are not a true measure of incidence rates, because people with ABI who do not come into contact with hospitals are not captured by these data. Also, people who are admitted more than once for the same injury in a given period will be counted multiple times.

Estimates of ABI incidence from overseas studies available in 1999 ranged from 91 to 372 per 100,000 population (AIHW: Fortune & Wen 1999). Australian incidence estimates ranged from 57 to 377 per 100,000 population.

A narrower range of estimates is obtained by considering only estimates from the above set based on hospital data and excluding those studies that obtained data from only a single hospital. This gives a range of 100 to 270 per 100,000 population per year for estimates of incidence overseas and 100 to 377 per 100,000 per year for estimates of incidence in Australia (see AIHW: Fortune & Wen 1999: 34–35).

Some further ABI incidence estimates have been published more recently. An Italian study found rates of 314 per 100,000 population based on hospital admissions for head injuries (Servadei et al. 2002). A Korean study found a lower incidence rate for head injuries—236 per 100,000—based on analysis of motor accident data (Lee 2001). A study conducted in Scotland estimated that 100 to 150 people per 100,000 population experienced an ongoing disability one year after experiencing an acute head injury (Thornhill et al. 2000).

ABI-related hospital separations in Australia, 1996–97

In the previous report in this series (AIHW: Fortune & Wen 1999), ICD-9-CM codes were used to identify hospital separations with a diagnosis associated with ABI from the 1996–97 National Hospital Morbidity Database. These included TBI and five other subgroups (stroke, anoxic brain injury, alcohol-related brain injury, brain injury arising early in life and 'other' ABI). In 1996–97, it was found that there were 27,437 separations for TBI, at a rate of 149 per 100,000 population. The age-standardised TBI hospitalisation rates varied between states and territories—from 71 per 100,000 in the Australian Capital Territory to 211 per 100,000 in Queensland. Of the other ABI subgroups examined, stroke and 'other' brain injury accounted for the greatest number of hospital separations (280 and 362 per 100,000 respectively). 'Other' brain injury included organic psychotic conditions, mental disorders due to organic brain damage and other cerebral degenerative conditions.

Updated ABI-related hospital separation data, based on the 2000–01 National Hospital Morbidity Database and codes from the ICD–10–AM, are presented in Section 6.3.

Estimates of prevalence of ABI-related disability

There are relatively few existing estimates of the prevalence of long-term disability attributable to ABI, either in Australia or overseas.

International prevalence estimates reviewed in the previous ABI report range from 62 to 783 per 100,000 population (AIHW: Fortune & Wen 1999). The majority of these estimates were based on population surveys and limited to people living in households. Most Australian estimates reviewed were based on the ABS 1993 disability survey. These estimates are not directly comparable, due to marked differences in the methods of estimation.

In the previous report in this series, three broad approaches were used to estimate the prevalence of ABI-related disability using the ABS survey data. The lowest estimates were obtained using an approach based on reported main disabling condition only: 60,600 people, or 0.3% of the total population.

Using an approach based on 'all disabling conditions and activity limitations and participation restrictions' an estimated 338,700 Australians (1.9% of the total population) had an ABI-related disability in 1993. There were 160,200 people (0.9% of the total population) who reported an ABI-related disabling condition and always or sometimes needed personal assistance or supervision with activities of daily living (self-care, mobility or verbal communication).

Prevalence rates of ABI in 1993 based on 'all disabling conditions and activity limitations and participation restrictions' varied between jurisdictions, from 1.6% in Victoria and the Australian Capital Territory to 2.4% in Queensland. Age-standardised rates for Queensland (2.6%) and the Northern Territory (3.6%) were significantly higher than the national average (1.9%). No state or territory had a rate that was significantly below the national average.

Updated prevalence estimates, based on the 1998 ABS Survey of Disability, Ageing and Carers, are presented in Section 6.2 below.

6.2 Estimates of prevalence of ABI in Australia

Main data items and methods of estimation

In this section, four approaches are applied to the data from the ABS 1998 disability survey to provide estimates of disability associated with ABI in Australia (see Section 2.4 for details of the four approaches and methods). A person is initially included in the ABI disability group if:

- a positive response was made by or for them to the ABI-specific screening questions about whether they had 'any long-term effects as a result of a head injury that interfere with doing everyday activities', or 'any long-term effects as a result of any other kind of brain damage that interfere with doing everyday activities'; and /or
- a positive response was made by or for them to one of the 17 screening questions and one or more disabling conditions related to head injury or ABI was reported.

Prevalence estimates of ABI in the previous ABI report (AIHW: Fortune & Wen 1999) used data from the 1993 ABS disability survey that contained a screening question about head injury, stroke and brain damage with long-term effects. The data did not allow the effects of stroke to be separately identified from those of head injury and other brain damage. Hence, these previous estimates of ABI included disabilities related to the effects of stroke that may or may not be associated with brain damage. Although stroke is a common cause of brain injury, it does not always result in brain injury. Further, the group of people with ABI resulting from stroke is likely to have a different profile from those who have an ABI resulting from other causes. It is therefore desirable to identify the effects of stroke separately from those of head injury and other brain damage. ABS made changes to the 1998 disability survey questions so that disabilities related to stroke can be separately identified.

This section presents estimates of the prevalence of disability related to the effects of head injury and other brain damage only. These estimates do not include survey information about the long-term effects of stroke, which is classified as a physical/diverse disability associated with circulatory conditions (see Chapter 7). The changes in the 1998 survey methods have led to an increased identification of circulatory conditions between 1993 and 1998 (Chapter 8).

Estimates at national level

All disabling conditions

When considering all reported disabling conditions in 1998, 211,100 people (1.1% of the Australian population) reported ABI (Table 6.1). Those aged 65 years and over (2.3%) had a much higher rate of ABI than those under 65 years (1.0%).

When all conditions are considered in combination with activity limitations and participation restrictions, the estimate of people with ABI is 201,600, or 1.1% of the total population. This number includes 150,800 people under 65 years, or 0.9% of the population in that age group.

Around 113,300 people (0.6% of the population) had an ABI-related condition and a severe or profound core activity restriction. Of these, 75,200 were aged under 65 years (0.5% of the population in that age group).

Main disabling condition

Around 39,200 people (0.2% of the Australian population) reported an ABI-related main disabling condition in 1998 (Table 6.1). Of these, 35,700 were aged under 65 years, which represented 0.2% of the population in that age group.

There were about 12,900 people (0.1% of the overall population) who reported an ABI-related main disabling condition and also reported a severe or profound core activity restriction. Of these, 10,800 were under 65 years (0.1% of the under-65 population).

Comparison of 1998 and 1993 estimates

As explained above, estimates of ABI from the 1993 and 1998 surveys are not directly comparable due to changes in the survey questions. However, it is possible to combine ABI and stroke estimates as in Table A6.1. This table provides 1998 estimates of ABI-related disability that can be compared with the 1993 estimates. These estimates include long-term effects of stroke as well as head injury and brain damage:

- In 1998, around 324,000 people (1.7% of the total population) reported one or more ABI-related disabling conditions. Of these, 314,300 people (1.7% of the total population) had at least one activity limitation or participation restriction. These estimates can be compared with the 1993 estimates of 370,700 people (2.1%) who had one or more ABI-related disabling conditions, and 338,700 aged 5 years and over (1.9% Australians of that age) who also had at least one activity limitation or participation restriction.
- Around 201,400 people in 1998 (1.1% of the total population) reported one or more ABI-related disabling conditions and had a severe or profound core activity restriction. In 1993, the estimate of people with one or more ABI-related disability and a severe or profound handicap aged 5 years or over was 160,200 people (0.9% Australians of that age).
- An estimated 102,700 people, or 0.6% of Australians of all ages, reported an ABI-related main disabling condition. Of these 62,000 people (0.3% of the total population) had a severe or profound core activity restriction. These figures can be compared with the 1993 estimates of 60,600 people (0.3%) who reported an ABI-related main disabling condition, of whom 24,900 people aged 5 and over (0.1% of Australians of that age)[6] had a severe or profound handicap.[7]

It should be noted that substantial changes in the 1998 ABS disability survey resulted in a great increase in the estimated number of people with a disability, especially those with a severe or profound core activity restriction (AIHW 2001a; ABS: Davis et al. 2001). Therefore, the comparison of estimates between 1993 and 1998 should be treated cautiously.

6.3 Patterns of ABI-related disability in Australia

Age and sex patterns

When all disabling conditions are considered, the prevalence rate of ABI-related disability was higher for males (1.3%) than females (0.9%) (Table 6.1). In the population aged 65 years and over, males reported ABI at a rate of 2.6% compared to 2.0% for females. For those aged under 65 years, males reported ABI at a rate of 1.2%, females 0.8%.

The rate of males reporting an ABI-related disability as their main disabling condition (0.3%) was similar to that of females (0.2%) (Table 6.1). Rates of ABI-related main disabling conditions and severe or profound core activity restrictions was 0.1% for both males and females.

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[6] In the 1993 disability survey, questions about activity limitations were not asked in respect of children aged 0–4 years.

[7] This is equivalent to the concept of severe or profound core activity restriction in the 1998 survey.

Age at onset of main disabling condition

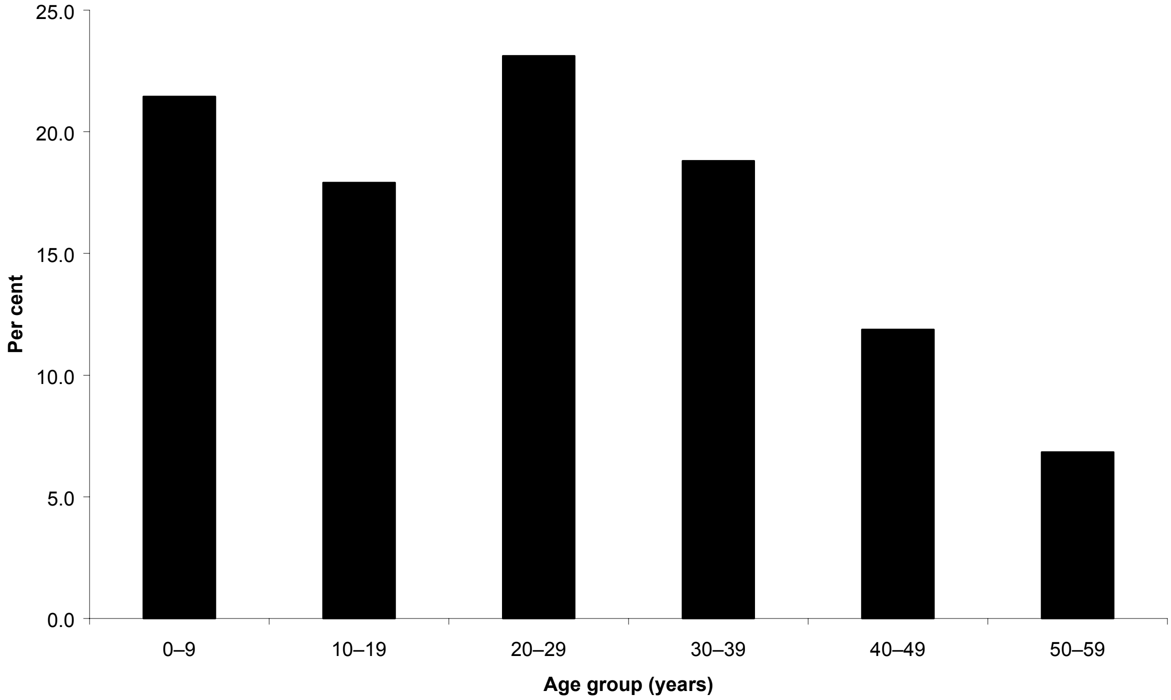
Around 39% of people with an ABI-related main disabling condition reported that their condition occurred before the age of 20 years (Figure 6.1; Table A6.4). A further 42% reported an age at onset of between 20 and 39 years.

Table 6.1: Estimates of ABI-related disability based on four approaches, by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	96.4	1.2	62.6	0.8	159.0	1.0
65+	26.3	2.6	25.8	2.0	52.0	2.3
Total	**122.7**	**1.3**	**88.4**	**0.9**	**211.1**	**1.1**
All disabling conditions and activity limitations and participation restrictions						
0–64	91.1	1.1	59.7	0.7	150.8	0.9
65+	25.2	2.5	25.6	2.0	50.8	2.2
Total	**116.3**	**1.3**	**85.3**	**0.9**	**201.6**	**1.1**
All disabling conditions and severe or profound core activity restrictions						
0–64	44.3	0.5	30.9	0.4	75.2	0.5
65+	19.6	2.0	18.6	1.5	38.2	1.7
Total	**63.8**	**0.7**	**49.5**	**0.5**	**113.3**	**0.6**
Main disabling condition						
0–64	21.9	0.3	13.8	0.2	35.7	0.2
65+	*1.4	*0.1	**2.1	**0.2	*3.5	*0.2
Total	**23.3**	**0.3**	**15.9**	**0.2**	**39.2**	**0.2**
Main disabling condition and severe or profound core activity restrictions						
0–64	*4.1	*0.0	*6.8	*0.1	10.8	0.1
65+	**0.7	**0.1	**1.4	**0.1	**2.1	**0.1
Total	***4.8**	***0.1**	***8.2**	***0.1**	**12.9**	**0.1**

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.



Source: Table A6.4.

Figure 6.1: People reporting an ABI main disabling condition, age when that condition identified, 1998

Reported cause of main disabling condition

The majority of people with an ABI-related disability as their main condition (81%) reported that this condition was caused by an accident or injury (Table 6.2). A further 4% indicated that their main condition was caused by disease, illness or hereditary factors. A similar proportion of people with an ABI-related disability indicated that their main condition was caused by stress (3%) or was present at birth (also 3%).

Table 6.2: People reporting an ABI-related main disabling condition: cause of main disabling condition, 1998

Reported cause of main disabling condition	’000	%
Caused by disease, illness, hereditary	**1.7	**4.3
Accident/injury	31.6	80.7
Present at birth	**1.0	**2.6
Stress	**1.3	**3.4
Side effect of medication/medical procedure	**0.5	**1.3
Other causes	**2.2	**5.6
Not known/not applicable	**0.8	**2.1
Total	**39.2**	**100.0**

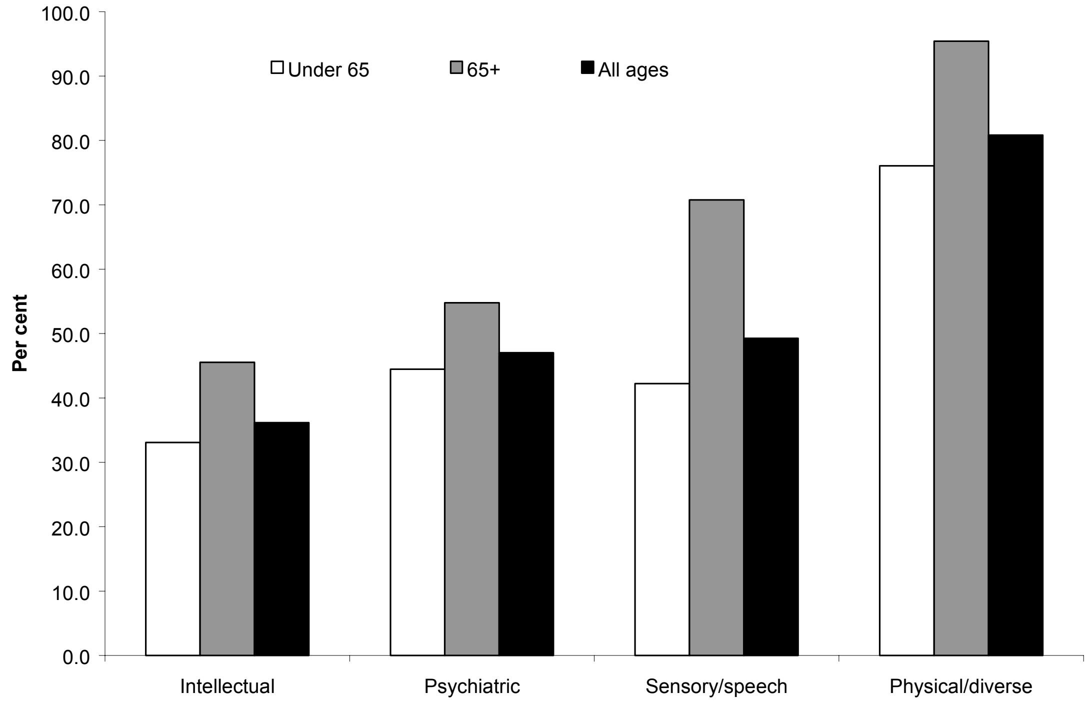
Notes

1. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. These estimates should be interpreted accordingly.
2. ‘Other causes’ includes ‘main condition just came on’ and ‘other cause NES’.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Associated disabilities

About four-fifths (81%) of those reporting a disabling condition of ABI also reported a physical/diverse disability (Figure 6.2; Table A6.5). This included almost all of those aged 65 years or more (95%). Just under half (49%) of all people with an ABI-related disabling condition reported a sensory/speech disability, 47% a psychiatric disability, and 36% an intellectual disability.



Source: Table A6.5.

Figure 6.2: People reporting an ABI-related disabling condition (all disabling conditions), by reported other disabilities, by age group, 1998

Place of residence and geographic location

Overall, 85% of people with an ABI-related disability as one of their disabling conditions lived in households (Table 6.3). People over 65 years of age (58%) had a lower proportion in households than those under 65 years (94%). People with an ABI-related disability as one of their disabling conditions were slightly more likely to be living in capital cities (56%) than the rest of their state (45%) (Table 6.4).

Table 6.3: Estimates of ABI-related disability based on four approaches, by place of residence, 1998

	Households		Cared accommodation		Total	
	’000	**%**	**’000**	**%**	**’000**	**%**
All disabling conditions						
0–64	150.0	94.3	9.1	5.7	159.0	100.0
65+	30.3	58.3	21.7	41.7	52.0	100.0
Total	**180.3**	**85.4**	**30.8**	**14.6**	**211.1**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	141.7	94.0	9.1	6.0	150.8	100.0
65+	29.1	57.3	21.7	42.7	50.8	100.0
Total	**170.8**	**84.7**	**30.8**	**15.3**	**201.6**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	66.6	88.6	*8.6	*11.4	75.1	100.0
65+	16.6	43.6	21.5	56.4	38.2	100.0
Total	**83.2**	**73.4**	**30.1**	**26.6**	**113.3**	**100.0**
Main disabling condition						
0–64	34.8	97.4	**0.9	**2.6	35.7	100.0
65+	*3.2	*91.2	**0.3	**8.8	*3.5	100.0
Total	**37.9**	**96.9**	****1.2**	****3.1**	**39.2**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	10.0	92.4	**0.8	**7.6	10.8	100.0
65+	**1.8	**85.6	**0.3	**14.4	**2.1	100.0
Total	**11.8**	**91.3**	****1.1**	****8.7**	**12.9**	**100.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 6.4: Estimates of ABI-related disability based on four approaches, by geographic location, 1998

	Capital city		Balance of state		Total	
	’000	**%**	**’000**	**%**	**’000**	**%**
All disabling conditions						
0–64	87.0	54.7	72.1	45.3	159.0	100.0
65+	30.1	57.8	21.9	42.2	52.0	100.0
Total	**117.1**	**55.5**	**94.0**	**44.5**	**211.1**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	81.3	53.9	69.5	46.1	150.8	100.0
65+	29.6	58.2	21.2	41.8	50.8	100.0
Total	**110.9**	**55.0**	**90.8**	**45.0**	**201.6**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	35.6	47.4	39.5	52.6	75.2	100.0
65+	21.5	56.3	16.7	43.7	38.2	100.0
Total	**57.1**	**50.4**	**56.2**	**49.6**	**113.3**	**100.0**
Main disabling condition						
0–64	15.4	43.2	20.2	56.8	35.7	100.0
65+	**2.4	**69.1	**1.1	**30.9	*3.5	100.0
Total	**17.8**	**45.6**	**21.3**	**54.4**	**39.2**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	*2.9	*26.6	*7.9	*73.4	10.8	100.0
65+	**1.5	**70.8	**0.6	**29.2	**2.1	100.0
Total	***4.4**	***33.9**	***8.6**	***66.1**	**12.9**	**100.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Estimates at state and territory level

Table 6.5 presents ABI estimates at state/territory level. These are based on assumptions that each state or territory has the same age- and sex-specific prevalence rates as those of the overall Australian population (see Section 2.4 for more details).

Table 6.5: Estimates of ABI-related disability (all disabling conditions and activity limitations and participation restrictions), by states and territories, by sex and age, 1998 ('000)

	States and territories								
	NSW	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
Males									
0–64 years	31.0	22.5	17.0	*9.1	*7.2	**2.3	**1.6	**1.0	91.6
65+ years	*9.0	*6.5	*4.5	**2.2	**2.3	**0.7	**0.3	**0.1	25.5
Total	*40.0*	*29.0*	*21.5*	*11.3*	*9.6*	**3.0*	**1.8*	**1.1*	*117.1*
Females									
0–64 years	20.3	15.0	11.1	*5.9	*4.7	**1.5	**1.1	**0.6	60.2
65+	9.2	*6.7	*4.3	**2.2	**2.4	**0.7	**0.3	**0.1	25.8
Total	*29.5*	*21.7*	*15.4*	**8.0*	**7.2*	***2.2*	***1.3*	***0.7*	*86.0*
Persons									
0–64 years	51.3	37.5	28.1	15.0	12.0	*3.8	*2.6	**1.6	151.8
65+	18.2	13.2	*8.8	*4.3	*4.8	**1.4	**0.5	**0.1	51.3
Total	*69.4*	*50.7*	*36.8*	*19.3*	*16.8*	**5.2*	**3.1*	***1.7*	*203.1*

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

6.4 ABI-related hospital separations in 2000–01

Hospital separations data are collected throughout Australia and collated at the national level as the National Hospital Morbidity Database. These data can be useful for looking at rates of hospitalisation associated with some subgroups of ABI. While it must be emphasised that rates of hospitalisation are not incidence rates, incidence is one of the factors that affects rates of hospitalisation. The data presented below give an indication of the number of admissions to hospital over a one-year period for conditions that may give rise to brain injury and/or indicate ABI.

Methods for identifying ABI hospital separations

The National Hospital Morbidity Database is a collection of confidentialised electronic summary records for patients admitted to Australian hospitals. Each record in the database relates to a 'separation', which refers to the episode of care. This can be a total hospital stay (from admission to discharge, transfer, or death), or a portion of a hospital stay, beginning or ending in a change of type of care (for example, from acute care to rehabilitation).

The National Hospital Morbidity Database was used to look at rates of ABI-related hospital separations in 2000–01. ICD–10–AM diagnosis codes were used to identify traumatic brain injury and six other subgroups of ABI: stroke and other cerebrovascular disease; anoxic brain injury; brain injury due to alcohol, other drugs and psychoactive substances; brain damage arising before or at birth; brain infections; and dementia and organic psychiatric conditions. (See Table A6.7 for the specific ICD–10–AM codes used in each category.) Data used for the following analyses are based on the relevant codes reported as any diagnosis, that is, as either the principal diagnosis (the main diagnosis leading to the hospitalisation) and/or any additional diagnoses (other diagnoses associated with the hospitalisation).

Traumatic brain injury

There were 20,563 hospital separations with a diagnosis of TBI in 2000–01—a rate of 107 separations per 100,000 population (Table 6.6). The male rate (150 per 100,000) was more than double the female rate (65 per 100,000). Males aged 15–19 years had the highest separation rate (304 per 100,000), especially compared to females of the same age (less than a third the rate, at 99 per 100,000). For females, the highest rate was for those over the age of 65 (122 per 100,000), and the lowest rate was for those aged 45–64 years (36 per 100,000).

The number of TBI-related hospital separations per 100,000 population varied among the states and territories, ranging from 50 in the Australian Capital Territory to 135 in South Australia (Table 6.7). In all states and territories except South Australia, standardised rates were slightly lower for those aged under 65 years than for the total population.

The number of TBI separations fell between 1996–97 and 2000–01, from 149 per 100,000 population (AIHW: Fortune and Wen 1999) to 107 per 100,000. This fall in rates was consistent among the states and territories. Caution must be exercised in comparing data between these two time periods, because in 1996–97 ICD–9–CM codes were used to report diagnoses while in 2000–01 ICD–10–AM codes were used. Thus, ABI-related diagnoses could not be specified using a precisely equivalent set of codes for both years. When comparing codes between the two periods, the data suggest that the overall decrease in TBI-related hospital separations was mainly due to fewer separations with diagnoses of concussive injury and ‘other’ or ‘unspecified’ intracranial injury.

A decline in TBI rates has also been found in the United States. Lovasik et al. (2001) attributed the recent fall in US TBI hospitalisation rates to both successful injury prevention programs, and changes in hospital admission processes, where patients with mild TBI are treated as outpatients rather than being admitted. It is possible that one or both of these reasons may have also had some impact on the fall in TBI rates in Australian hospital data.

Table 6.6: Traumatic brain injury: hospital separations and separation rates per 100,000 population, by sex and age, Australia 2000–01

	Males		Females		Persons	
Age group	Number	Rate (/100,000)	Number	Rate (/100,000)	Number	Rate (/100,000)
0–4	823	125	566	91	1,389	109
5–14	1,996	145	803	61	2,799	104
15–19	2,060	304	643	99	2,703	204
20–29	3,159	229	920	68	4,079	149
30–44	2,720	125	982	45	3,702	85
45–64	1,963	90	773	36	2,736	63
65+	1,532	146	1,623	122	3,155	133
Total 0–64	12,721	150	4,687	56	17,408	104
Total	**14,253**	**150**	**6,310**	**65**	**20,563**	**107**

Source: AIHW analysis of 2000–01 National Hospital Morbidity Database.

