

Appendix 1: Table of terms

The following table sets out definitions for terms that are used frequently throughout this paper. Definitions of the dimensions of the 1980 ICIDH and draft ICIDH-2 are also given (the terminology of the draft ICIDH-2 is used in this publication). The table is based on one presented in a previous paper in the current series on the definition and prevalence of disability groups (Wen & Fortune 1999).

Term	Working definition
Acquired brain injury	An umbrella term covering all acquired damage to the brain, regardless of cause.
Head injury	Injury to the head where brain damage is likely but cannot be ascertained.
Disability	An umbrella term meaning negative experience in any one or more of the draft ICIDH-2 dimensions (i.e. an impairment, activity limitation or participation restriction).
Disabling condition	A disease, disorder or event that leads to impairment, activity limitation or participation restriction. In the context of the 1993 ABS Survey of Disability, Ageing and Carers, a disabling condition is a disease, disorder or event that has lasted or is likely to last for six months or more, or has produced a long-term effect, resulting in one or more of the limitations, restrictions or impairments used to identify disability (ABS 1996a).
Functional (ability or limitation)	Relating to functioning at the body, the person or the society level (depending on the context in which it is used). In the context of functional assessment measures 'functional limitation' generally means a limitation of functioning at the person level (i.e. equivalent to activity limitation). It is also commonly used at the body level to mean impairment of body parts and organ systems.
Draft ICIDH-2 dimensions	
Impairment	(In the context of health condition) A loss or abnormality of body structure or of a physiological or psychological function.
Activity	(In the context of health condition) The nature and extent of functioning at the level of the person. Activities may be limited in nature, duration and quality.
Participation	(In the context of health condition) The extent of a person's involvement in life situations in relationship to Impairments, Activities, health conditions and Contextual factors. Participation may be restricted in nature, duration and quality.
Context	Includes the features, aspects and attributes of, or objects, structures, human-made organisations, service provision and agencies in, the physical, social and attitudinal environment in which people live and conduct their lives.
1980 ICIDH dimensions	
Impairment	(In the context of health experience) Any loss or abnormality of psychological, physiological or anatomical structure or function.
Disability	(In the context of health experience) Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.
Handicap	(In the context of health experience) A disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual.

Appendix 2: Calculation of confidence intervals for estimates

Whether they are based on survey (sample) data or registry (census) data, estimated rates are subject to random variation. It is necessary to use some measure of the precision of estimated rates, in order to know how much confidence may be placed in them.

Below we describe the methods used in this paper for calculating lower (\bullet μ_0) and upper (\