Table 6.7: Traumatic brain injury: hospital separations, by state or territory of residence, age-standardised and unstandardised rates per 100,000 population, Australia 2000–01

	Ages 0–64			All ages		
State or territory	Number	Unstandardised rate (/100,000)	Standardised rate (/100,000)	Number	Unstandardised rate (/100,000)	Standardised rate (/100,000)
NSW	5,033	89	89	6,023	93	93
Vic	3,929	95	96	4,777	101	101
Qld	3,833	122	121	4,468	125	125
WA	1,939	116	115	2,205	118	117
SA	1,738	135	136	2,033	135	135
Tas	332	81	82	402	85	86
ACT	133	46	45	157	50	50
NT	242	128	122	248	127	124
Total	**17,408**	**104**	**104**	**20,563**	**107**	**107**

Note: Age-standardised rates were calculated using the age- and sex-specific rates for the Australian estimated resident population (for both under 65 years and all ages) for June 2000.

Sources: AIHW analysis of 2000–01 National Hospital Morbidity Database; ABS Estimated Resident Population as at June 2000.

Other ABI subgroups

ABI may also be caused by a range of other conditions. Presented below are hospital separation data for six other subgroups of ABI-related conditions (Table 6.8). The conditions included are listed in Table A6.7. These conditions have been selected because they may involve or cause brain injury, and may also give rise to long-term ABI-related disability. However, it must be noted that this will not always be the case. For example, brain infections such as meningitis can but do not always cause a long-term brain injury. Therefore the data in Table 6.8 should be interpreted as indicative of the numbers and rates of hospital separations with a diagnosis potentially associated with brain injury.

Of the subgroups presented in Table 6.8, dementias and other organic psychiatric conditions had the highest number of separations (74,248, or 388 separations per 100,000 population).

Rates for people aged 65 years and over (2,863 per 100,000) were much higher than for those aged under 65 years (36 per 100,000). Females had a higher rate than males for people aged 65 years and over (3,083, compared with 2,584), whilst males had a higher rate for those aged under 65 years (46 versus 27).

Stroke and other cerebrovascular disease had the next highest number and rate of separations overall (33,268, or 174 separations per 100,000). Male and female rates were similar in this group. For all other subgroups except brain infections, hospital separation rates were higher for males than females. A large sex difference was found for brain injury due to alcohol, other drugs and psychoactive substances—for males the rate was 22 per 100,000, while for females it was 5 per 100,000. The difference was even larger in this group for those aged 65 years or more (92 for males versus 16 for females).

Table 6.8: ABI subgroups: hospital separations and separation rates per 100,000 population, by sex and age, Australia 2000–01

	Males		Females		Persons	
	Number	Rate (/100,000)	Number	Rate (/100,000)	Number	Rate (/100,000)
Stroke and other cerebrovascular disease						
0–64	4,408	52	2,987	36	7,395	44
65+	12,234	1,168	13,639	1,024	25,873	1,087
Total	**16,642**	**175**	**16,626**	**172**	**33,268**	**174**
Anoxic brain injury						
0–64	590	7	298	4	888	5
65+	418	40	243	18	661	28
Total	**1,008**	**11**	**541**	**6**	**1,549**	**8**
Brain injury due to alcohol, other drugs and psychoactive substances						
0–64	1,106	13	301	4	1,407	8
65+	959	92	214	16	1,173	49
Total	**2,065**	**22**	**515**	**5**	**2,580**	**13**
Brain damage arising before or at birth						
0–64	3,162	37	3,004	36	6,166	37
65+	213	20	175	13	388	16
Total	**3,375**	**36**	**3,179**	**33**	**6,554**	**34**
Brain infections						
0–64	3,673	43	4,095	49	7,768	46
65+	386	37	569	43	955	40
Total	**4,059**	**43**	**4,664**	**48**	**8,723**	**46**
Dementias and other organic psychiatric conditions						
0–64	3,855	46	2,266	27	6,121	36
65+	27,076	2,584	41,051	3,083	68,127	2,863
Total	**30,931**	**325**	**43,317**	**449**	**74,248**	**388**

Source: AIHW analysis of 2000–01 National Hospital Morbidity Database.

7 Physical/diverse disability

7.1 A brief overview of existing definitions and estimates of prevalence

This section summarises some important issues concerning the definition, classification and prevalence of physical disability. It then discusses existing estimates of prevalence and patterns of physical disability and related long-term health conditions. A more detailed review of the definition and prevalence of physical disability was presented in a previous report of this series (AIHW: Wen & Fortune 1999).

Defining and classifying physical disability

'Physical disability' is commonly recognised as a disability group in the disability field, and in legislative and administrative contexts in Australia. People with physical disabilities represent a significant consumer group of disability support services in Australia, accounting for 12% of primary disability or 29% of all disabilities reported by consumers on a snapshot day in 2002 (AIHW 2003d). 'Physical disability' is often used as a broad category for all disabilities that are not 'mental disabilities', particularly in overseas literature. The terms 'physical impairment', 'physical disability', 'physical activity' and 'physical function' are in common use in the disability field in Australia, but are rarely clearly defined. The existing estimates of physical disability vary considerably, reflecting differences in conceptual and operational definitions, measurements, survey methods, data sources and geographic locations.

Overseas definitions and classifications

A number of US legislative and administrative documents relating to physical disability have used concepts or definitions adapted from the ICIDH, the predecessor of ICF. These documents are major sources of reference for similar documents in Australia.

The Americans with Disabilities Act defines disability, with respect to an individual, as 'a physical or mental impairment that substantially limits one or more of the major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment' (42 USCA § 12102(2)). The scope of physical impairment in the definition of the Americans with Disabilities Act is very broad. It is basically a catch-all category, including all impairments other than mental or psychiatric disorders.

A United Nations expert report on the development of statistical concepts and methodology on disability for household surveys recommends a wide scope for 'physical impairments', including a sensory subcategory that could include impairments such as hearing or reading difficulties (Table 7.1; United Nations 1988a). The recommended scope of 'physical disability' consists of five of the nine 1980 ICIDH broad categories of disabilities: locomotor, communication, personal care, body disposition and dexterity (Table 7.1; United Nations 1988a).

In the United Nations Disability Statistics Data Base (DISTAT) the scope of 'physical impairments' covers visceral, skeletal and disfiguring impairments (Table 7.1; United Nations 1984, 1986, 1988b).

Two basic measures of activity limitation, the Activities of Daily Living (ADL) scale and the Instrumental Activities of Daily Living (IADL) scale, have been widely used in clinical settings and population surveys to define disability and assess the need for services. The ADL scale focuses on assessing ability to perform basic self-care activities, e.g. bathing, dressing, toileting, getting in and out of bed, continence and feeding. The IADL scale assesses ability to carry out activities central to independent functioning in the community, e.g. light housework, laundry, meal preparation, grocery shopping, outside mobility, travel, money management and telephoning (Fried et al. 1994; Katz & Akpom 1976; Katz et al. 1963; Lawton & Brody 1969; Manton et al. 1995). As ADL scales tend to focus primarily on physical activities or physical functions they are sometimes used to assess physical disability (e.g. Bruce et al. 1994; Fried et al. 1994; Ward et al. 1995). However, there is no universally agreed definition of what 'physical activities' are. Most activities of daily living have a physical component, but many also have a cognitive component (Johnson & Wolinsky 1993; Stewart & Kamberg 1992). Thus, a limitation in performing an activity may be due to mental or psychiatric impairment, rather than physical impairment.

Australian definitions and classifications

In Australian legislative definitions of disability, the terms 'physical impairment' and 'physical disability' are used but are not defined (AIHW: Wen & Fortune 1999).

The *National Community Services Data Dictionary, version 3* provides guidance on the use of the Australian national disability grouping of physical/diverse disability. The dictionary states that physical/diverse disability 'is associated with the presence of an impairment, which may have diverse effects within and among individuals, including effects on physical activities such as mobility' (Table 7.1; AIHW 2003b). The broad group of physical/diverse disability includes three detailed subgroupings, reflecting terms used in Australia by peak bodies, people with disabilities and disability administrations. The subgroup 'Physical disability' is used to describe conditions that are attributable to a physical cause or impact on the ability to perform physical activities (Table 7.1). The other two subgroups are 'Acquired brain injury' and 'Neurological disability'.

In this report, the *National Community Services Data Dictionary, version 3* is used as a guide in defining and estimating physical/diverse disability; 'acquired brain injury' is a separate category of the main disability group (Chapter 6), while 'neurological disability' is included in the broad category of 'physical/diverse disability'.

Table 7.1: Definitions of physical impairments/disabilities

Source	Definition
United Nations 1986 Development of Statistics of Disabled Persons: Case Studies.	Physical impairments include visceral, skeletal and disfiguring impairments—for example, amputations, paralysis, limping and lameness, deformity, and hunched back.
United Nations 1988a UN Expert Group on Development of Statistics of Disabled Persons: suggestions on topics concerning disability for use in household surveys.	Physical impairments are divided into two groups: 'sensory' (aural, language and ocular), and 'other physical impairments' (visceral, skeletal and disfiguring). Physical disabilities are disabilities in the areas of locomotion (includes ambulation and confining disabilities), communication (speaking, listening, seeing, and other disabilities), personal care (includes excretion, personal hygiene, dressing and feeding), body disposition (includes domestic disabilities, such as preparing and serving food and care of dependants, and body movement disabilities such as fingering, gripping and holding) and dexterity (includes daily activity disabilities, such as use of doors, domestic appliances and windows, and manual activity disabilities, such as fingering, gripping and holding).
Americans with Disabilities Act of 1990. 42 USCA § 12102(2) (West 1995); Pub L No 101–485, 267 (legislative history). These definitions are based on concepts of EEOC Title 1 Regulations and Interpretive Appendix (29 CFR 1630).	'Physical or mental impairment' means the following: (1) any physiological disorder or condition, cosmetic disfigurement, or anatomic loss affecting one or more of the body systems: neurological, musculoskeletal, special sense organs, respiratory (including speech organs), cardiovascular, reproductive, digestive, genitourinary, hemic and lymphatic, skin, and endocrine systems; or (2) any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities. 'Disability' means, with respect to an individual, (a) a physical or mental impairment that substantially limits one or more of the major life activities of such individual; (b) a record of such an impairment; or (c) being regarded as having such an impairment.
National Community Services Data Dictionary, version 3 (AIHW 2003b)	Physical/diverse disability is associated with the presence of an impairment, which may have diverse effects within and among individuals, including effects on physical activities such as mobility. The range and extent of activity limitation and participation restriction will vary with the extent of impairment as well as with environmental factors. Environmental adjustments and support needs are related to areas of activity limitation and participation restriction, and may be required for long periods. Level of supports may vary with both life changes and extent of impairment. Physical/diverse disability included: *Physical disability* is used to describe conditions that are attributable to a physical cause or impact on the ability to perform physical activities, such as mobility. Physical disability includes may be associated with paraplegia, quadriplegia, muscular dystrophy, motor neurone disease, neuromuscular disorders, cerebral palsy, absence or deformities of limbs, spina bifida, arthritis, back disorders, ataxia, bone formation or degeneration, scoliosis etc. Impairments may affect internal organs such as lung or liver. *Acquired brain injury* is used to describe multiple disabilities arising from damage to the brain acquired after birth. It can occur as a result of accidents, stroke, brain tumours, infection, poisoning, lack of oxygen, degenerative neurological disease etc. Effects include deterioration in cognitive, physical, emotional or independent functioning.. *Neurological* disability applies to impairments of the nervous system occurring after birth, and may be associated with such conditions as epilepsy, organic dementias (e.g. Alzheimer's disease), multiple sclerosis and Parkinson's.

Sources: United Nations 1986; 1988a; Americans with Disabilities Act of 1990 PL101–338; AIHW 2003b.

Existing estimates of prevalence of physical disability

Relatively few overseas estimates of the prevalence of physical disability specifically have been published. Nevertheless, overseas data show that physical disability is the most commonly reported disability. For example, the 1987 national disability survey of Spain estimated that 60.2% of people with a disability reported physical impairments as their underlying condition (Chamie 1995). Data from the 1989 Survey of National Registry of Germany show that underlying physical conditions were reported by about 70% of all people with a severe disability receiving rehabilitation services (Chamie 1995).

Estimates of prevalence of physical disability in Australia vary, reflecting differences in operational definition, method and geographic location. Most existing estimates of physical disability are based on the ABS disability survey data. However, the methods used to obtain estimates from the survey data vary (Table 7.2). The estimates for South Australia are based on a statewide telephone survey of disability prevalence.

Table 7.2: Existing estimates of prevalence rates of physical disability in Australia

Prevalence rates (%)	Regions	Data sources and methods	Source
16.0	Australia	1993 ABS Survey of Disability, Ageing and Carers, based on main disabling condition, physical—ABS broad grouping, including sensory conditions	ABS 1993
10.3	Australia	1993 ABS Survey of Disability, Ageing and Carers, based on impairment, physical—ABS grouping of survey screening questions	ABS 1996
14.4	Australia	1998 ABS Survey of Disability, Ageing and Carers, based on main disabling condition, physical–ABS broad grouping, excluding sensory conditions.	AIHW 2002b
13.9	NSW	1988 ABS Survey of Disability, Ageing and Carers, based on main disabling condition, physical—ABS broad grouping, including sensory conditions	New South Wales Department of Family and Community Services 1990
16.0	Qld	1993 ABS Survey of Disability, Ageing and Carers, based on main disabling condition, physical—ABS broad grouping, including sensory conditions	Queensland Department of Families, Youth and Community Care 1997
12.6	WA	1993 ABS Survey of Disability, Ageing and Carers, based on main disabling condition, physical (excluding sensory conditions)	Alessandri et al. 1996 (WA Disability Services Commission)
11.9	SA	Musculoskeletal disability	South Australian Health Commission 1998
4.2		Musculoskeletal disability (main condition)	
0.7		Neurological disability	
0.4		Limiting neurological disability	

Sources: AIHW: Wen & Fortune 1999; AIHW 2000b.

The previous report of this series produced the following main prevalence estimates of physical disability using the ABS 1993 Survey of Disability, Ageing and Carers data (AIHW: Wen & Fortune 1999).

- Based on all reported conditions, about 2,350,300 people with a disability in 1993, or 13.3% of Australians of all ages, reported one or more physical disabling conditions. Of these, 2,099,600 people (11.9% of the total population) also reported one or more activity limitations or participation restrictions, and of them 620,400 people, or 3.8% of Australians, also had a severe or profound handicap.

- An estimated 1,726,200 people with a disability, or 9.8% of the Australian population, reported a physical main disabling condition. Of these, 423,100 people, or 2.6% of the Australian population aged 5 years and over, also had a severe or profound handicap.[8]
- Arthritis was the most commonly reported physical main disabling condition, followed by other musculoskeletal disorders.

The overall prevalence of physical disability was higher for females than for males. This pattern was more marked for people with a severe or profound handicap and people aged 65 or more. Females had higher rates of arthritis than males across all age groups.

The overall prevalence rate of physical disability for people born in Australian (11.4%) was lower than for people born overseas—14.5% for people born in other English-speaking countries and 13.0% for people born in non-English-speaking countries (AIHW: Wen & Fortune 1999: Table 4.6). However, the age-standardised prevalence rates showed that Australian-born were more likely to report physical disability than those born overseas. Since the overseas-born are older on average, a greater proportion of them reported physical disability (AIHW: Wen & Fortune 1999: Tables 4.7 and 4.8).

In 1993, states with higher proportions of older people, such as South Australia, tended to have higher prevalence rates of physical disability than the national average. The Northern Territory and the Australian Capital Territory had a younger population age structure and correspondingly relatively low prevalence rates (AIHW: Wen & Fortune 1999: Table 4.16).

7.2 Prevalence estimates of physical/diverse disability in Australia

Main data items and methods of estimation

This section presents estimates of the prevalence of physical/diverse disability based on data from the 1998 disability survey and using four approaches described in Chapter 2 (see Section 2.4 for details of methods). A person is initially included in the physical/diverse disability group if:

- a positive response was made by or for them to one or more of the following screening questions: 'incomplete use of arms or fingers', 'incomplete use of feet or legs', 'difficulty gripping or holding things'; and/or
- a positive response was made by or for them to one or more of the 17 screening questions and one or more physical impairments or disabling conditions was reported; or
- a positive response was made by or for them to one of the following screening questions: 'shortness of breath or difficulty breathing', 'chronic or recurrent pain or discomfort', 'blackouts, fits, or loss of consciousness', 'disfigurement or deformity', 'restriction in physical activities or doing physical work', and the person's disability could not be

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[8] 'Severe or profound handicap' is equivalent to 'severe or profound core activity restriction' in the 1998 Survey of Disability, Ageing and Carers.

assigned to any other disability group on the basis of answers to other screening questions or reported disabling conditions.

A full list of physical impairments and disabling conditions is presented in Appendix 1.

There are a number of changes in the 1998 survey compared with the 1993 survey that affect the prevalence estimates (see Chapter 8). Additional screening questions were added to separately identify people with chronic or recurrent pain or discomfort causing restrictions, and people with shortness of breath or breathing difficulties causing restrictions.

As with previous surveys, the number of people with a physical/diverse disability may be underestimated because of the episodic or seasonal nature of some disabling conditions such as asthma and epilepsy. The underestimation may also be caused by a lack of awareness of the presence of the condition, or a lack of knowledge or understanding of the correct medical terminology of the conditions (ABS 1999a).

Estimates at national level

All disabling conditions

Table 7.3 summarises the estimates of physical/diverse disability based on the four approaches (see Section 2.4). An estimated 3,028,500 people, or 16.2% of Australians, reported one or more physical/diverse disabling conditions. Of these, 975,400 people, or 5.2% of the total population, also reported a severe or profound core activity restriction.

Of those aged under 65, 1,903,900 people, or 11.6% of the total population, had at least one physical/diverse disabling condition. Of these, 517,200 people, or 3.2% of Australians in that age group, also had a severe or profound core activity restriction. The prevalence of one or more physical/diverse conditions among the working age (15–64) population was 14.1%, or 1,759,800 people. Of these, 448,000 also had a severe or profound core activity restriction.

Selecting people who reported one or more physical/diverse disabling conditions and one or more activity limitation or participation restrictions, an estimated 2,853,400 people, or 15.3% of Australians, had a physical/diverse disability. The prevalence of physical/diverse disability for those aged under 65 was 10.8%, or 1,771,200 people, as compared with 47.7%, or 1,082,200 people, for those aged 65 or more. The prevalence for the working-age population was 13.1% or 1,638,600 people.

Musculoskeletal conditions other than arthritis were the most commonly reported physical/diverse disabling conditions in 1998, followed by arthritis and circulatory conditions. This pattern was consistent in the estimates based on both main and all disabling conditions (tables A7.1, A7.2, A7.3 and A7.4).

It is noticeable that, in 1993, arthritis, rather than other musculoskeletal conditions, was the most commonly reported condition. An analysis of changes between 1993 and 1998 suggested that the increase in severe or profound core activity restriction could be partially associated with an increase in the prevalence of some physical/diverse conditions, especially musculoskeletal disorders (ABS: Davis et al. 2001). A new screening question about chronic pain in the 1998 survey could have contributed considerably to the increase in reporting of these conditions (Chapter 8).

Table 7.3: Estimates of physical/diverse disability based on four approaches, by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	965.7	11.6	938.2	11.6	1,903.9	11.6
65+	483.8	48.8	640.8	50.2	1,124.6	49.6
Total	**1,449.6**	**15.6**	**1,579.0**	**16.8**	**3,028.5**	**16.2**
Total 15–64	881.1	14.0	878.7	14.2	1,759.8	14.1
All disabling conditions and activity limitations and participation restrictions						
0–64	898.5	10.8	872.7	10.8	1,771.2	10.8
65+	455.1	45.9	627.1	49.1	1,082.2	47.7
Total	**1,353.6**	**14.6**	**1,499.8**	**16.0**	**2,853.4**	**15.3**
Total 15–64	818.6	13.0	819.9	13.2	1,638.6	13.1
All disabling conditions and severe or profound core activity restrictions						
0–64	248.9	3.0	268.3	3.3	517.2	3.2
65+	154.7	15.6	303.6	23.8	458.3	20.2
Total	**403.6**	**4.3**	**571.8**	**6.1**	**975.4**	**5.2**
Total 15–64	206.0	3.3	242.0	3.9	448.0	3.6
Main disabling condition						
0–64	867.2	10.5	842.5	10.4	1,709.7	10.4
65+	404.8	40.8	529.6	41.5	934.4	41.2
Total	**1,271.9**	**13.7**	**1,372.2**	**14.6**	**2,644.1**	**14.2**
Total 15–64	800.6	12.7	788.3	12.7	1,588.8	12.7
Main disabling condition and severe or profound core activity restrictions						
0–64	214.4	2.6	233.5	2.9	447.9	2.7
65+	120.1	12.1	236.4	18.5	356.5	15.7
Total	**334.5**	**3.6**	**469.9**	**5.0**	**804.4**	**4.3**
Total 15–64	182.1	2.9	211.2	3.4	393.3	3.2

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: Tables A7.1, A7.2, A7.3 and A7.4; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Main disabling condition

About 2,644,100 people in 1998, or 14.2% of the Australian population, reported a physical/diverse main disabling condition. Of these, 804,400 people, or 4.3% of Australians, also had a severe or profound core activity restriction (Table 7.3).

An estimated 1,709,700 people aged under 65, or 10.4% of Australians in that age group, reported a physical/diverse main disabling condition. Of these, 447,900 people, or 2.7% of Australians in that age group, had a severe or profound core activity restriction (Table 7.3). About 1,588,800 people, or 12.7% of Australians of working age (15–64), reported a physical/diverse main disabling condition. Of these, 393,300 people, or 3.2% of working-age Australians, also had a severe or profound core activity restriction.

There were 934,400 people with a disability aged 65 or more, or 41.2% of Australians in that age group, reporting a physical/diverse main condition. Of these, 356,500 (15.7%) also reported a severe or profound core activity restriction.

7.3 Patterns of physical/diverse disability in Australia

Age and sex patterns

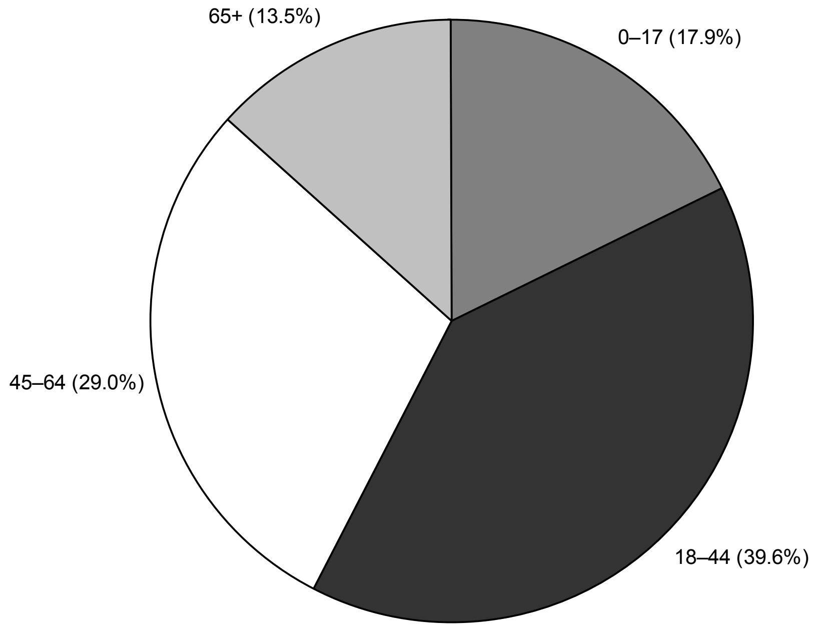
The overall prevalence rates of physical/diverse disability generally increased with age and the rates were particularly high for people aged 45 or more. This pattern was in contrast to the pattern of intellectual disability, in which the rates for adult population were considerably lower than the rates for children and adolescents (Chapter 3).

The overall prevalence of physical/diverse disability was higher for females than for males (Table 7.3). This difference was particularly evident among people who also had a severe or profound core activity restriction, and was most marked for those aged 65 and over.

Prevalence estimates for specific categories of disabling condition showed that females had higher rates of arthritis than males (tables A7.2 and A7.4). This pattern was consistent across all age groups. Rates of respiratory conditions were higher for children of school age than those for young adults in their 20s (AIHW: Wen & Fortune 1999: tables A4.7 and A4.8; AIHW analysis of the 1998 Survey of Disability, Ageing and Carers confidentialised unit record file).

Age at onset of main disabling condition

More than 80% of people with a physical/diverse main disabling condition reported first having that condition at age 18 or older. About 29% reported that the onset of their main condition occurred between the ages of 45 and 64, and 14% at age 65 or older (Figure 7.1; Table A7.5).



Source: Table A7.5.

Figure 7.1: People reporting a physical/diverse main disabling condition, age when that condition identified, 1998

Reported cause of main disabling condition

For people of all ages, the most commonly reported known cause for physical/diverse main disabling condition was accident or injury (22%). The second most common cause was disease, illness or heredity conditions (15%), followed by working conditions, work or overwork (13%) (Table 7.4).

For people aged 65 or older, disease, illness, or heredity was the most common known cause of physical/diverse disability (16%), followed by 'old age' (13%). However, for those aged under 65, accident or injury was the dominant known cause (28%), followed by working conditions, work or overwork (16%).

Table 7.4: People with a physical/diverse disability: cause of main disabling condition, by age, 1998

	0–64 years			65 years or more			All ages		
Reported cause of main disabling condition	**’000**	**%**	**% of total known causes**	**’000**	**%**	**% of total known causes**	**’000**	**%**	**% of total known causes**
Main condition just came on	309.4	18.1	20.3	260.1	27.8	31.9	569.5	21.5	24.3
Causes by disease, illness, hereditary	224.0	13.1	14.7	133.7	14.3	16.4	357.7	13.5	15.3
Accident/injury	425.2	24.9	27.9	98.0	10.5	12.0	523.2	19.8	22.4
Working conditions, work, overwork	246.1	14.4	16.1	67.6	7.2	8.3	313.8	11.9	13.4
Present at birth	113.5	6.6	7.4	*6.9	*0.7	*0.8	120.4	4.6	5.1
Old age	12.2	0.7	0.8	107.3	11.5	13.2	119.5	4.5	5.1
Stress	33.1	1.9	2.2	22.7	2.4	2.8	55.9	2.1	2.4
Personal/family problems, death	*3.8	*0.2	*0.2	**1.1	**0.1	**0.1	*4.9	*0.2	*0.2
Allergy (e.g. food, climate, medication and environment)	38.8	2.3	2.5	*4.1	*0.4	*0.5	42.8	1.6	1.8
Side effect of medication/medical procedure	20.2	1.2	1.3	11.5	1.2	1.4	31.7	1.2	1.4
Smoking	13.8	0.8	0.9	43.5	4.7	5.3	57.3	2.2	2.4
Pregnancy/childbirth	12.6	0.7	0.8	*3.2	*0.3	*0.4	15.8	0.6	0.7
Cause by other factors NES	71.8	4.2	4.7	55.5	5.9	6.8	127.3	4.8	5.4
Total known causes	*1,524.4*		*100.0*	*815.2*		*100.0*	*2,339.7*		*100.0*
Do not know what caused main condition	185.3	10.8		118.9	12.7		304.2	11.5	
Not applicable	—	0.0		**0.2	**0.0		**0.2	**0.0	
Total	**1,709.7**	**100.0**		**934.4**	**100.0**		**2,644.1**	**100.0**	

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Associated diseases or conditions

Physical/diverse disabilities were associated with various diseases or conditions. On the basis of all reported disabling conditions in 1998, some of the most commonly associated diseases or conditions were:

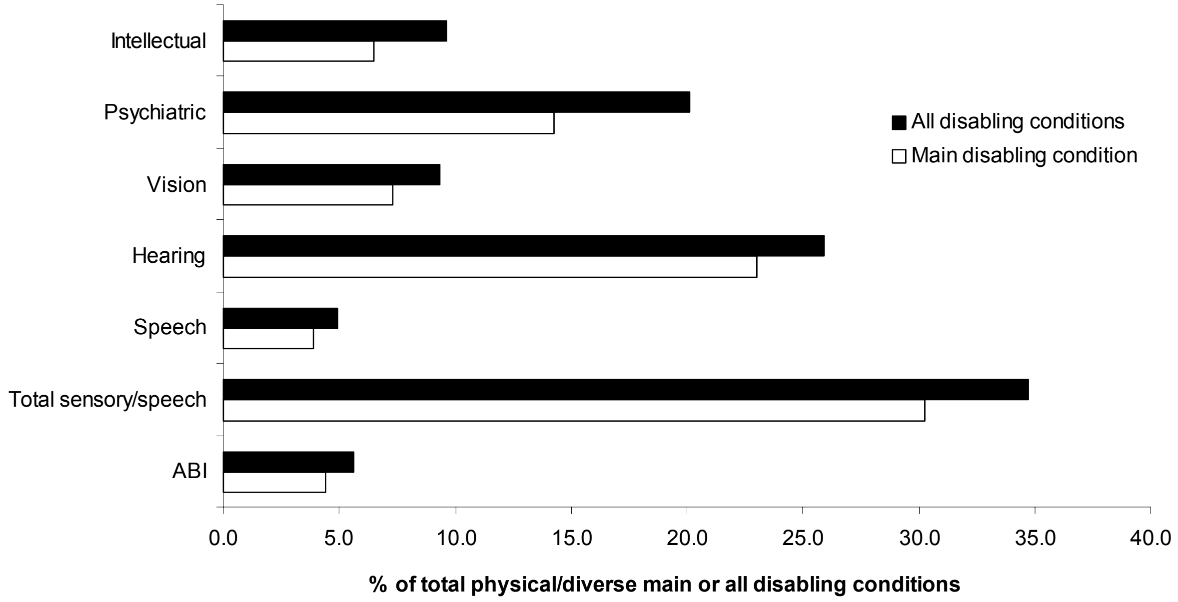
- More than one million people reported one or more heart diseases or related conditions. Around 638,200 people, or 3.4% of the total population, had hypertension.
- About 408,700 people, or 2.2% of the total population, had asthma-related conditions. Asthma was most commonly reported among children of school age (5–14), 66,000 people or 2.5% of children of that age.
- Back problems were the most commonly reported musculoskeletal conditions other than arthritis; 1,007,000 people, or 5.4% of the total population, reported these conditions. There were 72,500 people, or 0.4% of the total population, who reported having osteoporosis, mostly people aged 45 or older.
- There were 90,900 people (0.5%) who reported conditions associated with epilepsy and 55,000 (0.3%) reported conditions associated with migraines. About 31,100 people (0.2%), mostly among those aged 65 or more, reported conditions associated with Parkinson's disease.

- Around 22,300 people (0.1%), mostly among those aged under 65, reported conditions related to cerebral palsy. Conditions relating to paralysis were reported by 22,100 people, or 0.1% of the total population.

Associated disabilities

Sensory/speech (30%) was the most commonly associated disability for people with a physical/diverse main disabling condition, in particular hearing impairments (23%). Psychiatric disability (14%) was the second most commonly reported associated disability (Figure 7.2; Table A7.6).

The pattern was similar when all reported physical/diverse disabling conditions are considered. Sensory/speech was the most commonly associated disability (35%), followed by psychiatric disability (20%).



Source: Table A7.6.

Figure 7.2: People with a physical/diverse disability (based on main or all disabling conditions), by reported other disabilities, 1998

Place of residence and geographic location

Considering all reported physical/diverse disabling conditions, 16% of people with a severe or profound core activity restriction were living in cared accommodation. Of those aged 65 or more, 31% were living in cared accommodation (Table 7.5).

For people of all ages with a severe or profound core activity restriction and a physical/diverse main disabling condition, about 12% were living in cared accommodation in 1998 (Table 7.5). For those aged 65 or more, the proportion was 25%.

In 1998, about 60% of people with a physical/diverse disability lived in capital cities, and 40% lived in outside capital cities (Table 7.6). Compared with those aged 65 or more, a slightly greater proportion of people aged under 65 with a physical/diverse disability lived outside capital cities.

Table 7.5: Estimates of physical/diverse disability based on four approaches, by place of residence, by age, 1998

	Households		Cared accommodation		Total	
	’000	**%**	**’000**	**%**	**’000**	**%**
All disabling conditions						
0–64	1,888.2	99.2	15.7	0.8	1,903.9	100.0
65+	977.9	87.0	146.7	13.0	1,124.6	100.0
Total	**2,866.1**	**94.6**	**162.4**	**5.4**	**3,028.5**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	1,755.5	99.1	15.7	0.9	1,771.2	100.0
65+	935.7	86.5	146.5	13.5	1,082.2	100.0
Total	**2,691.2**	**94.3**	**162.2**	**5.7**	**2,853.4**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	502.4	97.2	14.7	2.8	517.2	100.0
65+	317.0	69.2	141.3	30.8	458.3	100.0
Total	**819.4**	**84.0**	**156.0**	**16.0**	**975.4**	**100.0**
Main disabling condition						
0–64	1,700.2	99.4	9.5	0.6	1,709.7	100.0
65+	842.0	90.1	92.4	9.9	934.4	100.0
Total	**2,542.2**	**96.1**	**101.9**	**3.9**	**2,644.1**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	438.8	98.0	9.1	2.0	447.9	100.0
65+	268.9	75.4	87.6	24.6	356.5	100.0
Total	**707.7**	**88.0**	**96.7**	**12.0**	**804.4**	**100.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 7.6: Estimates of physical/diverse disability based on four approaches, by geographic location, 1998

	Capital city		Balance of state		Total	
	’000	%	’000	%	’000	%
All disabling conditions						
0–64	1,121.8	58.9	782.1	41.1	1,903.9	100.0
65+	686.9	61.1	437.8	38.9	1,124.6	100.0
Total	**1,808.7**	**59.7**	**1,219.9**	**40.3**	**3,028.5**	**100.0**
All disabling conditions and activity limitations and participation restrictions						
0–64	1,047.0	59.1	724.2	40.9	1,771.2	100.0
65+	662.1	61.2	420.1	38.8	1,082.2	100.0
Total	**1,709.1**	**59.9**	**1,144.3**	**40.1**	**2,853.4**	**100.0**
All disabling conditions and severe or profound core activity restrictions						
0–64	295.6	57.2	221.6	42.8	517.2	100.0
65+	289.9	63.3	168.4	36.7	458.3	100.0
Total	**585.5**	**60.0**	**389.9**	**40.0**	**975.4**	**100.0**
Main disabling condition						
0–64	1,004.7	58.8	705.0	41.2	1,709.7	100.0
65+	571.2	61.1	363.2	38.9	934.4	100.0
Total	**1,575.9**	**59.6**	**1,068.2**	**40.4**	**2,644.1**	**100.0**
Main disabling condition and severe or profound core activity restrictions						
0–64	249.7	55.7	198.2	44.3	447.9	100.0
65+	227.3	63.8	129.2	36.2	356.5	100.0
Total	**477.0**	**59.3**	**327.5**	**40.7**	**804.4**	**100.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Estimates at state and territory level

Table 7.7 presents estimates of physical/diverse disability by states and territories using the 1998 disability survey data. The estimates are obtained by applying national age- and sex-specific rates to state and territory population data, assuming that each state or territory has the same age- and sex-specific prevalence rates as those of the national average. Hence all the differences in estimates across the jurisdictions are due to their demographic variations.

Table 7.7: Estimates of physical/diverse disability (all disabling conditions and activity limitations and participation restrictions), by states and territories, by sex and age, 1998 ('000)

	States and territories								
	NSW	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
Males									
0–64	306.8	222.4	167.3	89.1	71.6	22.7	15.0	9.4	904.5
65+	162.3	117.4	80.6	39.1	42.4	12.4	*4.8	**1.4	460.4
Total	*469.1*	*339.7*	*247.9*	*128.2*	*114.0*	*35.1*	*19.8*	*10.8*	*1,364.9*
Females									
0–64	299.2	220.8	161.2	85.1	70.8	22.4	15.0	*7.9	882.5
65+	225.2	164.6	105.6	52.5	59.6	17.2	*6.5	**1.4	632.6
Total	*524.4*	*385.4*	*266.8*	*137.7*	*130.3*	*39.6*	*21.5*	*9.3*	*1,515.1*
Persons									
0–64	606.0	443.2	328.6	174.3	142.4	45.1	30.0	17.3	1,787.1
65+	387.5	282.0	186.2	91.7	101.9	29.6	11.3	*2.8	1,093.0
Total	**993.5**	**725.1**	**514.8**	**265.9**	**244.4**	**74.7**	**41.2**	**20.1**	**2,880.0**

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: ABS 1999b; Table A7.7; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

8 Trends in disability prevalence

8.1 Introduction

Monitoring trends in disability prevalence can provide information on a range of issues relevant to social and economic policies, and service planning. Changes in disability prevalence may be examined using the following measures (AIHW 2000b):

- overall prevalence rates, age- and sex-standardised prevalence rates, and age- and sex-specific prevalence rates
- the number of people with a disability in the general population and in particular population age groups or disability groups

It is important to be aware that the above measures do not always show the same trends or the same magnitude of change in disability prevalence. Since disability is strongly related to age, the age-standardised prevalence rate is an important measure for monitoring changes in underlying prevalence by controlling for changes in population age structure.

Variations in overall disability prevalence rates and the number of people with a disability in a population can be attributable to changes either in population age structure or underlying age-specific rates, or both. Hence, population ageing could result in an increase in the overall prevalence rate and the number of people with disability in the population, even though underlying age-specific prevalence rates might remain constant or even decline slightly.

At any given time, the underlying prevalence of disability is determined by the combined effect of various factors, such as past and recent incidence, remission rates for diseases, rehabilitation rates, age at onset of disability, and survival rates of people with disability and of the general population. These factors may operate in a variety of ways. For example, a higher survival rate of people with long-term disability or disorders that cause disability could increase the prevalence while a higher rate of recovery from disabling conditions may lead to lower prevalence.

In addition to factors affecting the underlying prevalence of disability, there are factors that can lead to changes in reported prevalence, even when underlying real prevalence rates remain unchanged. These factors include changes in community perceptions and awareness of disability, changes in social attitudes and economic incentives concerning the reporting of sickness and disability, and changes in survey methodology. These factors are likely to have the most impact on the reported prevalence of mild disability, and less impact on the reported prevalence of more severe disability.

This chapter begins with a review of recent trends in the prevalence of disability and chronic conditions in some OECD countries, and then discusses possible explanations for those trends. The second part examines changes in population patterns of disability prevalence in Australia.

8.2 Changes in mortality and morbidity, and their impact on disability

Changes in mortality and morbidity affect the prevalence of disability. However, the relationships among mortality, morbidity and disability are complex. Currently there is a wide-ranging debate on the impact of greater longevity on trends in morbidity and disability. There are two extremes of opinion on this issue, separated by differences in approach to measurement and the underlying assumptions used. Some argue that increased longevity is accompanied by a longer period of disability in the later years of life, causing disability prevalence to increase (e.g. Verbrugge 1984, 1989). Others argue that the later onset of diseases means a compression of morbidity and disability into a shorter period at the end of the life span, resulting in lower disability prevalence in the population (e.g. Fries 1980, 1989). There has been no clear resolution of this issue and there is contradictory evidence in the international literature about recent change in levels and patterns of morbidity and disability.

Recent trends in disability prevalence

Recently reported evidence of a decline in disability prevalence in the older population of some OECD countries has been a subject of vigorous debate due to the relevance of this to social and economic policies. A growing number of studies have reported a decline in disability prevalence among the older population in some developed countries, in particular the USA (e.g. Robine et al. 1998; Waidmann & Manton 1999; Waidmann & Liu 2000; Manton & Gu 2001; Schoeni et al. 2001). However, mixed trends have also been reported across OECD countries (Jacobzone et al. 2000). Declines in disability prevalence have been reported for the United States, Germany, France and Japan. A moderate decline in disability was reported for Sweden. Mixed age patterns of prevalence were reported for Canada, with a clear decline for people aged 65–74 but an increase in most age groups over 75. No consistent decline in disability prevalence was reported in the United Kingdom and the Netherlands. In Australia, the latest population survey data indicated no decrease overall and a possible increase in disability prevalence among people aged 75 or older (AIHW 2001a; ABS: Davis et al. 2001).

Despite some countries reporting declines in age-standardised prevalence rates, it is generally agreed that the rapid growth of the older population may increase absolute numbers of people with a disability and thus the need for services. For instance, the number of Americans aged 65 and over with a disability increased from 26.9 million in 1982 to 34.1 million in 1996 (US National Institute on Disability and Rehabilitation Research 1998).

It is also important to consider the trends in disability prevalence for people aged under 65. Changes in the prevalence of people ageing with a disability acquired during childhood or early adulthood could affect future trends in disability among the older population as well as having implications for people and service provisions over the life span of these people. In the United States during 1990–1994, the rate of activity limitations for girls aged under 18 years increased from 4.2% to 5.6%, and from 5.6% to 7.9% for boys. Among Americans aged 18–44, the rate of people with activity limitations rose from 8.8% in 1990 to 10.3% in 1994, suggesting that 3.1 million more people of that age group had activity limitations in 1994 than in 1990 (US National Institute on Disability and Rehabilitation Research 1998). Increases in disability prevalence were also observed in the Australian population aged under 65 (see

Section 8.3 for detailed discussions on demographic patterns of disability prevalence in Australia).

Trends in the prevalence of chronic conditions

The reported falling disability rates in the older population in some OECD countries have been accompanied by increases in the reported prevalence of chronic diseases or conditions. Increases were also reported in countries where no consistent decline in disability, or a possible increase in disability was reported, such as Australia. Although changes in the prevalence of various diseases are not consistent and trends in the prevalence of chronic diseases vary by age, sex and types of disease, the bulk of evidence appears to indicate an increase in the presence of chronic conditions among the older populations. It appears that the reported decline in disability prevalence rates of the older population in some OECD countries cannot be attributed to a fall in the reported prevalence of chronic conditions.

In the United States, the reported prevalence of some diseases increased in recent years, with the largest increases being in the proportion of people with heart disease and cancer. Increases were also reported in some chronic conditions such as arthritis, osteoporosis and visual conditions. There has also been a decrease in the number of older Americans with no disease and an increase in the proportion of people with multiple conditions (Crimmins & Saito 2000; Freedman & Martin 2000). In France, the reported prevalence rates increased between 1981 and 1991 in almost all the main groups of chronic diseases among older people, in particular the most frequent diseases—cardiovascular and osteoarticular diseases. The proportion of older people with at least one chronic disease also increased, in particular among those aged 70 or over (Robine et al. 1998).

In Australia, the proportion of people reporting one or more 'long-term health conditions' increased from 66% in 1989–90 to 78% in 2001 (ABS 1991, 2002). For people aged 65 or more with a disability, the prevalence rates of most disabling conditions increased between 1988 and 1998 (see Table 8.4).

Prevalence increased in a number of leading chronic conditions in Australia (National Public Health Partnership 2001), for instance:

- Although mortality from cardiovascular conditions has declined, heart and vascular disease prevalence rates increased between 1989–90 and 1995 from 174 per 1,000 adults to 209 per 1,000 adults.
- The prevalence rate of diabetes has almost doubled since the early 1980s; numbers of people with diabetes are projected to pass one million over the next 15 to 20 years.
- The obesity rate increased from less than 8% in 1980 to nearly 20% in 1995; 56% of Australian adults were overweight or obese in 1995.

Many chronic diseases are preventable and appropriate prevention may reduce the disability associated with those diseases. However, the effect of the reduction of those diseases on overall morbidity and disability varies with the type of disease. A study of older Australians indicates that the elimination of chronic non-fatal diseases such as osteoarthritis, dementia, and eyesight and hearing problems may result in an increase in healthy years of life while total life expectancy remains unchanged, leading to a reduction in the number of years, and proportion of life, spent in ill-health or disability. However, elimination of fatal diseases such as cancer may result not only in an increase in healthy years but also in an even larger increase in years with disability, resulting in a relative expansion of morbidity (Mathers 1999: 211).

Explanations for recent trends in the prevalence of disability and chronic conditions

A number of issues are crucial for understanding trends in disability prevalence:

- Why has a decline in reported disability prevalence occurred at the same time as an increase in the reported prevalence of chronic diseases in some developed countries?
- Why have different trends (increases and decreases) in disability prevalence been reported among the OECD countries?

Possible factors affecting recent trends in the prevalence of chronic conditions

The measurement and interpretation of changes in the prevalence of chronic diseases and conditions are affected by a number of factors. The most common explanations for the increase in the reported prevalence of chronic conditions are improvements in medical knowledge and diagnosis of those diseases (e.g. Crimmins & Saito 2000; Robine et al. 1998). The propensity of individuals to report disease may also have increased due to changes in community attitudes towards disease and illness. People's awareness of diseases can change with improvements in diagnosis. People have 'medicalised' some conditions that were once regarded as 'ageing' and not diseases. For instance, people may now be more likely than in the past to consider aches and pains to be arthritis. In the mental health area, in some situations, 'worry' has become anxiety and 'sadness' has become depression.

Increasing accessibility and use of health services could play a role in increased reporting of disease presence. Population cohorts who use more health care services are likely to be more knowledgeable about disease (Crimmins & Saito 2000).

Decline in mortality from some major diseases, such as heart disease, stroke, and vascular diseases and cancer, has resulted in an increase in the prevalence of those diseases (AIHW 2001b; AIHW: Dunn et al. 2002; Crimmins & Saito 2000).

Possible factors affecting recent trends in disability prevalence

Little empirical evidence has been presented to explain the reported decline in disability in some developed countries. Some proposed factors that may be associated with the decline are education and socioeconomic status, medical care improvements, increased use of aids and equipment, health-related behaviour changes, environmental supports, and reduction in disease and hazardous exposure (e.g. Cutler 2001; Schoeni et al. 2001).

A US study found that only the most educated group of older people (with more than 12 years of schooling) had recently experienced a decline in disability (Schoeni et al. 2001). Education level was considered as a broad indicator of socioeconomic status. It may influence disability via a number of pathways including access to medical care and patterns of medical care use, health-related behaviours, access to technology and assistive devices, and access to more facilitative environments when disability occurs.

Analyses of the mortality and disability experience of three older American cohorts (born 1887–1897, 1897–1907 and 1907–1917) found that the cohort differences in patterns of mortality and disability (likelihood of maintaining function) reflected their differences in early life experience. This included differences in risk factor exposures, coverage of Medicare, improvements in nutrients affecting chronic disease morbidity and other socioeconomic changes (Manton et al. 1997).

It has been suggested that the increases in chronic conditions are largely limited to conditions that are less severe or less debilitating (Freedman & Martin 2000; Robine et al. 1998). Furthermore, advances in medicine and health care services have contributed to a slowing down in the rate of progression of chronic diseases or to a reduction in serious consequences of those diseases via more supportive and effective treatments or rehabilitation. Therefore, even if the prevalence of chronic diseases increase, the prevalence of functional limitations and need for help with daily activities may not necessarily increase at the same rate (e.g. Manton 1982 cited in Robine 1998; Moore et al. 1999).

Nevertheless, the explanations of recent trends in disability are far from adequate. As studies on disability trends among older Americans have indicated, the reported decline has only occurred in less severe disabilities and there is no consistent evidence suggesting a decline in more severe disabilities.

Little attention has been paid to the variations in survey measures and their effect on cross-nation comparison of trends in disability prevalence. Measurement issues are critical in identifying causes affecting the reported disability trends in different countries. For example, in Australia the marked increase in the prevalence rate of severe or profound restrictions between 1993 and 1998 is largely the result of changes in the 1998 survey methods, which 'captured' a larger number of people with a severe or profound restriction than the 1993 survey (AIHW 1999, 2000b; ABS: Davis et al. 2001).

A comparison of the United States and Australia

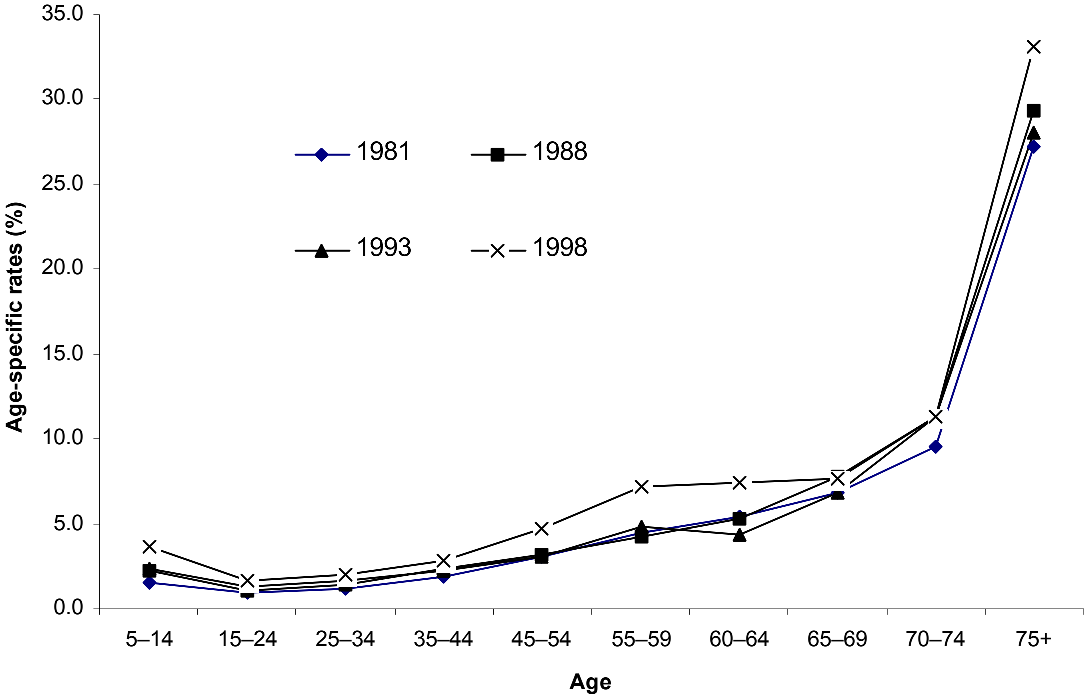
The international comparison of levels of disability prevalence is limited by differences in survey design and methods. However, could the trends in disability within each country be compared internationally on the basis of the existing survey data? As a number of recent studies on trends in disability are concentrated on older Americans we will use the United States as an example of a reported decline in disability with an increase in the reported prevalence of chronic conditions. Australia may be used as an example of a country with no consistent decline in disability prevalence but a trend of increase in the prevalence of chronic conditions.

Differences in trends in reported disability prevalence

The evidence of a decline in disability among older Americans is based on data from a number of US surveys that differ in terms of concepts, definitions, collections, coverage and methods of estimation used. Most surveys either measure disability at a limited number of points in time or they cover a relatively short time span. The exception is the US National Health Interview Survey, which has collected disability information annually since 1982 and provides comparable data over a period of 15 years, 1982–1996 (Schoeni et al. 2001).

Schoeni et al. (2001) analysed the most recent data from the National Health Interview Survey and integrated its results with evidence from other United States national surveys. The analysis showed that the reported decline in disability prevalence did not persist throughout the entire 1982–1996 period. There were clear declines in disability prevalence between 1982 and 1986, but no improvements during 1986–1992. Disability began to decline again more modestly around 1992, falling through to 1996 (the last year of available data). The analysis also indicates that the decline was driven by a decrease in the proportion of people who only needed help with routine care activities, such as household chores, doing necessary business, shopping and getting around. There was no change in the proportion of people with a more severe disability, i.e. those who needed help with personal care activities. The evidence was fairly consistent across five US national surveys (Schoeni et al. 2001: S217).

The ABS disability surveys provide cross-sectional data collected at four points in time (1981, 1988, 1993 and 1998) over a period of 17 years. For Australians aged 65 or more, the age-standardised rate for people with any specific activity restrictions increased markedly between 1981 (33%) and 1988 (45%) (Table 8.1). The rate increased slightly between 1993 and 1998, while the 1998 rate is similar to that reported in 1988. The rate of people aged 65 or over reporting a profound or severe core activity restriction increased from 16% in 1981 to 18% in 1988. The rate then declined marginally to 17% in 1993, but increased to 20% in 1998 (Table 8.1; AIHW 2000b). The increase was mainly in the 75 years and over group, in particular very old people (Figure 8.1). (For detailed analyses on changes in disability prevalence and related health conditions in Australia see Section 8.3.)



Source: AIHW analysis of unpublished data tables from the ABS 1981, 1988, 1993 and 1998 disability surveys.

Figure 8.1: Comparison of age-specific rates of severe or profound core activity restrictions, 1981 to 1998

Table 8.1: Comparison of age-standardised prevalence rates of disability for 1981, 1988, 1993 and 1998, Australia

	Severe/profound core activity restriction					All with specific restrictions					Total with disability				
	5–14	**15–64**	**65+**	**Total 5–64**	**All ages**	**5–14**	**15–64**	**65+**	**Total 5–64**	**All ages**	**0–14**	**15–64**	**65+**	**Total 0–64**	**All ages**
Males															
1981	2.0	2.1	11.6	2.1	**3.2**	5.0	8.9	29.4	8.1	**10.6**	6.2	13.5	42.0	11.8	**15.0**
1988	2.5	2.1	12.7	2.2	**3.4**	7.2	11.5	43.6	10.7	**14.5**	7.0	14.2	53.4	12.5	**16.8**
1993	2.7	2.3	12.4	2.4	**3.5**	7.3	11.4	44.3	10.7	**14.6**	7.6	15.3	56.9	13.4	**18.1**
1998	4.9	3.3	14.8	3.6	**4.9**	10.6	13.3	45.0	12.8	**16.6**	9.8	17.2	57.3	15.4	**19.9**
Females															
1981	1.2	2.2	19.7	2.1	**4.6**	3.0	7.4	35.6	6.6	**10.9**	4.2	11.2	43.6	9.6	**14.2**
1988	1.9	2.5	21.9	2.4	**5.3**	5.1	10.2	46.2	9.3	**14.7**	5.1	12.2	52.2	10.5	**16.2**
1993	1.8	2.4	20.8	2.3	**5.0**	4.5	9.8	44.9	8.9	**14.1**	5.1	12.5	51.2	10.8	**16.3**
1998	2.4	3.4	23.3	3.2	**6.1**	5.7	11.4	45.9	10.0	**15.6**	5.5	14.2	52.5	12.1	**17.6**
Persons															
1981	1.6	2.2	16.2	2.1	**3.9**	4.0	8.1	32.9	7.4	**10.7**	5.2	12.4	42.9	10.7	**14.6**
1988	2.2	2.3	17.9	2.3	**4.3**	6.2	10.9	45.1	10.0	**14.6**	6.1	13.2	52.7	11.5	**16.5**
1993	2.3	2.4	17.1	2.3	**4.3**	5.9	10.6	44.6	9.8	**14.3**	6.4	13.9	53.7	12.1	**17.2**
1998	3.7	3.3	19.6	3.4	**5.5**	8.2	12.4	45.5	11.7	**16.1**	7.7	15.7	54.6	13.8	**18.8**

Notes

1. Disability data were re-derived using criteria common to the four surveys. Rates are age-standardised to the estimated resident population for March 1998. The estimates from the previous three surveys were adjusted to show the prevalence rates that would have been expected in the 1981, 1988 and 1993 populations, if those populations had the same age and sex structure as the 1998 population.
2. Only people aged 5 years and over are included. Information on severity of core activity restriction among children aged under 5 years was collected in the 1998 survey but not in the previous surveys. For comparative purposes, information on activity restrictions among children under 5 is not included in the data presented here, and people aged under 5 years have been excluded from the total population used as the denominator to calculate the prevalence rates.

Sources: AIHW 2000b: Table 12.1; AIHW analysis of unpublished data tables from the ABS 1981, 1988, 1993 and 1998 disability surveys.

Some differences in survey methods and operational definitions of disability

It may be useful to look at some differences in the operational definition of disability and survey design between the United States and Australia to examine their possible impact on reported trends in disability prevalence. The comparisons will focus on the effects of the following aspects of the surveys on reported disability prevalence between the two countries:

- the focus of survey screening questions on particular ICF dimension(s)
- the coverage of people using aids and equipment and receiving assistance with activities
- duration requirement in defining a disability
- main purpose of the survey
- use of IADLs in the survey to define a disability.

In the US surveys, screening questions that define disability are mainly about Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). People enter the survey via questions about activity limitations; information about diseases and conditions are often collected later in the survey. In the ABS surveys, respondents enter the survey via screening questions largely about impairments and long-term diseases or conditions restricting every day activities, or 'difficulty gripping or holding things' and 'whether is restricted in physical activities or in doing physical work'. In effect, the screening questions are the criteria for defining disability in the Australian disability surveys and the gateway to subsequent questions on activity limitations.

This difference may have partly contributed to the difference in the trends in the reported disability prevalence between the United States and Australia. Increase in the prevalence of chronic conditions restricting everyday activities may be less likely to be captured in surveys using activity limitations as the sole screen to define disability. In contrast, increases in the prevalence of chronic conditions could have more impact on the estimates of disability from surveys that include impairments and long-term conditions affecting everyday activity as part of the operational definition of disability.

For example, in the United States there has been a reported decline in the age-standardised prevalence rates of dementia (Manton et al. 1995), while in Australia the number of people with a main disabling condition of dementia has increased. This raises the question of whether the US survey screening questions that focus largely on ADLs and IADLs are adequate to pick up disabilities associated with these types of conditions. In the ABS survey, although classification of severity of disability is based on difficulty and assistance with core activities (self-care, mobility and communication), people with a disability associated with dementia are identified by the survey screening questions. Most of them are picked up as having a severe or profound disability by subsequent questions on needs for assistance with core activities.

Analyses of US population survey data have investigated the effects of using aids and equipment on reported disability prevalence. Individuals using aids and appliances who did not report activity limitations were not captured by surveys defining disability only based on activity limitations (Madans et al. 2002).

The ABS disability survey screens 'captured' all people reporting at least one restricting impairment or long-term condition, including people using any aids or equipment and reporting 'no difficulty' in response to subsequent survey questions about whether they had a difficulty with core activities. An increase in the number of people using aids or equipment would be more likely to be included in the ABS surveys than were the surveys using activity limitations as the sole screen to define disability.

Like the effects of using aids and equipment, there might be people receiving assistance with activities who did not report activity limitation and, therefore, would not be captured by surveys using activity limitations as the sole screens to define disability.

The ABS disability surveys specify a duration of 6 months or more as a requirement in defining a disability. Most US surveys do not have a duration requirement for disabilities, except for the National Long-term Care Survey that limits disability to that of three months or more (Waidmann & Manton 1999). Without a duration limitation in survey definitions of disability, the estimated disabilities may include a large number of people with short-term difficulties or limitations, and thus may result in variations in the estimated disabilities over time.

The ABS disability surveys are specifically designed to collect comprehensive information about disability in the Australian population, covering different domains of the ICF. In the United States the collections of disability information are largely components of health and social surveys. Information collected in the Australian national disability surveys tend to be more comprehensive and result in higher prevalence of disabilities than those collected in other national health and social surveys.

It is also worth noting that most US surveys measured disability by focusing on dependence in ADLs and IADLs. About half of the recent OECD disability or health surveys include IADL items (Gudex & Lafortune 2000). It has been suggested that such measures, particularly IADLs, are highly influenced by socially defined roles and social, cultural and physical environment. Decline or increase in the reported disability prevalence could reflect the changes in people's expectations about their ability to function independently or changes in environmental modifications, instead of improvements in underlying physiological capacity (Freedman & Martin 1998).

Implications for survey design

In summary, it is important not only to measure the level of disability but also to monitor and understand trends in disability prevalence. There are increases in the reported prevalence of chronic conditions both in Australia and in the United States, and changes in morbidity may impact on disability prevalence. The examples of the United States and Australia indicate that the reported disability prevalence might be affected by whether the presence of any impairments and chronic conditions restricting everyday activities is included as part of the survey definition of disability. Increases in the reported prevalence of chronic conditions could have more impact on estimates of disability when the surveys include limiting impairments and chronic conditions in the operational definition of disability. This may affect the reported trends in disability prevalence and hence collection of information on these conditions in population surveys, including disability surveys, is important. To assist in collecting comparable data and monitoring the trends in disability prevalence, at least two general measures of disability need to be considered:

- one measure focusing on the activity/participation dimension(s) of the ICF
- another focusing on the body function dimension of the ICF.

The second measure would enable collections of data on impairment that result in restrictions in participation but no difficulty in any activities (for instance, if a person is HIV positive, the person may be out of a job because of discrimination). People who use aids or equipment due to functional problems can be 'captured' by this measure even though they do not have difficulties in activities when using the assistive devices. Similarly, this measure can 'capture' people who do not have difficulties in activity when receiving assistance. The measure also meets the need for data on impairment or health conditions to get information about disabilities associated with specific types of conditions or impairments.

Focus on long-term and severe disability may increase the comparability of disability estimates from different countries, including estimates from time-series data.

8.3 Trends in population patterns of disability prevalence in Australia

This section first examines changes in overall disability prevalence in recent decades in Australia, focusing particularly on the prevalence of severe or profound core activity restriction. It then discusses trends in three broad age groups (under 15, 15–64 and 65 and over). Each of the groups has distinct patterns of prevalence, related factors and features of policy relevance.

Substantial changes in the 1998 survey methods have resulted in a greater identification of the number of people with a disability, especially with a severe or profound core activity restriction, than the 1993 survey (AIHW 2001a; ABS: Davis et al. 2001). For the purpose of comparison, data from the four ABS disability surveys (1981, 1988, 1993 and 1998) were re-derived using, as far as possible, only criteria common to all four surveys. However, there remain some variations between the surveys. In particular, changes in the 1998 survey design and interview methods are difficult to control for, and it is difficult to assess their impact on reported disability prevalence.

The discussion on trends in disability prevalence uses a number of measures: overall prevalence rates, age-standardised prevalence rates, age-specific prevalence rates, and estimated number of people with a disability in the general population and in specific age groups of the population (see Section 8.1 for discussions on these measures).

Changes in overall patterns of disability prevalence

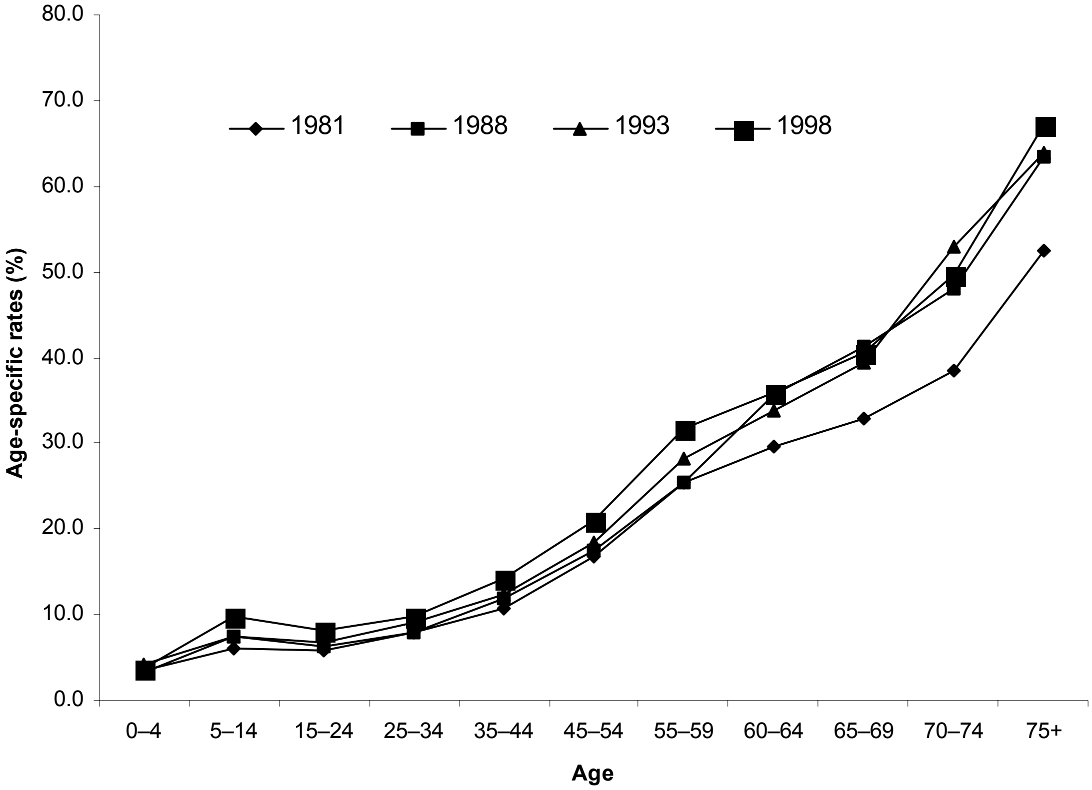
Changes in disability rates

To examine the changes in the prevalence of severe or profound core activity restrictions, it is useful to start with trends in disability rates over time. As discussed in Chapter 2, the ABS disability surveys first define the base 'disability' population using a set of screening questions (Box 2.1), and then ask questions about the severity of core activity restrictions among the base 'disability' population. Hence, an increase in the reported disability rates could result in an increase in the base disability population and then could further contribute to an increase in the rate of severe or profound core activity restrictions.

In Australia, there has been a consistent increase in the overall reported rate of disability for almost two decades. The age-standardised rate of disability increased from 15% in 1981, to 19% in 1998 (Table 8.1).

Comparison of age-specific rates of disability showed that the general patterns were similar across the four surveys, except for the age group of 60 or over. The 1988, 1993 and 1998 disability surveys consistently reported substantially higher rates across the older population groups than the 1981 survey (Figure 8.2). The disability rates for people aged 65 and over jumped from 43% in 1981 to over 50% in the later surveys (Table 8.1).

According to the ABS, the substantial increase in the rates of disability among people aged 60 or over in the three later surveys was largely because these surveys focused more on ageing. From the 1988 survey onwards, increased emphasis was placed on 'difficulty or restriction' rather than on a comparison with 'other people of the same age'. This emphasis would in particular have had an effect on the responses to the screening questions about 'physical activity/work' and 'long-term treatment/medication'. The renaming of the survey could in itself have had an impact, with the obvious inclusion of 'ageing' in the title and in all documentation including initial contact letters and verbal introductions by interviewers (ABS 2003, pers. comm.).



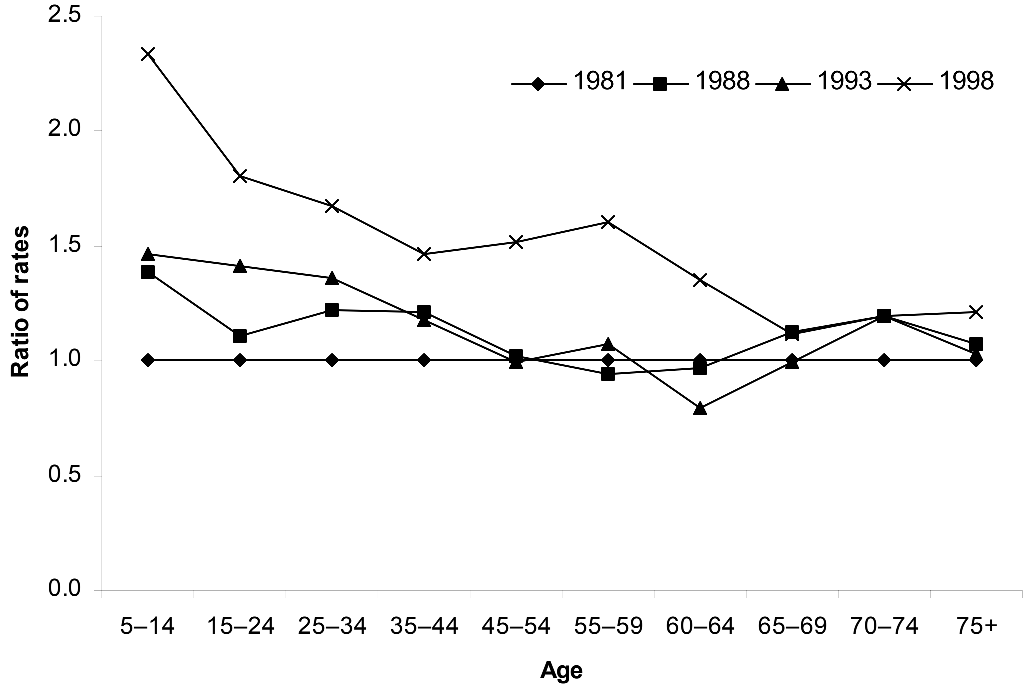
Source: AIHW analysis of unpublished data tables from the ABS 1981, 1988, 1993 and 1998 disability surveys.

Figure 8.2: Comparison of age-specific rates of disability, 1981, 1988, 1993 and 1998

Changes in the rates of severe or profound core activity restrictions

The age-standardised rates of severe or profound restrictions were relatively stable during the 1980s and early 1990s, remaining at around 4% of the Australian population (AIHW: Wen et al. 1995). However, between 1993 and 1998 the rate increased from 4.3% to 5.5% (Table 8.1). This marked increase was largely the result of changes in the 1998 survey methods, which brought more people with a disability into the scope of the survey (AIHW 2001a: 267–269; ABS: Davis et al. 2001).

To examine the differences in trends among various age groups, the age-specific prevalence rates of severe or profound core activity restrictions for each of the four ABS disability surveys have been compared.[9] The comparisons indicate that the rates for 1998 were higher in most age groups than those for the previous surveys (Figure 8.3). The increases were particularly marked among children aged 5–14, the older working-age population, and people aged 75 and over.



Source: AIHW analysis of unpublished data tables from ABS 1981, 1988, 1993 and 1998 disability surveys.

Figure 8.3: Ratio of the age-specific prevalence rates of severe or profound restrictions, 1981, 1988, 1993 and 1998

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[9] The comparison is based on the ratios of the age-specific prevalence rates of severe or profound restrictions for 1988, 1993 and 1998 to those for 1981. The ratio values of 1.0 indicate no change between the rates of 1981 survey and the rates of the three subsequent surveys, those over 1.0 indicate an increase in rates and those under 1.0 a decrease.

Changes in the number of people with a disability

Age-standardised prevalence rates are used to estimate changes over time but it is the actual number of people with a disability that is most relevant in service planning.

The total estimated number of Australians with a disability increased by 80% between 1981 and 1998. The number of people with any specific restrictions and with severe or profound core activity restriction in 1998 was more than twice that in 1981. Growth in the number of people with a severe or profound core activity restriction during the period 1993–1998 (43%) was almost four times that between 1988 and 1993 (11%) (tables 8.2 and A8.1; AIHW 2000b).

Demographic changes are also affecting the number of people with a disability—in particular the rapid pace of ageing of the working-age population, and the ageing of the aged population. Comparative analyses of disability prevalence over the period 1981–1998 suggest that such population ageing has had a strong impact on the prevalence of severe or profound core activity restriction, particularly in the decade to 1998 (AIHW 2000b).

Table 8.2: Increases in disability prevalence, Australia, 1981, 1988, 1993 and 1998

		Percentage increase in reported number of people		
Period	**Age**	**Severe or profound core activity restriction**	**Specific restrictions**	**Total with disability**
1981–1988	Under 65	24.0	52.1	20.4
	65+	42.2	74.2	54.9
	Total	*32.6*	*59.7*	*30.9*
1988–1993	Under 65	10.8	4.9	13.4
	65+	11.3	14.1	17.4
	Total	*11.1*	*8.4*	*14.8*
1981–1993	Under 65	37.4	59.6	36.5
	65+	58.4	98.8	82.0
	Total	*47.3*	*73.1*	*50.4*
1993–1998	Under 65	54.8	29.1	23.0
	65+	31.7	15.8	14.7
	Total	*43.2*	*23.9*	*20.0*
1988–1998	Under 65	71.6	35.5	39.5
	65+	46.7	32.2	34.7
	Total	*59.0*	*34.2*	*37.8*
1981–1998	Under 65	112.8	106.1	67.9
	65+	108.6	130.3	108.8
	Total	*110.9*	*114.4*	*80.4*

Notes

1. Disability data were re-derived using criteria common to the four surveys.
2. Only people aged 5 years and over are included.

Sources: AIHW 2000b; Table A8.1; AIHW analysis of unpublished data tables from the ABS 1981, 1988, 1993 and 1998 disability surveys.

Changes in the prevalence of long-term health conditions

Exploring the changes in the prevalence and patterns of long-term health conditions can shed light on changes in reported disability prevalence. A comparison of the four survey data shows that the overall prevalence of most disabling conditions increased during the period 1981–1998 (Table 8.3). There were noticeable increases in the reported rates of diseases of the ear, circulatory diseases and musculoskeletal conditions, and marked increases in intellectual and psychiatric conditions over the period 1993–1998.

Table 8.3: People with a disability: prevalence rates (%) of all reported disabling conditions by type of condition, by sex, Australia, 1981, 1988, 1993 and 1998

Year/sex	Psychiatric	Intellectual	Diseases of eye	Diseases of ear	Nervous system diseases	Circulatory diseases	Respiratory diseases	Musculoskeletal disorders	All other diseases and conditions
1981									
Males	1.7	0.9	1.4	4.7	1.3	2.8	1.4	4.8	3.3
Females	2.9	0.6	1.8	3.6	1.4	3.2	0.9	5.1	3.3
Persons	2.3	0.7	1.6	4.2	1.4	3.0	1.2	4.9	3.3
1988									
Males	1.7	1.1	1.4	5.4	1.5	3.0	1.9	5.2	5.0
Females	2.4	0.8	1.8	3.7	1.5	3.4	1.4	6.5	4.8
Persons	2.1	1.0	1.6	4.5	1.5	3.2	1.6	5.8	4.9
1993									
Males	1.7	1.3	1.6	7.0	1.6	4.5	2.6	6.8	8.0
Females	2.7	0.8	1.8	4.5	1.6	4.8	2.5	7.6	7.0
Persons	2.2	1.0	1.7	5.7	1.6	4.6	2.6	7.2	7.5
1998									
Males	2.9	2.9	1.3	8.3	1.5	5.6	3.0	8.5	8.6
Females	4.4	1.6	1.6	5.6	1.9	5.9	2.8	9.1	8.3
Persons	3.6	2.2	1.5	6.9	1.7	5.8	2.9	8.8	8.4

Notes

1. Percentages have been standardised using the age and sex structures of the estimated resident population at March 1998. The estimates from the previous three surveys were adjusted to show the prevalence rates that would have been expected in the 1981, 1988 and 1993 populations, if those populations had the same age and sex structure as the 1998 population.
2. The 1993 and 1998 data were adjusted to the 1981 and 1988 definition of disability.

Sources: AIHW analysis of ABS 1993 and 1998 Surveys of Disability, Ageing and Carers confidentialised unit record files; ABS 1981 Survey of Handicapped Persons unpublished data table; ABS 1988 Survey of Disabled and Aged Persons unpublished data table.

Changes in disability prevalence among children aged under 15

There has been a substantial increase in the rates of severe or profound core activity restriction among children, in particular boys. Between 1993 and 1998, the rates for males aged 5–14 increased from 2.7% to 4.9%, more than twice the average increase for males aged 15–64 (Table 8.1).

A number of factors may have contributed to this trend. The high rates for children of school age may partly reflect the effect of the educational system on the identification of disability. Some disabling conditions such as intellectual/learning may have a particular impact on school performance. Between 1993 and 1998, the main area of increase in the prevalence of disabling conditions among children of school age was intellectual disabling conditions (from 1.7% to 3.6%) (Table 8.4).

According to the 1998 ABS disability survey, about 42,700 children aged 0–14 with a disability had ADHD, either as a main disabling condition or an associated disabling condition. Of these, 38,700 considered ADHD as their main disabling condition, which was equivalent to about 70% of the total number of intellectual/learning main disabling conditions reported by children of that age with a disability in 1993 (AIHW analysis of ABS 1993 and 1998 Surveys of Disability, Ageing and Carers confidentialised unit record files). While ADHD was not separately classified in the 1993 disability survey, it is likely that these reported numbers of ADHD in 1998 have contributed to an increase in reported intellectual disability in the 0–14 age group.

Both higher levels of diagnosis and heightened awareness among parents, educators and health professionals may have contributed to the increase in reporting ADHD. An increase in prescriptions for the most commonly prescribed drugs to treat ADHD may indicate an increase in the diagnosis of the disorder (AIHW 2001a; ABS: Davis et al. 2001).

The change of wording in the screening question from 'slow at learning or understanding' (1993 survey) to 'difficulty learning or understanding' (1998 survey) may have increased reporting of intellectual disability, in particular among males (Figure 8.4). The sharp increase in positive response rates to this screening question was notable in the 5–14 age group, and also among males aged 75 or older (which could be associated with dementia-related conditions).

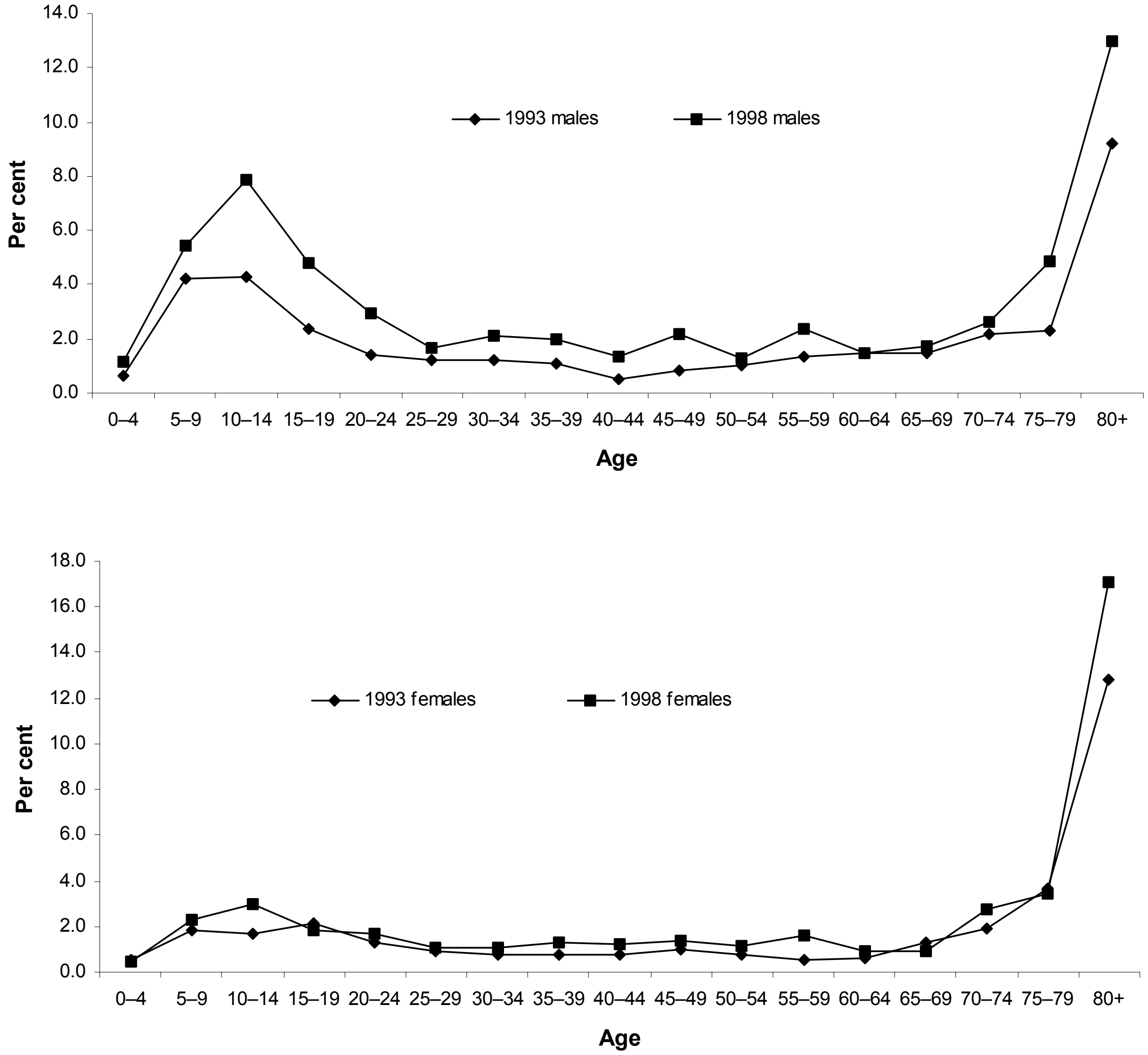
Table 8.4: People with a disability: prevalence rates (%) of all reported disabling conditions by type of condition, by age groups, Australia, 1981, 1988, 1993 and 1998

Year/sex	Psychiatric	Intellectual	Diseases of eye	Diseases of ear	Nervous system diseases	Circulatory diseases	Respiratory diseases	Musculoskeletal disorders	All other diseases and conditions
1981									
0–14	0.4	1.1	0.4	1.1	0.8	0.2	0.8	0.5	1.2
15–64	2.3	0.5	0.8	2.9	1.1	1.9	1.0	4.2	2.6
65+	6.0	1.3	8.1	16.2	3.5	13.7	3.1	16.7	10.6
1988									
0–14	0.4	1.2	0.3	1.0	0.9	0.1	1.7	0.4	1.7
15–64	1.8	0.6	0.7	2.9	1.2	1.8	1.2	4.9	3.6
65+	6.3	2.3	8.7	19.6	4.1	16.0	4.1	20.2	17.8
1993									
0–14	0.4	1.7	0.3	1.0	0.7	0.1	2.1	0.3	2.5
15–64	2.2	0.8	0.8	4.0	1.3	2.4	1.9	5.5	5.6
65+	5.9	1.4	8.9	23.3	4.5	24.9	6.7	28.6	26.6
1998									
0–14	0.3	3.6	0.2	1.1	0.6	0.2	2.2	0.2	2.0
15–64	3.4	1.7	0.6	4.7	1.6	3.0	2.2	7.5	6.6
65+	10.5	2.5	8.5	28.9	4.1	30.5	8.1	31.0	29.7

Notes

1. Percentages have been standardised using the age and sex structures of the estimated resident population at March 1998. The estimates from the previous three surveys were adjusted to show the prevalence rates that would have been expected in the 1981, 1988 and 1993 populations, if those populations had the same age and sex structure as the 1998 population.
2. The 1993 and 1998 data were adjusted to the 1981 and 1988 definition of disability.

Sources: AIHW analysis of ABS 1993 and 1998 Surveys of Disability, Ageing and Carers confidentialised unit record files; ABS 1981 Survey of Handicapped Persons unpublished data table; ABS 1988 Survey of Disabled and Aged Persons unpublished data table.



Source: AIHW analysis of ABS 1993 and 1998 Surveys of Disability, Ageing and Carers confidentialised record file.

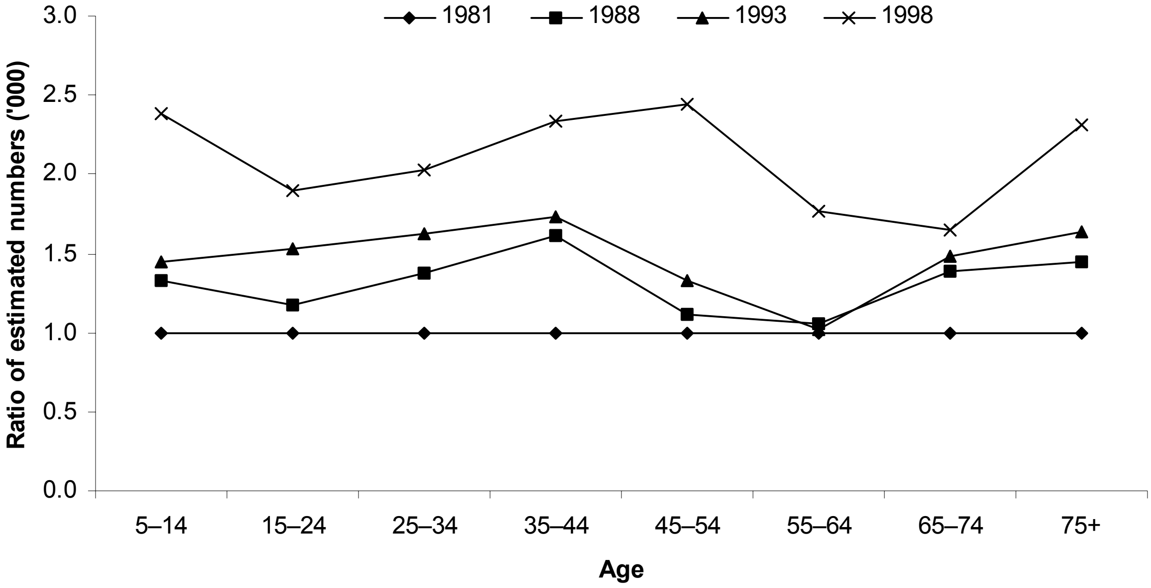
Figure 8.4: Percentage of people reporting slowness (1993) or difficulty (1998) with learning or understanding things by sex and age, 1993 and 1998

Changes in disability prevalence among the working-age (15–64) population

Among the working-age population, the age-standardised rate of severe or profound restrictions increased from 2.4% in 1993 to 3.3% in 1998, while the rates had been relatively stable at about 2.2% to 2.4% between 1981 and 1993 (Table 8.1). The increase in 1998 was particularly evident in the older working-age population, especially in the 55–59 age group (Figure 8.3).

Comparisons of age-specific prevalence rates factor out the effects of population growth and ageing. Comparisons of estimated numbers of people with a severe or profound restriction show the combined effects of population growth and age-specific prevalence rates. The ratio of the estimated numbers of people with a severe or profound restriction (comparing 1998 to 1981) was highest at age 45–54, compared with 35–44 in 1993 (Figure 8.5). This shift mainly reflects the passage of the post–World War II baby-boom generation. The 'bulge' of the baby-boom generation is currently affecting the age profile of the working age population, as it moves progressively up the age pyramid. This demographic trend is expected to affect future disability prevalence, especially in the 55–64 year age group in the next ten years.

The 50–64 age group is the population group with the highest proportion of people receiving the Disability Support Pension. The large increase in the prevalence of severe or profound restriction among the older working-age population is likely to have some impact on the number of Disability Support Pension recipients.



Source: AIHW analysis of unpublished data tables from the ABS 1981, 1988, 1993 and 1998 disability surveys.

Figure 8.5: Ratio of the estimated numbers of severe or profound restrictions by age, 1981, 1988, 1993 and 1998

It is worth noting that there had been a large increase between 1993 and 1998 in the prevalence rate of physical/diverse conditions, in particular musculoskeletal disorders. The age-standardised rate of musculoskeletal conditions for people aged 15–64 with a disability increased from 6% in 1993 to 8% in 1998 (Table 8.4). Musculoskeletal disorders other than arthritis, particularly back problems and some soft tissue disorders, were most commonly reported for males aged 45–64 and females aged 45–54. The new screening question about chronic pain in the 1998 survey could have contributed considerably to the increase in reporting of these conditions. In 1998 a much higher proportion of the population with these conditions was classified as having a severe restriction than in previous survey years (ABS: Davis et al. 2001).

Changes in disability prevalence among the population aged 65 and over

The ageing of the aged population has had a strong impact on the prevalence of severe or profound restriction among the older population. Compared with the 1981 disability survey, the three later surveys reported substantially higher rates of disability for the older population (Figure 8.2). The rate of severe or profound restrictions for people aged 65 and over increased markedly between 1993 and 1998, from 17.1% to 19.6% (Table 8.1). The estimated number of people with a severe or profound restriction increased markedly among those aged 75 or over (Figure 8.5; AIHW 2000b: Table 13.2).

It has been suggested that about half of the increase in the rate of severe or profound restriction is due to changes in survey design and the other half is attributable to population ageing (ABS: Davis et al. 2001).

Changes in the 1998 survey screening question on learning and understanding things may have increased the number of people reporting conditions associated with dementia (Figure 8.4). The separate identification of head injuries, stroke and other brain injuries may have led to increased reporting of these conditions, especially stroke among the older population.[10] Comparative analysis indicated a large increase in the rate of psychiatric disabling conditions during 1993–1998, and sharp increases in the rate of circulatory diseases in both the 1993 and 1998 surveys (Table 8.4).

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[10] A screening question about head injury, stroke and brain damage with long-term effects was introduced in the 1993 survey screening questions. In 1998, the three components were separately identified, and stroke was directly coded in the circulatory conditions group (ABS: Davis et al. 2001).

Appendixes

Appendix 1

Grouping of disabling conditions for estimating main disability groups in Australia, using the 1998 ABS Survey of Disability, Ageing and Carers confidentialised unit record file (CURF)

	CURF code	ABS survey code	AIHW/*National Community Services Data Dictionary, version 3* grouping
Intellectual and developmental disorders nfd	22	530	Intellectual/learning
Mental retardation/intellectual disability	23	531	Intellectual/learning
Autism and related disorders	24	532	Intellectual/learning
Developmental learning disorders	25	533	Intellectual/learning
Other developmental disorders	26	534–539	Intellectual/learning
ADD/hyperactivity	27	595	Intellectual/learning
Down’s syndrome	79	1603	Intellectual/learning
Mental and behavioural disorders nfd	13	500	Psychiatric
Psychoses and mood affective disorders nfd	14	510	Psychiatric
Dementia	15	511	Psychiatric
Schizophrenia	16	512	Psychiatric
Depression etc. (excl. postnatal)	17	513	Psychiatric
Other psychoses	18	519	Psychiatric
Phobic and anxiety disorders	19	521	Psychiatric
Nervous tension/stress	20	522	Psychiatric
Other neurotic and stress-related disorders	21	520, 523, 529	Psychiatric
Other mental and behavioural disorders	29	590–594, 597-599	Psychiatric
Cataracts	39	702	Sensory/speech (Vision)
Retinal disorders/defects	40	703	Sensory/speech (Vision)
Glaucoma	41	704	Sensory/speech (Vision)
Sight loss	42	707	Sensory/speech (Vision)
Other diseases of the eye/adnexa	43	700–701, 705–706, 799	Sensory/speech (Vision)
Tinnitus	44	804	Sensory/speech (Hearing)
Deafness/hearing loss nfd	45	810	Sensory/speech (Hearing)
Deafness/hearing loss—noise–induced	46	811	Sensory/speech (Hearing)
Deafness/hearing loss—congenital	47	812	Sensory/speech (Hearing)
Deafness/hearing loss—due to accident	48	813	Sensory/speech (Hearing)
Other deafness/hearing loss	49	814	Sensory/speech (Hearing)
Other diseases of the ear and mastoid process	50	899	Sensory/speech (Hearing)
Speech impediment	28	596	Sensory/speech (Speech)
Unspecified speech difficulties	83	1705	Sensory/speech (Speech)
Head injury/acquired brain damage	86	1801	Acquired brain injury

(continued)

Grouping of disabling conditions for estimating main disability groups in Australia, using the 1998 ABS Survey of Disability, Ageing and Carers confidentialised unit record file (CURF) (continued)

	CURF code	ABS survey code	AIHW/*National Community Services Data Dictionary, version 3* grouping
Heart disease nfd	51	910	Physical/diverse (Circulatory)
Angina	52	913	Physical/diverse (Circulatory)
Myocardial infarction (heart attack)	53	914	Physical/diverse (Circulatory)
Other heart disease	54	911–912, 919	Physical/diverse (Circulatory)
Hypertension	55	922	Physical/diverse (Circulatory)
Stroke	56	923	Physical/diverse (Circulatory)
Other diseases of circulatory system	57	900, 920–921, 924–925, 929	Physical/diverse (Circulatory)
Bronchitis/bronchiolitis	58	1002	Physical/diverse (Respiratory)
Respiratory allergies(excl allergic asthma)	59	1003	Physical/diverse (Respiratory)
Emphysema	60	1004	Physical/diverse (Respiratory)
Asthma	61	1005	Physical/diverse (Respiratory)
Other diseases of the respiratory system	62	100–1001, 1006, 1099	Physical/diverse (Respiratory)
Arthritis and related disorders	68	1301	Physical/diverse (Arthritis)
Back problems (dorsopathies)	69	1303	Physical/diverse (Other musculoskeletal)
Synovitis/tenosynovitis/repetitive strain injury/occupational overuse syndrome	70	1304, 1305	Physical/diverse (Other musculoskeletal)
Other soft tissue/muscle disorders (incl. rheumatism)	71	1306	Physical/diverse (Other musculoskeletal)
Osteoporosis	72	1307	Physical/diverse (Other musculoskeletal)
Other disorders of musculoskeletal and connective tissue	73	1300, 1302, 1308, 1399	Physical/diverse (Other musculoskeletal)
Deformities of joints/limbs—congenital	78	1602	Physical/diverse (Other musculoskeletal)
Arm/hand/shoulder damage from injury, amputation of finger/thumb/hand/arm	87	1802, 1803	Physical/diverse (Other musculoskeletal)
Leg/knee/foot/hip damage from injury, amputation of toe/foot/leg	88	1804, 1805	Physical/diverse (Other musculoskeletal)
Parkinson’s disease	30	604	Physical/diverse (Neurological)
Alzheimer’s disease (ABS excluded it from nervous system)	31	605	Physical/diverse (Neurological)
Brain disease/disorder-acquired (incl. senile degen. of brain nec)	32	606	Physical/diverse (Neurological)
Multiple sclerosis	33	607	Physical/diverse (Neurological)
Epilepsy	34	608	Physical/diverse (Neurological)
Migraine	35	609	Physical/diverse (Neurological)

(continued)

Grouping of disabling conditions for estimating main disability groups in Australia, using the 1998 ABS Survey of Disability, Ageing and Carers confidentialised unit record file (CURF) (continued)

	CURF code	ABS survey code	AIHW/*National Community Services Data Dictionary, version 3* grouping
Other diseases of the nervous system incl. TIAs	38	600–603, 610, 613–614, 699	Physical/diverse (Neurological)
Cerebral palsy	36	611	Physical/diverse (Other physical)
Paralysis	37	612	Physical/diverse (Other physical)
Spina bifida	77	1601	Physical/diverse (Other physical)
Limited use of arms or fingers	91	1901	Physical/diverse (Other physical)
Difficulty gripping or holding things	92	1902	Physical/diverse (Other physical)
Limited use of feet/legs	93	1903	Physical/diverse (Other physical)
Poliomyelitis	1	102	Physical/diverse (All other)
Other infectious and parasitic diseases	2	100–101, 103, 199	Physical/diverse (All other)
Skin cancer	3	203	Physical/diverse (All other)
Breast cancer	4	204	Physical/diverse (All other)
Prostate cancer	5	205	Physical/diverse (All other)
Other malignant tumors	6	201–202, 206–210	Physical/diverse (All other)
Other neoplasms (incl. benign)	7	200	Physical/diverse (All other)
Diseases of the blood and blood-forming organs	8	300–303, 399	Physical/diverse (All other)
Disorders of thyroid	9	401	Physical/diverse (All other)
Diabetes	10	402	Physical/diverse (All other)
High cholesterol	11	404	Physical/diverse (All other)
Other endocrine, nutritional and metabolic disorder	12	400, 403, 499	Physical/diverse (All other)
Stomach/duodenal ulcer	63	1101	Physical/diverse (All other)
Abdominal hernia (except congenital)	64	1102	Physical/diverse (All other)
Enteritis, colitis and other disease of the intestine	65	1103–1104	Physical/diverse (All other)
Other diseases of the digestive system	66	1100, 1105–1106, 1199	Physical/diverse (All other)
Diseases of the skin and subcutaneous tissue	67	1200–1204, 1299	Physical/diverse (All other)
Disorders of the urinary system	74	1403	Physical/diverse (All other)
Disorders of the genital system	75	1404, 1405,	Physical/diverse (All other)
Other diseases of the genitourinary system	76	1400, 1499	Physical/diverse (All other)
Other congenital/chromosomal abnormalities	80	1600, 1604–1605, 1699	Physical/diverse (All other)
Breathing difficulties/shortness of breath	81	1701	Physical/diverse (All other)
Pain nfd	82	1704	Physical/diverse (All other)
Blackouts, fainting, convulsions nec	84	1708	Physical/diverse (All other)
Other symptoms and signs nec	85	1700, 1702–1703, 1706, 1709–1711, 1799	Physical/diverse (All other)

(continued)

Grouping of disabling conditions for estimating main disability groups in Australia, using the 1998 ABS Survey of Disability, Ageing and Carers confidentialised unit record file (CURF) (continued)

	CURF code	**ABS survey code**	**AIHW/*National Community Services Data Dictionary, version 3* grouping**
Complications/consequences of surgery and medical care nec	89	1808	Physical/diverse (All other)
Other injury, poisoning and consequences of external causes	90	1800, 1806–1807, 1809, 1899	Physical/diverse (All other)
Restricted in physical activity or physical work	94	1904	Physical/diverse (All other)
All other conditions	95	1500–1502, 1599, 1905–1908	Physical/diverse (All other)

Note: In current report, ‘Physical/diverse’ excludes the category of ‘Acquired brain injury’, which is a separate category of disability group.

Source: ABS Technical Paper: 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Appendix 2

ABS 1998 disability survey questions on activity limitations, participation restrictions and need for assistance

Areas of activity	Questions	Population
Self-care	Do you ever need help or supervision to shower or bathe?	Persons aged 5 years or more with a disability excluding those with a hearing loss only, or speech difficulty only, or hearing and speech difficulty only
	Do you ever need help or supervision to dress yourself, for example doing up shoelaces, buttons or zips?	As above
	Do you ever need help or supervision when eating a meal, for example cutting up food?	As above
	Do you ever need help or supervision using the toilet?	As above
	Even though you do not need help or supervision with these tasks, do you find them difficult to do?	As above
	Which tasks do you find difficult?	As above
	Do you have any difficulty controlling your bladder or bowel?	As above
	Do you ever need help in managing this difficulty?	As above
Self-care (children aged 0–4 years)	Does (name) ever need more care or help than other children (his/her) own age to shower or bathe?	Persons aged 0–4 with a disability excluding those with a hearing loss only, or speech difficulty only, or hearing and speech difficulty only
	Does (name) ever need more care or help than other children (his/her) own age to dress (himself/herself), for example doing up shoelaces, buttons or zips?	As above
	Does (name) ever need more care or help than other children (his/her) own age when eating a meal, for example cutting up food?	As above
	Does (name) ever need more care or help than other children (his/her) own age using the toilet?	As above
	Even though (name) does not need more care or help with these self-care tasks, does (he/she) find them difficult to do, than other children (his/her) own age?	As above
	Which tasks does (he/she) find difficult?	As above
	Does (he/she) have more difficulty than other children (his/her) own age, controlling (his/her) bladder or bowel?	As above
	Does (he/she) ever need more help than other children (his/her) own age, in managing this difficulty?	As above
Mobility	Do you ever need help or supervision when going to, or getting around, a place away from home?	Persons aged 5 years or more with a disability excluding those with a hearing loss only, or speech difficulty only, or hearing and speech difficulty only
	Do you ever need help or supervision to move about the house?	As above
	Do you ever need help or supervision to get in or out of a bed or chair?	As above

(continued)

ABS 1998 disability survey questions on activity limitations, participation restrictions and need for assistance (continued)

Areas of activity	Questions	Population
Mobility (cont.)	Even though you do not need help or supervision with these mobility tasks, do you find them difficult to do?	As above
	Which tasks do you find difficult?	As above
	Can you easily walk 200 metres?	As above
	Would it take you longer than most other people of the same age?	As above
	Can you walk up and down stairs without a handrail?	As above
	Can you do this without difficulty?	As above
	Can you easily bend and pick up an object from the floor without any assistance?	As above
Mobility (children aged 0–4 years)	Does (name) ever need more care or help than other children (his/her) own age when going to, or getting around, a place away form home?	Persons aged 0–4 years with a disability excluding those with a hearing loss only, or speech difficulty only, or hearing and speech difficulty only
	Does (name) ever need more care or help than other children (his/her) own age to move about a house?	As above
	Does (name) ever need more care or help than other children (his/her) own age to get in or out of a bed or chair?	As above
	Even though (name) does not need help or supervision with these mobility tasks, does (he/she) find them difficult to do?	As above
	Which tasks do you find difficult?	As above
Communication	Does (name) have any difficulty understanding someone (he/she) does not know?	Persons aged 18 years or more with a disability; persons aged 5–17 years with a disability who are slow at learning/ understanding, or have mental illness, or hearing loss, or loss of speech, or a nervous/emotional condition, or a head injury, or brain damage (interview is by proxy)
	Can (he/she) understand them at all?	As above
	Does (he/she) ever need help with this?	As above
	Does (he/she) have any difficulty understanding family or friends?	As above
	Can (he/she) understand then at all?	As above
	Does (he/she) ever need help with this?	As above
	Does (name) have any difficulty being understood by someone (he/she) does not know?	As above
	Can (he/she) be understood by them at all?	As above
	Does (he/she) ever need help with this?	As above
	Does (he/she) have any difficulty being understood by family or friends?	As above
	Can (he/she) be understood by them at all?	As above
	Does (he/she) ever need help with this?	As above

(continued)

ABS 1998 disability survey questions on activity limitations, participation restrictions and need for assistance (continued)

Areas of activity	Questions	Population
Communication (children aged 0–4 years)	Does (name) have more difficulty than other children (his/her) own age understanding someone (he/she) does not know?	Persons aged 0–4 years with a disability who are slow at learning/understanding, or have mental illness, or hearing loss, or loss of speech, or a nervous/emotional condition, or a head injury, or brain damage
	Can (he/she) understand them at all?	As above
	Does (he/she) ever need more help with this than other children (his/her) own age?	As above
	Does (he/she) have more difficulty than other children (his/her) own age, understanding family or friends?	As above
	Can (he/she) understand them at all?	As above
	Does (he/she) ever need more help with this than other children (his/her) own age?	As above
	Does (name) have more difficulty than other children (his/her) own age, being understood by someone (he/she) does not know?	As above
	Can (he/she) be understood by them at all?	As above
	Does (he/she) have ever need more help with this than other children (his/her) own age?	As above
	Does (he/she) have more difficulty than other children (his/her) own age being understood by family or friends?	As above
	Can (he/she) be understood by them at all?	As above
	Does (he/she) ever need more help with this than other children (his/her) own age?	As above
Health care	Because of your condition(s), do you need help or supervision with any of these types of health carer tasks?	Persons aged 5 years or more with a disability excluding those with a hearing loss only, or speech difficulty only, or hearing and speech difficulty only
	Even though you do not need help with health care tasks, do you find any of them difficult to do?	As above
	Apart from the conditions you have already mentioned, are you receiving treatment or medication for any other long-term conditions or ailments?	As above
Guidance	Because of your condition(s), do you have difficulty making friendships, interacting with others, or maintaining relationships?	All persons aged 15 years or more with a disability
	Do you need help with this?	As above
	Because of your condition(s), do you have difficulty coping with your feelings or emotions?	As above
	Do you need help with this?	As above
	Because of your condition(s), do you have difficulty making decisions or thinking through problems?	As above
	Do you need help with this?	As above

(continued)

ABS 1998 disability survey questions on activity limitations, participation restrictions and need for assistance (continued)

Areas of activity	Questions	Population
Guidance (persons under 15 years)	Does (name) condition(s), affect (his/her) ability to interact or play with others?	Persons aged under 15 years with a disability
	Does (he/she) need help with this?	As above
	Does (his/her) condition(s) affect (his/her) ability to cope with feelings or emotions?	As above
	Does (he/she) need help with this?	As above
	Does (his/her) condition(s) affect (his/her) ability to manage (his/her) behaviour?	As above
	Does (he/she) need help with this?	As above
Housework	Do you have difficulty doing household chores, like laundry, vacuuming or dusting?	Persons aged 15 years or more with a disability, excluding persons with a hearing loss only, or speech difficulties only, or hearing and speech difficulty only; persons aged 60 years or more
	What makes it difficult for you to do these tasks by yourself?	As above
	Do you need help to do the household chores?	As above
Property maintenance	Do you have difficulty doing any home maintenance or gardening tasks?	As above
	What makes it difficult for you to do these tasks by yourself?	As above
	Do you need help to do home maintenance or gardening tasks?	As above
Meal preparation	Do you have difficulty preparing your meals?	As above
	What makes it difficult for you to prepare meals for yourself?	As above
	Do you need help to prepare your meals?	As above
Paperwork	Do you have difficulty with reading and writing tasks such as checking bills or bank statements, writing letters or filling in forms?	As above
	What makes it difficult for you to do these tasks by yourself?	As above
	Do you need help to do them?	As above
Transport	When you go to places away from the home do you ever need to be driven by someone else in a private vehicle or by taxi?	Persons aged 5 years or more with a disability and persons aged 60 years or more, excluding persons who do not leave home
	What is the main reason you need to be driven to places away from the home?	As above
	Do you need to be driven every time to these places?	As above
	Even though you do not need to be driven to places away from home, do you find it difficult to travel to these places without assistance?	As above
	What is the main reason for this?	As above
	Is there any form of public transport you could use?	As above

(continued)

ABS 1998 disability survey questions on activity limitations, participation restrictions and need for assistance (continued)

Areas of activity	Questions	Population
Transport (cont.)	Would you be able to use forms of public transport, including trains, buses and ferries?	As above
	As a result of your condition(s) do you ever need help or supervision when using the public transport that you could use?	As above
	As a result of your condition(s) do you find it at all difficult to use the public transport that you could use?	As above
Schooling restrictions	Do you go to a special school because of your condition(s)?	Persons aged 5 to 20 years
	Do you go to special class because of your condition(s)?	As above
	What is the main reason (name) does not attend school?	As above
	Because of your condition(s), are you provided with any special arrangement or support services by your school?	Persons aged 5 years or more with a disability who currently attend a school or educational institution
	What type of special arrangement or support services do you receive?	As above
	Do you have any difficulty at school because of your condition(s)?	As above
	What type of difficulties do you experience?	As above
	On average, do you need at least one day a week off from school because of your condition(s)?	As above
Employment restrictions	(Does/do) your condition(s) restrict the type of job you can do?	Employed persons aged 15 years or more with a disability
	(Does/do) your condition(s) restrict the number of hours you can do?	As above
	(Does/do) your condition(s) make it more difficult to change jobs or get a better job?	As above
	On average, do you need at least one day a week off from work because of your condition(s)?	Employed persons aged 15 years or more who are wage/salary earners with a disability
	What arrangements do you have with your employer for taking time off?	As above
	Do you need to be given ongoing assistance or supervision at work because of your condition(s)?	As above
	Has your employer provided you with, or allowed you to have, a special support person for this?	As above
	Was it necessary for employer to provide any special equipment, modify the work environment or make any special arrangements for you because of your condition(s)?	As above
	What has your employer done?	As above
	Would your condition(s) restrict the type of job you could do?	Unemployed persons aged 15 to 64 with a disability
	Would your condition(s) restrict the number of hours you could work?	As above
	Would your condition(s) make it more difficult for you to change jobs or get a better job if you were employed?	As above

(continued)

ABS 1998 disability survey questions on activity limitations, participation restrictions and need for assistance (continued)

Areas of activity	Questions	Population
Employment restrictions (cont.)	On average, would you need at least one day a week off from work because of your condition(s)?	As above
	Would you need ongoing assistance or supervision at work because of your condition(s)?	As above
	Would it be necessary for an employer to provide any special equipment, modify the work environment, or make any special arrangements for you because of your condition(s)?	As above
	Are you receiving any assistance from a disability job placement program or agency?	As above
Social and community participation	What is the main reason (you/he/she) (do/does) not go out of (your/his/her) home as often as (you/he/she) would like?	Persons aged 5 years or more with a disability and persons aged 60 years or more, excluding those who do not leave the home
Aids and equipment	Do you use any aid to help with any of these tasks?	Persons with a disability excluding those with a hearing loss only
	Do you use any medical aids such as these to help manage your condition(s)?	As above
Home environment	Have any changes been made to this dwelling because of your conditions(s)?	Persons with a disability who live in private dwellings

Note: The population who could be asked depended on survey sequencing. Some questions were only asked for the household component of the survey.

Source: ABS 1998 Survey of Disability, Ageing and Carers unpublished questionnaire.

Appendix 3

Appendix Tables

Table A3.1: People with a disability: intellectual ‘all disabling conditions’ by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	%	’000	%	’000	%
All disabling conditions						
0–4	*8.3	*1.3	*3.1	*0.5	11.4	0.9
5–14	96.3	7.2	35.4	2.8	131.6	5.0
15–19	33.6	5.0	11.5	1.8	45.1	3.4
20–29	33.2	2.3	19.7	1.4	52.9	1.9
30–44	41.1	1.9	27.4	1.3	68.5	1.6
45–64	39.9	2.0	27.4	1.4	67.3	1.7
65+	46.8	4.7	79.3	6.2	126.1	5.6
Total	**299.3**	**3.2**	**203.7**	**2.2**	**503.0**	**2.7**
Total 0–64	252.5	3.0	124.4	1.5	376.9	2.3
Total 15–64	147.9	2.4	86.0	1.4	233.9	1.9
All disabling conditions and activity limitations and participation restrictions						
0–4	*8.3	*1.3	*3.1	*0.5	11.4	0.9
5–14	94.8	7.1	35.0	2.7	129.8	4.9
15–19	32.9	4.9	11.5	1.8	44.4	3.4
20–29	31.4	2.2	18.4	1.3	49.8	1.8
30–44	40.5	1.9	27.4	1.3	67.8	1.6
45–64	39.7	1.9	27.4	1.4	67.1	1.7
65+	46.8	4.7	79.3	6.2	126.1	5.6
Total	**294.5**	**3.2**	**202.0**	**2.2**	**496.5**	**2.7**
Total 0–64	247.7	3.0	122.7	1.5	370.4	2.3
Total 15–64	144.5	2.3	84.6	1.4	229.2	1.8
All disabling conditions and severe or profound core activity restrictions						
0–4	*7.5	*1.2	*3.1	*0.5	10.6	0.8
5–14	51.2	3.8	21.2	1.7	72.4	2.8
15–19	14.0	2.1	*7.2	*1.1	21.2	1.6
20–29	12.2	0.9	*6.4	*0.5	18.6	0.7
30–44	16.8	0.8	14.6	0.7	31.4	0.7
45–64	17.1	0.8	13.5	0.7	30.6	0.8
65+	41.3	4.2	75.8	5.9	117.1	5.2
Total	**160.2**	**1.7**	**141.7**	**1.5**	**301.9**	**1.6**
Total 0–64	118.9	1.4	65.9	0.8	184.8	1.1
Total 15–64	60.2	1.0	41.6	0.7	101.8	0.8

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A3.2: People with a disability: intellectual 'main disabling condition' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	'000	**%**	**'000**	**%**	**'000**	**%**
Main disabling condition						
0–4	*7.3	*1.1	**1.0	**0.2	*8.3	*0.7
5–14	79.8	5.9	24.7	1.9	104.6	4.0
15–19	26.6	3.9	*5.5	*0.9	32.1	2.4
20–29	17.0	1.2	9.9	0.7	26.9	1.0
30–44	18.4	0.9	*8.9	*0.4	27.3	0.6
45–64	*5.3	*0.3	*4.5	*0.2	9.8	0.2
65+	**1.6	**0.2	**2.1	**0.2	*3.7	*0.2
Total	**156.1**	**1.7**	**56.6**	**0.6**	**212.7**	**1.1**
Total 0–64	154.4	1.9	54.5	0.7	209.0	1.3
Total 15–64	67.3	1.1	28.8	0.5	96.1	0.8
Main disabling condition and severe or profound core activity restrictions						
0–4	*7.3	*1.1	**1.0	**0.2	*8.3	*0.7
5–14	38.6	2.9	13.5	1.1	52.1	2.0
15–19	10.9	1.6	*3.7	*0.6	14.6	1.1
20–29	*5.4	*0.4	*2.7	*0.2	*8.1	*0.3
30–44	*6.8	*0.3	*5.2	*0.2	11.9	0.3
45–64	*3.4	*0.2	*2.8	*0.1	*6.2	*0.2
65+	**0.9	**0.1	**0.8	**0.1	**1.6	**0.1
Total	**73.2**	**0.8**	**29.7**	**0.3**	**103.0**	**0.6**
Total 0–64	72.4	0.9	28.9	0.4	101.3	0.6
Total 15–64	26.5	0.4	14.4	0.2	40.9	0.3

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A3.3: People with an intellectual disability: age when main disabling condition occurred, 1998

Age at onset	’000	%
0–4	111.9	55.5
5–9	58.6	29.0
10–14	20.6	10.2
15–17	*2.5	*1.3
18+	*8.0	*4.0
Total	*201.6*	*100.0*
Total before 18	*193.6*	*96.0*
Not known	*2.8	
Not applicable	*8.2	
Total	**212.7**	

Notes

1. Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%.
2. Information about age when main condition occurred was only collected among people living in households.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A3.4: People with an intellectual disability (estimated using four broad approaches) by other reported disabilities, by age, 1998

	Main disabling condition		**Main condition and severe or profound restrictions**		**All disabling conditions**		**All conditions and severe or profound restrictions**		**All conditions and activity limitations**	
Reported other disabilities	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
Under 65 years										
Psychiatric	64.9	31.1	50.6	49.9	148.7	39.5	99.9	54.0	148.0	40.0
Vision	*3.1	*1.5	**1.8	**1.8	15.3	4.1	*7.9	*4.3	15.3	4.1
Hearing	9.0	4.3	*5.2	*5.1	48.5	12.9	20.9	11.3	48.3	13.0
Speech	55.0	26.3	48.2	47.5	94.1	25.0	80.1	43.3	93.0	25.1
Total sensory	59.7	28.6	49.1	48.5	134.0	35.5	91.3	49.4	132.6	35.8
ABI	14.5	6.9	11.6	11.5	52.6	14.0	35.2	19.1	52.6	14.2
Physical/diverse	50.1	24.0	30.8	30.4	178.1	47.2	97.5	52.7	177.3	47.9
Total[(a)]	*209.0*		*101.3*		*376.9*		*184.8*		*370.4*	
65 years and over										
Psychiatric	**1.9	**51.4	**1.3	**81.2	102.2	81.1	100.0	85.4	102.2	81.1
Vision	**0.9	**24.7	**0.4	**23.1	35.6	28.3	33.8	28.9	35.6	28.3
Hearing	**1.2	**33.4	**0.5	**27.8	54.1	42.9	49.8	42.6	54.1	42.9
Speech	**1.0	**27.8	**1.0	**63.0	44.0	34.9	43.5	37.2	44.0	34.9
Total sensory	*2.7	*71.7	**1.3	**81.8	91.3	72.4	86.0	73.4	91.3	72.4
ABI	**0.6	**15.5	**0.6	**35.2	23.7	18.8	22.4	19.1	23.7	18.8
Physical/diverse	*3.1	*82.5	**1.3	**78.6	113.8	90.3	106.3	90.8	113.8	90.3
Total[(a)]	**3.7*		***1.6*		*126.1*		*117.1*		*126.1*	
All ages										
Psychiatric	66.8	31.4	51.9	50.4	250.9	49.9	199.8	66.2	250.2	50.4
Vision	*4.0	*1.9	**2.2	**2.1	51.0	10.1	41.7	13.8	51.0	10.3
Hearing	10.2	4.8	*5.6	*5.4	102.5	20.4	70.7	23.4	102.4	20.6
Speech	56.1	26.4	49.2	47.8	138.1	27.5	123.6	41.0	137.0	27.6
Total sensory	62.4	29.3	50.5	49.0	225.3	44.8	177.3	58.7	223.9	45.1
ABI	15.1	7.1	12.2	11.8	76.3	15.2	57.6	19.1	76.3	15.4
Physical/diverse	53.2	25.0	32.0	31.1	291.9	58.0	203.8	67.5	291.1	58.6
Total[(a)]	**212.7**		**103.0**		**503.0**		**301.9**		**496.5**	

(a) Total may be less than the sum of the components as persons may have reported more than one disabling condition.

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A3.5: Estimates of intellectual disability (all conditions and activity limitations and participation restrictions) by states and territories, by age, 1998 ('000)

	States and territories								
Age groups	**NSW**	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
0–4	*3.9	*2.8	**2.2	**1.1	**0.9	**0.3	**0.2	**0.2	11.5
5–14	44.0	31.6	25.0	13.4	10.0	*3.5	**2.2	**1.6	131.3
15–19	14.5	10.5	*8.4	*4.4	*3.3	**1.1	**0.8	**0.5	43.6
20–29	16.2	12.2	9.2	*4.9	*3.7	**1.1	**1.0	**0.6	48.9
30–44	23.1	17.0	12.4	*6.8	*5.3	**1.7	**1.2	**0.8	68.3
45–64	23.1	16.8	12.5	*6.6	*5.5	**1.8	**1.1	**0.6	68.1
65+	44.7	33.0	21.4	10.7	12.0	*3.4	**1.2	**0.3	126.8
Total	**169.6**	**123.9**	**91.1**	**47.9**	**40.8**	**12.8**	***7.7**	***4.5**	**498.5**
Total 0–64	124.8	90.9	69.7	37.3	28.7	9.4	*6.5	*4.3	371.7
Total 15–64	77.0	56.5	42.5	22.7	17.9	*5.7	*4.1	**2.5	228.9

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: ABS 1999b; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A4.1: People with a disability: psychiatric 'all disabling conditions' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	'000	**%**	**'000**	**%**	**'000**	**%**
All disabling conditions						
0–4	*3.5	*0.5	**0.2	**0.0	*3.7	*0.3
5–14	26.9	2.0	13.0	1.0	39.9	1.5
15–19	11.7	1.7	10.9	1.7	22.6	1.7
20–29	28.7	2.0	27.0	1.9	55.7	2.0
30–44	64.4	3.0	84.9	3.9	149.3	3.5
45–64	109.9	5.4	123.0	6.1	232.9	5.8
65+	86.7	8.7	178.1	13.9	264.8	11.7
Total	**331.8**	**3.6**	**437.1**	**4.7**	**768.9**	**4.1**
Total 0–64	245.1	3.0	259.0	3.2	504.1	3.1
Total 15–64	214.7	3.4	245.8	4.0	460.5	3.7
All disabling conditions and activity limitations and participation restrictions						
0–4	*3.5	*0.5	**0.2	**0.0	*3.7	*0.3
5–14	26.9	2.0	13.0	1.0	39.9	1.5
15–19	11.7	1.7	10.9	1.7	22.6	1.7
20–29	27.9	1.9	25.1	1.8	53.0	1.9
30–44	63.5	3.0	83.8	3.9	147.3	3.4
45–64	105.7	5.2	121.3	6.1	227.0	5.6
65+	86.3	8.7	177.3	13.9	263.6	11.6
Total	**325.6**	**3.5**	**431.5**	**4.6**	**757.1**	**4.1**
Total 0–64	239.2	2.9	254.3	3.1	493.5	3.0
Total 15–64	208.8	3.3	241.1	3.9	449.9	3.6
All disabling conditions and severe or profound core activity restrictions						
0–4	*2.7	*0.4	**0.2	**0.0	*2.9	*0.2
5–14	23.1	1.7	11.0	0.9	34.1	1.3
15–19	*7.7	*1.1	*4.6	*0.7	12.3	0.9
20–29	10.3	0.7	9.2	0.7	19.5	0.7
30–44	22.4	1.1	29.1	1.4	51.6	1.2
45–64	37.2	1.8	52.4	2.6	89.5	2.2
65+	57.2	5.8	131.1	10.3	188.4	8.3
Total	**160.7**	**1.7**	**237.6**	**2.5**	**398.3**	**2.1**
Total 0–64	103.5	1.2	106.5	1.3	209.9	1.3
Total 15–64	77.6	1.2	95.3	1.5	173.0	1.4

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A4.2: People with a disability: psychiatric 'main disabling condition', by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		**Females**		**Persons**	
	'000	**%**	**'000**	**%**	**'000**	**%**
Main disabling condition						
0–4	**1.4	**0.2	**0.4	**0.1	**1.8	**0.1
5–14	*3.7	*0.3	*2.7	*0.2	*6.4	*0.2
15–19	*5.8	*0.9	*4.8	*0.8	10.6	0.8
20–29	10.4	0.7	16.6	1.2	27.0	1.0
30–44	25.0	1.2	43.7	2.0	68.7	1.6
45–64	39.9	1.9	42.8	2.1	82.7	2.0
65+	26.4	2.7	60.9	4.8	87.3	3.8
Total	**112.5**	**1.2**	**171.9**	**1.8**	**284.5**	**1.5**
Total 0–64	86.1	1.0	111.0	1.4	197.2	1.2
Total 15–64	81.0	1.3	107.9	1.7	189.0	1.5
Main disabling condition and severe or profound core activity restrictions						
0–4	**0.6	**0.1	**0.4	**0.1	**1.0	**0.1
5–14	*2.8	*0.2	**1.7	**0.1	*4.4	*0.2
15–19	*3.4	*0.5	**1.4	**0.2	*4.8	*0.4
20–29	*2.6	*0.2	*4.7	*0.3	*7.3	*0.3
30–44	*7.3	*0.3	*9.0	*0.4	16.3	0.4
45–64	11.4	0.6	12.7	0.6	24.0	0.6
65+	21.7	2.2	51.7	4.0	73.4	3.2
Total	**49.7**	**0.5**	**81.6**	**0.9**	**131.3**	**0.7**
Total 0–64	28.0	0.3	29.9	0.4	57.9	0.4
Total 15–64	24.6	0.4	27.8	0.4	52.4	0.4

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A4.3: People with a psychiatric disability: age when main disabling condition occurred, 1998

Age at onset	**’000**	**%**
0–4	12.6	5.8
5–9	*6.9	*3.2
10–14	9.6	4.4
15–17	17.9	8.2
Under 18 total	*47.1*	*21.6*
18–19	9.3	4.2
20–24	30.9	14.2
18–24 total	*40.2*	*18.4*
25–29	24.1	11.0
30–34	26.3	12.1
35–39	16.5	7.6
40–44	18.1	8.3
25–44 total	*85.0*	*39.0*
45–49	15.1	6.9
50–54	11.4	5.2
55–59	*6.4	*3.0
60–64	*4.6	*2.1
45–64 total	*37.5*	*17.2*
65–69	*2.6	*1.2
70–74	*2.7	*1.2
75–79	**0.5	**0.2
80+	**2.5	**1.1
65+ total	*8.2*	*3.8*
Total	**217.9**	**100.0**

Notes

1. Total excludes 2,700 not known age, and 63,800 not applicable responses
2. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A4.4: People with a psychiatric disability (estimated using four broad approaches) by other reported disabilities, by age, 1998

	All disabling conditions		**All conditions and activity limitations**		**All conditions and severe or profound restrictions**		**Main disabling condition**		**Main condition and severe or profound restrictions**	
	’000	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
Under 65 years										
Intellectual	148.7	29.5	148.0	30.0	99.9	47.6	37.0	18.8	19.3	33.3
Vision	25.8	5.1	25.8	5.2	9.9	4.7	*5.8	*3.0	**0.7	**1.2
Hearing	93.0	18.5	91.2	18.5	30.6	14.6	31.7	16.1	*5.8	*10.0
Speech	60.3	12.0	60.3	12.2	50.8	24.2	9.5	4.8	*6.0	*10.4
Total sensory	159.5	31.6	157.7	32.0	81.0	38.6	43.2	21.9	10.8	18.7
ABI	70.7	14.0	70.7	14.3	40.2	19.2	17.1	8.7	*7.3	*12.7
Physical/diverse	365.6	72.5	358.4	72.6	152.1	72.5	114.9	58.3	34.6	59.7
Total(b)	*504.1*		*493.5*		*209.9*		*197.2*		*57.9*	
65 years and over										
Intellectual	102.2	38.6	102.2	38.8	100.0	53.1	57.4	65.8	56.1	76.4
Vision	60.4	22.8	60.4	22.9	51.4	27.3	16.3	18.7	15.9	21.7
Hearing	118.8	44.9	117.7	44.6	83.2	44.2	34.6	39.6	27.7	37.8
Speech	45.6	17.2	45.6	17.3	44.6	23.7	21.8	25.0	21.8	29.7
Total sensory	170.4	64.4	169.3	64.2	128.5	68.2	53.4	61.1	46.3	63.2
ABI	28.5	10.8	28.5	10.8	24.6	13.1	12.6	14.5	12.6	17.1
Physical/diverse	243.6	92.0	243.3	92.3	173.5	92.1	73.2	83.8	60.9	82.9
Total(b)	*264.8*		*263.6*		*188.4*		*87.3*		*73.4*	
All ages										
Intellectual	250.9	32.6	250.2	33.1	199.8	50.2	94.4	33.2	75.3	57.4
Vision	86.2	11.2	86.2	11.4	61.3	15.4	22.1	7.8	16.6	12.6
Hearing	211.8	27.6	208.9	27.6	113.8	28.6	66.3	23.3	33.5	25.5
Speech	105.9	13.8	105.9	14.0	95.4	24.0	31.3	11.0	27.8	21.2
Total sensory	329.9	42.9	327.0	43.2	209.5	52.6	96.5	33.9	57.2	43.6
ABI	99.2	12.9	99.2	13.1	64.8	16.3	29.7	10.4	19.9	15.2
Physical/diverse	609.3	79.2	601.7	79.5	325.6	81.7	188.0	66.1	95.4	72.7
Total(b)	**768.9**		**757.1**		**398.3**		**284.5**		**131.2**	

(a) Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

(b) Totals may be less than the sum of the components as persons may have reported more than one disabling condition.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A4.5: Estimates of psychiatric disability (all disabling conditions and activity limitations and participation restrictions) by states and territories, by age, 1998 ('000)

	States and territories								
Age groups	**NSW**	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
0–4	**1.3	**0.9	**0.7	**0.4	**0.3	**0.1	**0.1	**0.1	*3.7
5–14	13.5	9.7	*7.7	*4.1	*3.1	**1.1	**0.7	**0.5	40.3
15–19	*7.4	*5.4	*4.3	**2.2	**1.7	**0.6	**0.4	**0.2	22.2
20–29	17.5	13.2	9.9	*5.2	*3.9	**1.2	**1.0	**0.7	52.6
30–44	50.2	36.8	27.0	14.8	11.6	*3.6	*2.6	**1.7	148.2
45–64	78.6	57.3	42.2	22.0	18.9	*6.0	*3.7	**1.8	230.5
65+	94.1	68.9	45.0	22.3	25.0	*7.2	*2.6	**0.6	265.7
Total	**262.4**	**192.2**	**136.6**	**71.1**	**64.5**	**19.7**	**11.1**	***5.6**	**763.3**
Total 0–64	168.4	123.3	91.6	48.8	39.5	12.5	*8.5	*5.0	497.6
Total 15–64	153.6	112.7	83.3	44.3	36.1	11.4	*7.7	*4.4	453.5

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Sources: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file; ABS 1999b.

Table A5.1: People with a disability: sensory/speech 'all disabling conditions' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	'000	**%**	**'000**	**%**	**'000**	**%**
All disabling conditions						
0–4	16.3	2.5	7.9	1.3	24.2	1.9
5–14	63.7	4.7	32.0	2.5	95.7	3.6
15–19	*8.6	*1.3	*8.6	*1.3	17.2	1.3
20–29	35.6	2.5	16.4	1.2	52.0	1.8
30–44	86.8	4.1	61.0	2.8	147.8	3.4
45–64	234.8	11.5	114.1	5.7	348.8	8.6
65+	347.2	35.0	371.7	29.1	718.9	31.7
Total	**793.0**	**8.5**	**611.6**	**6.5**	**1,404.6**	**7.5**
Total 0–64	445.8	5.4	239.9	3.0	685.7	4.2
Total 15–64	365.8	5.8	200.0	3.2	565.8	4.5
All disabling conditions and activity limitations and participation restrictions						
0–4	14.9	2.3	*6.7	*1.1	21.6	1.7
5–14	57.5	4.3	29.4	2.3	86.9	3.3
15–19	*6.5	*1.0	*7.8	*1.2	14.3	1.1
20–29	30.9	2.2	14.6	1.0	45.5	1.6
30–44	71.7	3.4	52.4	2.4	124.1	2.9
45–64	203.1	9.9	102.3	5.1	305.4	7.5
65+	324.4	32.7	364.6	28.6	689.0	30.4
Total	**709.0**	**7.6**	**577.9**	**6.2**	**1,286.9**	**6.9**
Total 0–64	384.6	4.6	213.2	2.6	597.9	3.6
Total 15–64	312.2	5.0	177.1	2.9	489.3	3.9
All disabling conditions and severe or profound core activity restrictions						
0–4	14.0	2.1	*6.0	1.0	20.0	1.6
5–14	40.1	3.0	17.5	1.4	57.6	2.2
15–19	*3.5	*0.5	*2.9	*0.5	*6.3	*0.5
20–29	*7.6	*0.5	*2.6	*0.2	10.3	0.4
30–44	21.1	1.0	18.1	0.8	39.2	0.9
45–64	49.6	2.4	35.6	1.8	85.2	2.1
65+	111.7	11.3	193.8	15.2	305.5	13.5
Total	**247.7**	**2.7**	**276.5**	**2.9**	**524.2**	**2.8**
Total 0–64	136.0	1.6	82.7	1.0	218.7	1.3
Total 15–64	81.8	1.3	59.2	1.0	141.0	1.1

Note: Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A5.2: People with a disability: sensory/speech 'main disabling condition' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	'000	**%**	**'000**	**%**	**'000**	**%**
Main disabling condition						
0–4	*6.8	*1.0	**2.2	**0.4	9.0	0.7
5–14	26.1	1.9	17.2	1.3	43.3	1.6
15–19	*3.1	*0.5	**2.2	**0.3	*5.3	*0.4
20–29	14.4	1.0	*5.5	*0.4	19.9	0.7
30–44	35.4	1.7	22.9	1.1	58.2	1.4
45–64	69.8	3.4	30.4	1.5	100.2	2.5
65+	101.8	10.3	92.0	7.2	193.8	8.5
Total	**257.3**	**2.8**	**172.3**	**1.8**	**429.6**	**2.3**
Total 0–64	155.5	1.9	80.3	1.0	235.8	1.4
Total 15–64	122.6	1.9	60.9	1.0	183.5	1.5
Main disabling condition and severe or profound core activity restrictions						
0–4	*5.1	*0.8	**1.0	**0.2	*6.1	*0.5
5–14	10.2	0.8	*6.2	*0.5	16.5	0.6
15–19	**0.1	**0.0	0.0	0.0	0.0	0.0
20–29	**1.6	**0.1	**0.6	**0.0	**2.2	**0.1
30–44	*3.2	*0.2	**2.3	**0.1	*5.6	*0.1
45–64	*4.4	*0.2	*3.4	*0.2	*7.8	*0.2
65+	18.7	1.9	28.1	2.2	46.8	2.1
Total	**43.3**	**0.5**	**41.6**	**0.4**	**84.9**	**0.5**
Total 0–64	24.6	0.3	13.6	0.2	38.2	0.2
Total 15–64	9.3	0.1	*6.4	*0.1	15.6	0.1

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A5.3: People with a disability: visual, hearing and speech 'all disabling conditions' by age, as a percentage of the Australian population of that age, 1998

	Vision		Hearing		Speech	
	'000	%	'000	%	'000	%
All disabling conditions						
0–4	**2.0	**0.2	*3.2	*0.3	22.0	1.7
5–14	11.8	0.4	27.7	1.1	67.1	2.6
15–19	*6.1	*0.5	*7.6	*0.6	*7.2	*0.5
20–29	14.7	0.5	26.5	0.9	13.7	0.5
30–44	30.9	0.7	94.6	2.2	34.2	0.8
45–64	64.0	1.6	280.4	6.9	30.5	0.8
65+	220.3	9.7	561.5	24.8	69.4	3.1
Total	**349.8**	**1.9**	**1,001.6**	**5.4**	**244.0**	**1.3**
Total 0–64	129.4	0.8	440.1	2.7	174.6	1.1
Total 15–64	115.6	0.9	409.2	3.3	85.6	0.7
All disabling conditions and activity limitations and participation restrictions						
0–4	**1.7	**0.1	*2.9	*0.2	20.1	1.6
5–14	9.2	0.3	26.5	1.0	61.6	2.3
15–19	*4.3	*0.3	*6.5	*0.5	*7.2	*0.5
20–29	13.5	0.5	22.9	0.8	11.3	0.4
30–44	27.0	0.6	78.5	1.8	30.5	0.7
45–64	53.6	1.3	245.4	6.1	29.4	0.7
65+	215.0	9.5	536.2	23.6	69.1	3.0
Total	**324.3**	**1.7**	**918.9**	**4.9**	**229.1**	**1.2**
Total 0–64	109.3	0.7	382.7	2.3	160.0	1.0
Total 15–64	98.5	0.8	353.3	2.8	78.4	0.6
All disabling conditions and severe or profound activity restrictions						
0–4	**1.7	**0.1	**2.2	**0.2	18.4	1.4
5–14	*3.8	*0.1	11.8	0.5	50.1	1.9
15–19	**1.5	**0.1	**2.0	**0.2	*4.9	*0.4
20–29	**1.5	**0.1	*2.9	*0.1	*7.4	*0.3
30–44	10.2	0.2	14.9	0.3	21.8	0.5
45–64	18.0	0.4	56.6	1.4	18.9	0.5
65+	130.1	5.7	205.0	9.0	62.7	2.8
Total	**166.7**	**0.9**	**295.4**	**1.6**	**184.2**	**1.0**
Total 0–64	36.6	0.2	90.4	0.6	121.5	0.7
Total 15–64	31.2	0.2	76.4	0.6	52.9	0.4

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A5.4: People with a disability: visual, hearing and speech 'main disabling condition' by age, as a percentage of the Australian population of that age, 1998

	Vision		Hearing		Speech	
	'000	**%**	**'000**	**%**	**'000**	**%**
Main disabling condition						
0–4	**0.3	**0.0	**1.9	**0.1	*6.9	*0.5
5–14	*6.9	*0.3	16.9	0.6	19.6	0.7
15–19	**2.0	**0.2	**2.4	**0.2	**0.8	**0.1
20–29	*3.1	*0.1	14.6	0.5	**2.1	**0.1
30–44	12.6	0.3	42.0	1.0	*3.7	*0.1
45–64	15.9	0.4	82.1	2.0	**2.1	**0.1
65+	72.5	3.2	120.7	5.3	**0.6	**0.0
Total	**113.2**	**0.6**	**280.6**	**1.5**	**35.7**	**0.2**
Total 0–64	40.8	0.2	159.9	1.0	35.1	0.2
Total 15–64	33.6	0.3	141.2	1.1	*8.7	*0.1
Main disabling condition and severe or profound activity restrictions						
0–4	—	0.0	**1.5	**0.1	*4.6	*0.4
5–14	**0.8	**0.0	*6.1	*0.2	9.6	0.4
15–19	—	0.0	—	**0.0	—	0.0
20–29	—	0.0	**2.2	**0.1	—	0.0
30–44	*3.2	*0.1	**1.9	**0.0	**0.5	**0.0
45–64	*2.6	*0.1	*5.2	*0.1	—	0.0
65+	32.9	1.5	13.7	0.6	—	0.0
Total	**39.6**	**0.2**	**30.6**	**0.2**	**14.8**	**0.1**
Total 0–64	*6.6	*0.1	16.9	0.1	14.7	0.1
Total 15–64	*5.8	*0.1	9.3	0.1	**0.5	**0.0

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A5.5: People with a sensory/speech disability (estimated using four broad approaches) by other reported disabilities, by age, 1998

	All disabling conditions		All conditions and activity limitations		All conditions and severe or profound restrictions		Main disabling condition		Main condition and severe or profound restrictions	
Reported other conditions	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
Under 65 years										
Intellectual	134.0	19.5	132.6	91.3	41.8	22.2	13.7	5.8	*4.9	*12.8
Psychiatric	159.5	23.3	157.7	81.0	37.0	26.4	12.9	5.5	*3.0	*7.9
ABI	67.1	9.8	63.6	38.4	17.6	10.6	*8.2	*3.5	**2.0	**5.1
Physical/diverse	418.1	61.0	388.7	144.7	66.2	65.0	56.6	24.0	*7.4	*19.4
Total[(a)]	*685.7*		*597.9*	*218.7*			*235.8*		*38.2*	
65 years and over										
Intellectual	91.3	12.7	91.3	86.0	28.1	13.2	*3.8	*2.0	**2.1	**4.5
Psychiatric	170.4	23.7	169.3	128.5	42.1	24.6	18.3	9.5	10.8	23.2
ABI	36.8	5.1	36.5	29.5	9.7	5.3	*3.8	*2.0	**2.2	**4.8
Physical/diverse	632.9	88.0	614.6	291.2	95.3	89.2	126.6	65.3	39.9	85.4
Total[(a)]	*718.9*		*689.0*	*305.5*			*193.8*		*46.8*	
All ages										
Intellectual	225.3	16.0	223.9	177.3	33.8	17.4	17.6	4.1	*7.0	*8.3
Psychiatric	329.9	23.5	327.0	209.5	40.0	25.4	31.3	7.3	13.9	16.3
ABI	104.0	7.4	100.1	67.9	13.0	7.8	12.0	2.8	*4.2	*4.9
Physical/diverse	1,051.0	74.8	1,003.3	436.0	83.2	78.0	183.2	42.6	47.3	55.7
Total[(a)]	**1,404.6**		**1,286.9**	**524.2**			**429.6**		**84.9**	

(a) Total may be less than the sum of the components as persons may have reported more than one condition.

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A5.6: Estimates of sensory/speech disability (all conditions and activity limitations and participation restrictions) by states and territories, by age, 1998 ('000)

	States and territories								
Age groups	**NSW**	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
0–4	*7.4	*5.3	*4.1	**2.2	**1.6	**0.6	**0.4	**0.3	21.9
5–14	29.5	21.2	16.7	*8.9	*6.7	**2.3	**1.5	**1.1	87.8
15–19	*4.7	*3.4	*2.7	**1.4	**1.1	**0.4	**0.3	**0.2	14.1
20–29	14.9	11.2	*8.4	*4.5	*3.4	**1.0	**0.9	**0.6	45.0
30–44	42.3	31.0	22.7	12.5	9.8	*3.1	**2.1	**1.4	124.9
45–64	106.0	76.9	56.7	29.5	25.3	*8.0	*4.9	**2.5	309.9
65+	246.2	179.5	118.6	58.3	65.2	18.8	*7.0	**1.7	695.5
Total	**451.0**	**328.5**	**230.0**	**117.3**	**113.1**	**34.2**	**17.0**	***7.7**	**1,298.9**
Total 0–64	204.7	149.0	111.4	59.0	47.9	15.3	10.0	*6.0	603.4
Total 15–64	167.9	122.5	90.6	47.9	39.6	12.5	*8.1	*4.6	493.8

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: ABS 1999b; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.1: Estimates of stroke- and acquired brain injury-related disability, based on four approaches, by sex and age, 1998, as a percentage of the Australian population of that sex and age, 1998

	Males						Females						Persons					
	Stroke		ABI		Total		Stroke		ABI		Total		Stroke		ABI		Total	
	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%	’000	%
All disabling conditions																		
0–64	34.9	0.4	96.4	1.2	110.4	1.3	34.3	0.4	62.6	0.8	76.7	0.9	69.2	0.4	159.0	1.0	187.1	1.1
65+	73.0	7.4	26.3	2.6	60.7	6.1	88.1	6.9	25.8	2.0	76.2	6.0	161.1	7.1	52.0	2.3	136.9	6.0
Total	**107.9**	**1.2**	**122.7**	**1.3**	**171.1**	**1.8**	**122.4**	**1.3**	**88.4**	**0.9**	**152.9**	**1.6**	**230.3**	**1.2**	**211.1**	**1.1**	**324.0**	**1.7**
All disabling conditions and activity limitations and participation restrictions																		
0–64	34.9	0.4	91.1	1.1	105.1	1.3	33.0	0.4	59.7	0.7	73.5	0.9	67.9	0.4	150.8	0.9	178.6	1.1
65+	72.0	7.3	25.2	2.5	59.6	6.0	87.8	6.9	25.6	2.0	76.1	6.0	159.8	7.0	50.8	2.2	135.7	6.0
Total	**106.9**	**1.2**	**116.3**	**1.3**	**164.8**	**1.8**	**120.8**	**1.3**	**85.3**	**0.9**	**149.5**	**1.6**	**227.8**	**1.2**	**201.6**	**1.1**	**314.3**	**1.7**
All disabling conditions and severe or profound core activity restrictions																		
0–64	18.5	0.2	44.3	0.5	53.9	0.6	13.2	0.2	30.9	0.4	37.3	0.5	31.7	0.2	75.2	0.5	91.2	0.6
65+	41.7	4.2	19.6	2.0	47.8	4.8	65.8	5.2	18.6	1.5	62.4	4.9	107.5	4.7	38.2	1.7	110.2	4.9
Total	**60.2**	**0.6**	**63.8**	**0.7**	**101.7**	**1.1**	**79.0**	**0.8**	**49.5**	**0.5**	**99.7**	**1.1**	**139.2**	**0.7**	**113.3**	**0.6**	**201.4**	**1.1**
Main disabling condition																		
0–64	*8.7	*0.1	21.9	0.3	30.6	0.4	*8.3	*0.1	13.8	0.2	22.0	0.3	17.0	0.1	35.7	0.2	52.7	0.3
65+	17.5	1.8	**1.4	**0.1	18.9	1.9	29.0	2.3	**2.1	**0.2	31.2	2.4	46.6	2.1	*3.5	*0.2	50.1	2.2
Total	**26.3**	**0.3**	**23.3**	**0.3**	**49.5**	**0.5**	**37.3**	**0.4**	**15.9**	**0.2**	**53.2**	**0.6**	**63.6**	**0.3**	**39.2**	**0.2**	**102.7**	**0.6**
Main disabling condition and severe or profound core activity restrictions																		
0–64	*6.2	*0.1	*4.1	*0.0	10.3	0.1	*4.1	*0.1	*6.8	*0.1	10.9	0.1	10.3	0.1	10.8	0.1	21.1	0.1
65+	14.4	1.4	**0.7	**0.1	15.1	1.5	24.3	1.9	**1.4	**0.1	25.7	2.0	38.7	1.7	**2.1	**0.1	40.8	1.8
Total	**20.6**	**0.2**	**4.8**	**0.1**	**25.4**	**0.3**	**28.4**	**0.3**	**8.2**	**0.1**	**36.6**	**0.4**	**49.0**	**0.3**	**12.9**	**0.1**	**62.0**	**0.3**

Notes

1. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.
2. Totals for all disabling conditions are not necessarily the sum of components, as individuals may have reported both stroke and ABI conditions.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.2: People with a disability: ABI-related 'all disabling conditions', by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	’000	**%**	**’000**	**%**	**’000**	**%**
All disabling conditions						
0–4	**1.8	**0.3	**0.2	**0.0	**2.0	**0.2
5–14	*7.5	*0.6	*3.2	*0.3	10.7	0.4
15–19	**1.3	**0.2	*3.2	*0.5	*4.5	*0.3
20–29	15.4	1.1	9.9	0.7	25.3	0.9
30–44	27.6	1.3	25.2	1.2	52.8	1.2
45–64	42.9	2.1	20.9	1.0	63.8	1.6
65+	26.3	2.6	25.8	2.0	52.0	2.3
Total	**122.7**	**1.3**	**88.4**	**0.9**	**211.1**	**1.1**
Total 0–64	96.4	1.2	62.6	0.8	159.0	1.0
Total 15–64	87.2	1.4	59.2	1.0	146.4	1.2
All disabling conditions and activity limitations and participation restrictions						
0–4	**1.8	**0.3	**0.2	**0.0	**2.0	**0.2
5–14	*7.0	*0.5	*3.2	*0.3	10.2	0.4
15–19	**1.3	**0.2	*3.2	*0.5	*4.5	*0.3
20–29	13.7	1.0	*8.1	*0.6	21.9	0.8
30–44	25.5	1.2	24.0	1.1	49.5	1.2
45–64	41.9	2.0	20.9	1.0	62.8	1.6
65+	25.2	2.5	25.6	2.0	50.8	2.2
Total	**116.3**	**1.3**	**85.3**	**0.9**	**201.6**	**1.1**
Total 0–64	91.1	1.1	59.7	0.7	150.8	0.9
Total 15–64	82.4	1.3	56.2	0.9	138.6	1.1
All disabling conditions and severe or profound core activity restrictions						
0–4	**1.8	**0.3	**0.2	**0.0	**2.0	**0.2
5–14	*6.5	*0.5	*2.9	*0.2	9.4	0.4
15–19	**1.3	**0.2	**1.4	**0.2	*2.7	*0.2
20–29	*5.5	*0.4	*3.9	*0.3	9.4	0.3
30–44	11.8	0.6	12.6	0.6	24.5	0.6
45–64	17.5	0.9	9.8	0.5	27.2	0.7
65+	19.6	2.0	18.6	1.5	38.2	1.7
Total	**63.8**	**0.7**	**49.5**	**0.5**	**113.3**	**0.6**
Total 0–64	44.3	0.5	30.9	0.4	75.2	0.5
Total 15–64	36.0	0.6	27.7	0.4	63.7	0.5

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.3: People with a disability: ABI-related 'main disabling condition', by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Males		Females		Persons	
	'000	**%**	**'000**	**%**	**'000**	**%**
Main disabling condition						
0–4	—	0.0	—	0.0	—	0.0
5–14	**1.0	**0.1	**1.0	**0.1	**2.1	**0.1
15–19	—	0.0	**0.3	**0.0	**0.3	**0.0
20–29	*6.3	*0.4	**2.5	**0.2	*8.7	*0.3
30–44	*7.2	*0.3	*5.5	*0.3	12.7	0.3
45–64	*7.4	*0.4	*4.5	*0.2	11.8	0.3
65+	**1.4	**0.1	**2.1	**0.2	*3.5	*0.2
Total	**23.3**	**0.3**	**15.9**	**0.2**	**39.2**	**0.2**
Total 0–64	21.9	0.3	13.8	0.2	35.7	0.2
Total 15–64	20.9	0.3	12.8	0.2	33.6	0.3
Main disabling condition and severe or profound core activity restrictions						
0–4	—	0.0	—	0.0	—	0.0
5–14	**0.5	**0.0	**0.8	**0.1	**1.3	**0.0
15–19	—	0.0	—	0.0	—	0.0
20–29	**0.1	**0.0	**0.9	**0.1	**1.0	**0.0
30–44	**0.9	**0.0	*3.0	*0.1	*3.9	*0.1
45–64	**2.5	**0.1	**2.1	**0.1	*4.6	*0.1
65+	**0.7	**0.1	**1.4	**0.1	**2.1	**0.1
Total	***4.8**	***0.1**	***8.2**	***0.1**	**12.9**	**0.1**
Total 0–64	*4.1	*0.0	*6.8	*0.1	10.8	0.1
Total 15–64	*3.5	*0.1	*6.0	*0.1	*9.5	*0.1

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.4: People with an ABI-related disability: age when main disabling condition occurred, 1998

Age of onset	’000	%
0–9	*8.1	*21.5
10–19	*6.8	*17.9
20–29	*8.8	*23.1
30–39	*7.1	*18.8
40–49	*4.5	*11.9
50–59	**2.6	**6.8
Total	**37.9**	**100.0**

Notes

1. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.
2. Total excludes a small number of ‘not applicable’ responses.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.5: People with an ABI-related disability (estimated using four broad approaches) by other reported disabilities, by age, 1998

	All disabling conditions		All conditions and activity limitations		All conditions and severe or profound restrictions		Main disabling condition		Main condition and severe or profound restrictions	
	’000	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
Under 65 years										
Intellectual	52.6	33.1	52.6	34.9	35.2	46.9	*8.3	*23.4	*5.9	*54.4
Psychiatric	70.7	44.5	70.7	46.9	40.2	53.5	9.5	26.8	*5.5	*50.8
Vision	20.6	12.9	17.7	11.7	*8.8	*11.8	*6.9	*19.3	**2.5	**23.3
Hearing	27.3	17.2	26.0	17.2	12.9	17.1	*2.7	*7.7	**1.1	**9.9
Speech	30.1	19.0	30.1	20.0	24.7	32.9	*4.7	*13.3	*3.5	*32.4
Total sensory	67.1	42.2	63.6	42.2	38.4	51.1	13.5	37.7	*6.4	*59.0
Physical/diverse	121.0	76.1	118.0	78.3	63.3	84.2	15.9	44.5	*8.3	*77.0
Total(b)	*159.0*		*150.8*		*75.2*		*35.7*		*10.8*	
65 years and over										
Intellectual	23.7	45.5	23.7	46.6	22.4	58.7	**1.2	**35.2	**1.2	**57.9
Psychiatric	28.5	54.8	28.5	56.1	24.6	64.5	**1.8	**51.4	**1.2	**56.5
Vision	16.4	31.6	16.4	32.3	13.9	36.5	**0.6	**17.5	**0.6	**28.8
Hearing	23.4	45.1	23.1	45.4	17.4	45.6	**1.5	**43.9	**0.7	**33.9
Speech	13.0	24.9	13.0	25.5	12.6	32.9	**0.5	**15.0	**0.5	**24.8
Total sensory	36.8	70.8	36.5	71.7	29.5	77.3	**2.0	**56.8	**1.2	**55.1
Physical/diverse	49.6	95.4	49.2	96.7	37.1	97.3	*3.4	*96.8	**2.0	**94.7
Total(b)	*52.0*		*50.8*		*38.2*		*3.5*		*2.1*	
All ages										
Intellectual	76.3	36.1	76.3	37.8	57.6	50.9	9.6	24.5	*7.1	*55.0
Psychiatric	99.2	47.0	99.2	49.2	64.8	57.2	11.3	29.0	*6.7	*51.8
Vision	37.0	17.5	34.1	16.9	22.8	20.1	*7.5	*19.1	*3.1	*24.2
Hearing	50.8	24.1	49.1	24.3	30.3	26.7	*4.3	*10.9	**1.8	**13.9
Speech	43.1	20.4	43.1	21.4	37.3	32.9	*5.3	*13.4	*4.0	*31.1
Total sensory	104.0	49.2	100.1	49.6	67.9	59.9	15.4	39.4	*7.5	*58.3
Physical/diverse	170.6	80.8	167.1	82.9	100.4	88.6	19.3	49.2	10.3	79.9
Total(b)	**211.1**		**201.6**		**113.3**		**39.2**		**12.9**	

(a) Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

(b) Totals may be less than the sum of the components as persons may have reported more than one disabling condition.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.6: Estimates of ABI-related disability (all disabling conditions and activity limitations and participation restrictions) by states and territories, by age, 1998 ('000)

	States and territories								
	NSW	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
Age groups									
0–4	**0.7	**0.5	**0.4	**0.2	**0.2	**0.1	—	—	**2.0
5–14	*3.4	**2.5	**2.0	**1.0	**0.8	**0.3	**0.2	**0.1	10.3
15–19	**1.5	**1.1	**0.9	**0.4	**0.3	**0.1	**0.1	—	*4.4
20–29	*7.2	*5.4	*4.1	**2.2	**1.6	**0.5	**0.4	**0.3	21.6
30–44	16.8	12.3	9.1	*5.0	*3.9	**1.2	**0.9	**0.6	49.8
45–64	21.6	15.7	11.8	*6.2	*5.2	**1.6	**1.1	**0.6	63.7
65+	18.2	13.2	*8.8	*4.3	*4.8	**1.4	**0.5	**0.1	51.3
Total	**69.4**	**50.7**	**36.8**	**19.3**	**16.8**	***5.2**	***3.1**	****1.7**	**203.1**
Total 0–64	51.3	37.5	28.1	15.0	12.0	*3.8	**2.6	**1.6	151.8
Total 15–64	47.1	34.5	25.7	13.7	11.0	*3.5	**2.4	**1.4	139.5

Note: Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be interpreted accordingly.

Sources: ABS 1999b; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A6.7: ICD–10–AM codes used in analyses of the National Hospital Morbidity Database to identify hospital separations with diagnoses associated with various subgroups of acquired brain injury

ABI subgroup	ICD–10–AM code	Description
Traumatic brain injury	S02.0	Fracture of vault of skull
	S02.1	Fracture of base of skull
	S02.8	Fractures of other skull and facial bones
	S02.7	Multiple fractures involving skull and facial bones
	S06.0	Concussive injury
	S06.2	Diffuse brain injury
	S06.3	Focal brain injury
	S06.4	Epidural haemorrhage
	S06.5	Traumatic subdural haemorrhage
	S06.6	Traumatic subarachnoid haemorrhage
	S06.8	Other intracranial injuries
	S06.9	Intracranial injury, unspecified
	S09.7	Multiple injuries of head
	T06.0	Injuries of the brain and cranial nerves with injuries of nerves and spinal chord at neck level
Stroke and other cerebrovascular disease	I60	Subarachnoid haemorrhage
	I61	Intracerebral haemorrhage
	I62	Other nontraumatic intracranial haemorrhage
	I63	Cerebral infarction
	I64	Stroke, not specified as haemorrhage or infarction
	I67.0	Dissection of cerebral arteries, nonruptured
	I67.3	Progressive vascular leukoencephalopathy
	I67.4	Hypertensive encephalopathy
	I67.5	Moyamoya disease
	I67.6	Nonpyogenic thrombosis of intracranial venous system
	I67.8	Other specified cerebrovascular diseases
	I68.0	Cerebral amyloid angiopathy
Anoxic brain injury	G93.1	Anoxic brain damage, not elsewhere classified
Brain injury due to alcohol, other drugs and psychoactive substances	G31.2	Degeneration of nervous system due to alcohol
	F10–F19 with fourth character .6 and .7 only	Mental and behavioural disorders due to alcohol or psychoactive substance use—amnesic syndrome Mental and behavioural disorders due to alcohol or psychoactive substance use—residual and late-onset psychotic disorder

(continued)

Table A6.7 (continued): ICD–10–AM codes used in analyses of the National Hospital Morbidity Database to identify hospital separations with diagnoses associated with various subgroups of acquired brain injury

ABI subgroup	ICD–10–AM code	Description
Brain damage arising before or at birth	P04.3	Fetus and newborn affected by maternal use of alcohol
	Q86.0	Fetal alcohol syndrome (dysmorphic)
	P10	Intracranial laceration and haemorrhage due to birth injury
	P11.0	Cerebral oedema due to birth trauma
	P11.1	Other specified brain damage due to birth trauma
	P11.2	Unspecified brain damage due to birth trauma
	P21	Birth asphyxia
	P52	Intracranial nontraumatic haemorrhage of fetus and newborn
	P91.0	Neonatal cerebral ischaemia
	P91.1	Acquired periventricular cysts of newborn
	P91.2	Neonatal cerebral leukomalacia
	P91.3	Neonatal cerebral irritability
	P91.4	Neonatal cerebral depression
	P91.8	Other specified disturbances of cerebral status of newborn
	P91.9	Disturbance of cerebral status of newborn, unspecified
	Q00	Anencephaly and similar malformations
	Q01	Encephalocele
	Q02	Microcephaly
	Q03	Congenital hydrocephalus
	Q04	Other congenital malformations of brain
	E75	Disorders of sphingolipid metabolism and other lipid storage disorders
	G31.8	Other specified degenerative diseases of nervous system
Brain infections	A83–A86 A87	Viral encephalitis Viral meningitis
	G00	Bacterial meningitis, not elsewhere classified
	G01	Meningitis in bacterial diseases classified elsewhere (includes codes A02.2, A17.0, A27, A22.8, A32.1, A39.0, A50.4, A51.4, A52.1, A54.8, A69.2)
	G02	Meningitis in other infectious and parasitic diseases classified elsewhere (includes codes B06.0, B45.1, B56, B57.4)
	G03	Meningitis due to other and unspecified causes
	G04	Encephalitis, myelitis and encephalomyelitis
	G05	Encephalitis, myelitis and encephalomyelitis in diseases classified elsewhere (includes codes A17.8, A32.1, A39.8, A54.8, B58.2, B60.2, B83.2, J10.8, J11.8, M32.1)
	G06	Intracranial and intraspinal abscess and granuloma
	G07	Intracranial and intraspinal abscess and granuloma in diseases classified elsewhere

(continued)

Table A6.7 (continued): ICD–10–AM codes used in analyses of the National Hospital Morbidity Database to identify hospital separations with diagnoses associated with various subgroups of acquired brain injury

ABI subgroup	ICD–10–AM code	Description
Dementias and organic psychiatric conditions	F00	Dementia in Alzheimer’s disease
	F01	Vascular dementia
	F02	Dementia in other diseases classified elsewhere
	F03	Unspecified dementia
	F04	Organic amnesic syndrome, not induced by alcohol and other psychoactive substances
	F05.1	Delirium superimposed on dementia
	F07.0	Organic personality disorder
	F07.2	Postconcussional syndrome
	F07.8	Other organic personality and behavioural disorders due to brain disease, damage and dysfunction
	F07.9	Unspecified organic personality and behavioural disorder due to brain disease, damage and dysfunction
	G30	Alzheimer's disease
	G31.0	Circumscribed brain atrophy
	G31.1	Senile degeneration of brain, not elsewhere classified
	G31.9	Degenerative disease of nervous system, unspecified
	G32	Other degenerative disorders of nervous system in diseases classified elsewhere
	G91	Hydrocephalus
	G93.7	Reye's syndrome

Table A7.1: People with a disability: physical/diverse 'all disabling conditions' ('000) by sex and age, 1998

	Circulatory	Respiratory	Arthritis	Other musculo-skeletal	Neuro-logical	Other physical	Total physical	All other	Total physical /diverse
All disabling conditions									
Males									
0–64	214.3	194.5	228.8	600.0	89.6	326.9	934.1	31.6	965.7
65+	295.8	97.0	214.8	169.8	46.5	194.7	478.9	*5.0	483.8
Total	**510.1**	**291.5**	**443.6**	**769.8**	**136.1**	**521.6**	**1,413.0**	**36.6**	**1,449.6**
Total 15–64	209.9	140.9	227.5	587.5	78.3	309.2	853.2	27.9	881.1
Females									
0–64	201.5	207.8	290.6	472.6	134.8	346.9	892.2	46.0	938.2
65+	388.2	92.8	373.3	242.5	54.7	352.5	632.4	*8.4	640.8
Total	**589.7**	**300.6**	**663.9**	**715.1**	**189.5**	**699.5**	**1,524.5**	**54.4**	**1,579.0**
Total 15–64	198.4	176.5	290.0	464.0	126.6	332.5	839.1	39.5	878.7
Persons									
0–64	415.8	402.3	519.4	1,072.5	224.4	673.8	1,826.3	77.6	1,903.9
65+	684.0	189.8	588.0	412.3	101.2	547.2	1,111.2	13.4	1,124.6
Total	**1,099.8**	**592.1**	**1,107.5**	**1,484.9**	**325.6**	**1,221.0**	**2,937.5**	**91.0**	**3,028.5**
Total 15–64	408.3	317.4	517.4	1,051.5	204.9	641.7	1,692.3	67.4	1,759.8
All disabling conditions and activity limitations and participation restrictions									
Males									
0–64	203.8	186.5	212.5	553.3	86.6	306.8	870.4	28.2	898.5
65+	281.8	94.6	204.7	162.0	43.6	187.7	450.1	*5.0	455.1
Total	**485.6**	**281.1**	**417.2**	**715.3**	**130.2**	**494.5**	**1,320.5**	**33.1**	**1,353.6**
Total 15–64	199.4	134.3	211.1	543.1	75.4	289.3	793.3	25.3	818.6
Females									
0–64	188.5	203.2	274.6	451.6	128.3	327.3	837.8	34.9	872.7
65+	382.8	91.1	367.2	237.3	54.7	347.3	619.9	*7.2	627.1
Total	**571.3**	**294.4**	**641.8**	**688.9**	**183.0**	**674.6**	**1,457.8**	**42.0**	**1,499.8**
Total 15–64	186.7	172.9	274.0	444.9	120.8	313.3	789.2	30.8	819.9
Persons									
0–64	392.3	389.8	487.1	1,004.9	214.9	634.1	1,708.2	63.0	1,771.2
65+	664.5	185.7	571.9	399.2	98.3	535.0	1,070.1	12.1	1,082.2
Total	**1,056.8**	**575.5**	**1,059.0**	**1,404.2**	**313.2**	**1,169.1**	**2,778.3**	**75.1**	**2,853.4**
Total 15–64	386.1	307.1	485.0	988.0	196.2	602.6	1,582.5	56.1	1,638.6

(continued)

Table A7.1 (continued): People with a disability: physical/diverse 'all disabling conditions' ('000) by sex and age, 1998

	Circulatory	Respiratory	Arthritis	Other musculo-skeletal	Neuro-logical	Other physical	Total physical	All other	Total physical /diverse
All disabling conditions and severe or profound core activity restrictions									
Males									
0–64	65.9	51.9	54.2	136.8	40.0	113.7	241.3	*7.6	248.9
65+	98.7	34.8	58.4	48.8	33.9	91.2	154.2	**0.5	154.7
Total	**164.5**	**86.7**	**112.6**	**185.6**	**74.0**	**204.8**	**395.5**	***8.1**	**403.6**
Total 15–64	63.4	28.6	52.8	132.8	30.3	101.1	200.8	*5.1	206.0
Females									
0–64	57.6	62.5	83.2	138.7	56.2	129.9	261.2	*7.1	268.3
65+	194.7	38.5	169.1	112.3	42.9	201.2	302.1	**1.5	303.6
Total	**252.3**	**101.1**	**252.3**	**251.0**	**99.1**	**331.1**	**563.3**	***8.5**	**571.8**
Total 15–64	56.5	49.7	82.6	135.0	51.4	118.2	236.7	*5.4	242.0
Persons									
0–64	123.5	114.5	137.3	275.5	96.2	243.5	502.5	14.6	517.2
65+	293.4	73.3	227.5	161.1	76.8	292.4	456.2	**2.0	458.3
Total	**416.9**	**187.8**	**364.9**	**436.6**	**173.1**	**535.9**	**958.8**	**16.7**	**975.4**
Total 15–64	119.9	78.3	135.3	267.7	81.8	219.2	437.5	10.5	448.0

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A7.2: People with a disability: physical/diverse 'all disabling conditions' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Circulatory	Respiratory	Arthritis	Other musculo-skeletal	Neuro-logical	Other physical	Total physical	All other	Total physical /diverse
All disabling conditions									
Males									
0–64	2.6	2.3	2.8	7.2	1.1	3.9	11.3	0.4	11.6
65+	29.8	9.8	21.7	17.1	4.7	19.6	48.3	*0.5	48.8
Total	**5.5**	**3.1**	**4.8**	**8.3**	**1.5**	**5.6**	**15.2**	**0.4**	**15.6**
Total 15–64	3.3	2.2	3.6	9.3	1.2	4.9	13.6	0.4	14.0
Females									
0–64	2.5	2.6	3.6	5.8	1.7	4.3	11.0	0.6	11.6
65+	30.4	7.3	29.2	19.0	4.3	27.6	49.5	*0.7	50.2
Total	**6.3**	**3.2**	**7.1**	**7.6**	**2.0**	**7.5**	**16.3**	**0.6**	**16.8**
Total 15–64	3.2	2.8	4.7	7.5	2.0	5.4	13.5	0.6	14.2
Persons									
0–64	2.5	2.5	3.2	6.5	1.4	4.1	11.1	0.5	11.6
65+	30.1	8.4	25.9	18.2	4.5	24.1	49.0	0.6	49.6
Total	**5.9**	**3.2**	**5.9**	**8.0**	**1.7**	**6.5**	**15.7**	**0.5**	**16.2**
Total 15–64	3.3	2.5	4.1	8.4	1.6	5.1	13.6	0.5	14.1
All disabling conditions and activity limitations and participation restrictions									
Males									
0–64	2.5	2.2	2.6	6.7	1.0	3.7	10.5	0.3	10.8
65+	28.4	9.5	20.6	16.3	4.4	18.9	45.4	*0.5	45.9
Total	**5.2**	**3.0**	**4.5**	**7.7**	**1.4**	**5.3**	**14.2**	**0.4**	**14.6**
Total 15–64	3.2	2.1	3.4	8.6	1.2	4.6	12.6	0.4	13.0
Females									
0–64	2.3	2.5	3.4	5.6	1.6	4.0	10.3	0.4	10.8
65+	30.0	7.1	28.8	18.6	4.3	27.2	48.6	*0.6	49.1
Total	**6.1**	**3.1**	**6.8**	**7.3**	**2.0**	**7.2**	**15.5**	**0.4**	**16.0**
Total 15–64	3.0	2.8	4.4	7.2	1.9	5.1	12.7	0.5	13.2
Persons									
0–64	2.4	2.4	3.0	6.1	1.3	3.9	10.4	0.4	10.8
65+	29.3	8.2	25.2	17.6	4.3	23.6	47.2	0.5	47.7
Total	**5.7**	**3.1**	**5.7**	**7.5**	**1.7**	**6.3**	**14.9**	**0.4**	**15.3**
Total 15–64	3.1	2.5	3.9	7.9	1.6	4.8	12.7	0.4	13.1

(continued)

Table A7.2 (continued): People with a disability: physical/diverse 'all disabling conditions' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Circulatory	Respiratory	Arthritis	Other musculo-skeletal	Neuro-logical	Other physical	Total physical	All other	Total physical /diverse
All disabling conditions and severe or profound core activity restrictions									
Males									
0–64	0.8	0.6	0.7	1.7	0.5	1.4	2.9	*0.1	3.0
65+	10.0	3.5	5.9	4.9	3.4	9.2	15.5	**0.1	15.6
Total	**1.8**	**0.9**	**1.2**	**2.0**	**0.8**	**2.2**	**4.3**	***0.1**	**4.3**
Total 15–64	1.0	0.5	0.8	2.1	0.5	1.6	3.2	*0.1	3.3
Females									
0–64	0.7	0.8	1.0	1.7	0.7	1.6	3.2	*0.1	3.3
65+	15.2	3.0	13.2	8.8	3.4	15.8	23.7	**0.1	23.8
Total	**2.7**	**1.1**	**2.7**	**2.7**	**1.1**	**3.5**	**6.0**	***0.1**	**6.1**
Total 15–64	0.9	0.8	1.3	2.2	0.8	1.9	3.8	*0.1	3.9
Persons									
0–64	0.8	0.7	0.8	1.7	0.6	1.5	3.1	0.1	3.2
65+	12.9	3.2	10.0	7.1	3.4	12.9	20.1	**0.1	20.2
Total	**2.2**	**1.0**	**2.0**	**2.3**	**0.9**	**2.9**	**5.1**	**0.1**	**5.2**
Total 15–64	1.0	0.6	1.1	2.1	0.7	1.8	3.5	0.1	3.6

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: Table A7.3; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A7.3: People with a disability: physical/diverse 'main disabling condition' ('000) by sex and age, 1998

	Circulatory	Respiratory	Arthritis	Other musculo-skeletal	Neuro-logical	Other physical	Total physical	All other	Total physical /diverse
Main disabling condition									
Males									
0–64	69.0	94.1	82.6	424.0	44.2	19.5	733.5	133.7	867.2
65+	87.2	46.7	87.6	86.0	22.1	*2.9	332.4	72.3	404.8
Total	**156.3**	**140.8**	**170.2**	**510.0**	**66.3**	**22.4**	**1,065.9**	**206.0**	**1,271.9**
Total 15–64	67.5	61.9	81.8	414.4	39.4	14.7	679.7	120.8	800.6
Females									
0–64	48.7	89.3	146.0	312.2	75.5	17.3	689.0	153.6	842.5
65+	105.2	30.8	180.9	113.5	19.4	**2.5	452.2	77.4	529.6
Total	**153.9**	**120.1**	**326.9**	**425.6**	**94.8**	**19.8**	**1,141.2**	**231.0**	**1,372.2**
Total 15–64	47.0	68.8	145.3	304.6	71.3	12.9	649.9	138.4	788.3
Persons									
0–64	117.8	183.4	228.6	736.2	119.7	36.8	1,422.4	287.3	1,709.7
65+	192.4	77.5	268.5	199.4	41.4	*5.4	784.7	149.7	934.4
Total	**310.2**	**260.9**	**497.1**	**935.6**	**161.1**	**42.2**	**2,207.1**	**437.0**	**2,644.1**
Total 15–64	114.5	130.7	227.2	719.0	110.7	27.6	1,329.6	259.2	1,588.8
Main disabling condition and severe or profound core activity restrictions									
Males									
0–64	16.1	20.0	18.4	92.6	16.4	14.7	178.1	36.3	214.4
65+	30.9	12.5	20.4	18.2	14.7	**2.2	99.1	21.0	120.1
Total	**47.0**	**32.5**	**38.8**	**110.7**	**31.1**	**17.0**	**277.1**	**57.4**	**334.5**
Total 15–64	16.1	*8.9	17.6	90.0	13.0	9.9	155.6	26.5	182.1
Females									
0–64	12.0	18.2	37.5	87.6	31.4	10.6	197.3	36.2	233.5
65+	53.9	12.7	74.6	45.9	16.5	**1.8	205.3	31.1	236.4
Total	**65.8**	**30.9**	**112.1**	**133.5**	**47.9**	**12.3**	**402.6**	**67.3**	**469.9**
Total 15–64	11.7	12.0	36.9	84.1	30.7	*7.3	182.5	28.7	211.2
Persons									
0–64	28.0	38.2	55.9	180.2	47.8	25.3	375.3	72.6	447.9
65+	84.8	25.3	95.0	64.0	31.3	*4.0	304.4	52.1	356.5
Total	**112.8**	**63.4**	**150.9**	**244.2**	**79.1**	**29.3**	**679.7**	**124.7**	**804.4**
Total 15–64	27.7	20.9	54.5	174.1	43.7	17.2	338.1	55.2	393.3

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A7.4: People with a disability: physical/diverse 'main disabling condition' by sex and age, as a percentage of the Australian population of that sex and age, 1998

	Circulatory	Respiratory	Arthritis	Other musculo-skeletal	Neuro-logical	Other physical	Total physical	All other	Total physical /diverse
Main disabling condition									
Males									
0–64	0.8	1.1	1.0	5.1	0.5	0.2	8.8	1.6	10.5
65+	8.8	4.7	8.8	8.7	2.2	*0.3	33.5	7.3	40.8
Total	**1.7**	**1.5**	**1.8**	**5.5**	**0.7**	**0.2**	**11.5**	**2.2**	**13.7**
Total 15–64	1.1	1.0	1.3	6.6	0.6	0.2	10.8	1.9	12.7
Females									
0–64	0.6	1.1	1.8	3.9	0.9	0.2	8.5	1.9	10.4
65+	8.2	2.4	14.2	8.9	1.5	**0.2	35.4	6.1	41.5
Total	**1.6**	**1.3**	**3.5**	**4.5**	**1.0**	**0.2**	**12.2**	**2.5**	**14.6**
Total 15–64	0.8	1.1	2.3	4.9	1.2	0.2	10.5	2.2	12.7
Persons									
0–64	0.7	1.1	1.4	4.5	0.7	0.2	8.7	1.8	10.4
65+	8.5	3.4	11.8	8.8	1.8	*0.2	34.6	6.6	41.2
Total	**1.7**	**1.4**	**2.7**	**5.0**	**0.9**	**0.2**	**11.8**	**2.3**	**14.2**
Total 15–64	0.9	1.0	1.8	5.8	0.9	0.2	10.6	2.1	12.7
Main disabling condition and severe or profound core activity restrictions									
Males									
0–64	0.2	0.2	0.2	1.1	0.2	0.2	2.1	0.4	2.6
65+	3.1	1.3	2.1	1.8	1.5	**0.2	10.0	2.1	12.1
Total	**0.5**	**0.4**	**0.4**	**1.2**	**0.3**	**0.2**	**3.0**	**0.6**	**3.6**
Total 15–64	0.3	*0.1	0.3	1.4	0.2	0.2	2.5	0.4	2.9
Females									
0–64	0.1	0.2	0.5	1.1	0.4	0.1	2.4	0.4	2.9
65+	4.2	1.0	5.8	3.6	1.3	**0.1	16.1	2.4	18.5
Total	**0.7**	**0.3**	**1.2**	**1.4**	**0.5**	**0.1**	**4.3**	**0.7**	**5.0**
Total 15–64	0.2	0.2	0.6	1.4	0.5	*0.1	2.9	0.5	3.4
Persons									
0–64	0.2	0.2	0.3	1.1	0.3	0.2	2.3	0.4	2.7
65+	3.7	1.1	4.2	2.8	1.4	*0.2	13.4	2.3	15.7
Total	**0.6**	**0.3**	**0.8**	**1.3**	**0.4**	**0.2**	**3.6**	**0.7**	**4.3**
Total 15–64	0.2	0.2	0.4	1.4	0.3	0.1	2.7	0.4	3.2

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: Table A7.1; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A7.5: People reporting a physical/diverse main disabling condition: age when that condition occurred, 1998

Age at onset	’000	%
0–4	222.7	8.8
5–9	67.5	2.7
10–14	78.6	3.1
15–17	82.6	3.3
18–19	71.7	2.8
20–24	163.5	6.5
25–29	170.2	6.8
30–34	191.8	7.6
35–39	191.0	7.6
40–44	210.4	8.3
45–49	198.7	7.9
50–54	209.7	8.3
55–59	159.0	6.3
60–64	164.4	6.5
65–69	117.8	4.7
70–74	102.7	4.1
75–79	66.8	2.7
80–84	39.0	1.5
85+	12.8	0.5
Total	*2,521.0*	*100.0*
Total before 18	*451.3*	*17.9*
Not known	21.1	
Not applicable	102.0	
Total	**2,644.1**	

Note: Information about age when main condition occurred was only collected among people living in households.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A7.6: People with a physical/diverse disability (estimated using four broad approaches) by other reported disabilities, by age, 1998

	Main disabling condition		Main condition and severe or profound restrictions		All disabling conditions		All conditions and severe or profound restrictions		All conditions and activity limitations	
Reported other disabilities	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
Under 65 years										
Intellectual	111.0	6.5	55.7	12.4	178.1	9.4	97.5	18.8	177.3	10.0
Psychiatric	219.9	12.9	93.4	20.9	365.6	19.2	152.1	29.4	358.4	20.2
Vision	69.3	4.1	25.0	5.6	84.0	4.4	28.8	5.6	75.2	4.2
Hearing	233.4	13.7	60.9	13.6	291.0	15.3	71.7	13.9	269.7	15.2
Speech	59.4	3.5	43.2	9.6	82.9	4.4	64.5	12.5	81.2	4.6
Total sensory/speech	333.5	19.5	114.2	25.5	418.1	22.0	144.7	28.0	388.7	21.9
ABI	84.8	5.0	43.4	9.7	121.0	6.4	63.3	12.2	118.0	6.7
Total	*1,709.7*		*447.9*		*1,903.9*		*517.2*		*1,771.2*	
65 years and over										
Intellectual	61.2	6.5	56.0	15.7	113.8	10.1	106.3	23.2	113.8	10.5
Psychiatric	156.7	16.8	101.6	28.5	243.6	21.7	173.5	37.9	243.3	22.5
Vision	124.2	13.3	78.2	21.9	198.9	17.7	123.8	27.0	196.7	18.2
Hearing	375.1	40.1	148.5	41.7	493.8	43.9	195.7	42.7	476.8	44.1
Speech	43.3	4.6	37.7	10.6	66.5	5.9	60.3	13.2	66.2	6.1
Total sensory/speech	467.3	50.0	209.9	58.9	632.9	56.3	291.2	63.6	614.6	56.8
ABI	31.5	3.4	20.7	5.8	49.6	4.4	37.1	8.1	49.2	4.5
Total	*934.4*		*356.5*		*1,124.6*		*458.3*		*1,082.2*	

(continued)

Table A7.6 (continued): People with a physical/diverse disability (estimated using four broad approaches) by other reported disabilities, by age, 1998

	Main condition		Main condition and severe or profound		All conditions		All conditions and severe or profound		All conditions and activity limitations	
Reported other disabilities	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**	**’000**	**%**
All ages										
Intellectual	172.2	6.5	111.7	13.9	291.9	9.6	203.8	20.9	291.1	10.2
Psychiatric	376.7	14.2	195.0	24.2	609.3	20.1	325.6	33.4	601.7	21.1
Vision	193.5	7.3	103.2	12.8	282.9	9.3	152.6	15.6	271.9	9.5
Hearing	608.5	23.0	209.4	26.0	784.8	25.9	267.4	27.4	746.5	26.2
Speech	102.6	3.9	80.9	10.1	149.4	4.9	124.8	12.8	147.4	5.2
Total sensory	800.8	30.3	324.1	40.3	1,051.0	34.7	436.0	44.7	1,003.3	35.2
ABI	116.3	4.4	64.1	8.0	170.6	5.6	100.4	10.3	167.1	5.9
Total	**2,644.1**		**804.4**		**3,028.5**		**975.4**		**2,853.4**	

*Note: T*otal may be less than the sum of the components as persons may reported more than one disabling condition.

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A7.7: Estimates of physical/diverse disability (all disabling conditions and activity limitations and participation restrictions), by states and territories, by age, 1998 ('000)

	States and territories								
Age groups	**NSW**	**Vic**	**Qld**	**WA**	**SA**	**Tas**	**ACT**	**NT**	**Australia**
0–4	*8.0	*5.7	*4.5	**2.3	**1.7	**0.6	**0.4	**0.3	23.6
5–14	37.0	26.6	21.0	11.3	*8.4	*2.9	**1.9	**1.4	110.4
15–19	19.7	14.4	11.5	*6.0	*4.5	**1.6	**1.1	**0.7	59.4
20–29	59.8	45.1	33.7	17.9	13.4	*4.0	*3.5	**2.4	179.8
30–44	154.3	113.2	82.9	45.5	35.7	11.2	*7.8	*5.1	455.9
45–64	327.2	238.2	175.0	91.2	78.6	24.8	15.3	*7.5	957.9
65+	387.5	282.0	186.2	91.7	101.9	29.6	11.3	*2.8	1,093.0
Total	**993.5**	**725.1**	**514.8**	**265.9**	**244.4**	**74.7**	**41.2**	**20.1**	**2,880.0**
Total 0–64	606.0	443.2	328.6	174.3	142.4	45.1	30.0	17.3	1,787.1
Total 15–64	561.0	410.8	303.1	160.7	132.3	41.6	27.7	15.6	1,653.0

Note: Estimates marked with * have an associated relative standard error (RSE) of between 25% and 50%. Estimates marked with ** have an associated RSE of 50% or more. These estimates should be interpreted accordingly.

Sources: ABS 1999b; AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table A8.1: Disability prevalence, Australia, 1981, 1988, 1993 and 1998

Year	Age	Severe or profound core activity restriction	Specific restrictions	Total with disability
Reported number ('000)				
1981	Under 65	239.7	855.0	1,348.1
	65+	213.2	449.3	594.1
	Total	*452.9*	*1,304.3*	*1,942.2*
1988	Under 65	297.2	1,300.6	1,622.7
	65+	303.3	782.5	920.4
	Total	*600.5*	*2,083.1*	*2,543.1*
1993	Under 65	329.4	1,364.6	1,839.6
	65+	337.6	893.1	1,081.0
	Total	*667.1*	*2,257.7*	*2,920.5*
1998	Under 65	510.1	1,761.9	2,263.5
	65+	444.8	1,034.5	1,240.2
	Total	*954.9*	*2,796.4*	*3,503.7*
Increases in reported number ('000)				
1981–1988	Under 65	57.5	445.6	274.6
	65+	90.1	333.3	326.3
	Total	*147.6*	*778.8*	*600.9*
1988–1993	Under 65	32.2	64.0	216.9
	65+	34.3	110.6	160.6
	Total	*66.6*	*174.6*	*377.5*
1993–1998	Under 65	108.7	379.3	423.9
	65+	107.2	141.4	159.2
	Total	*287.9*	*538.7*	*583.2*
1981–1993	Under 65	89.8	509.6	491.4
	65+	124.4	443.9	486.9
	Total	*214.2*	*953.4*	*978.3*
1988–1998	Under 65	212.9	461.3	640.8
	65+	141.5	252.0	319.8
	Total	*354.5*	*713.3*	*960.6*
1981–1998	Under 65	270.4	906.9	915.4
	65+	231.6	585.2	646.1
	Total	*502.0*	*1,492.1*	*1,561.5*

Notes

1. Disability data were re-derived using criteria common to the four surveys.
2. Only people aged 5 years and over are included.

Sources: AIHW 2000b: Table A12.1; AIHW analysis of the ABS 1981, 1988, 1993 and 1998 Surveys of Disability, Ageing and Carers unpublished data tables.

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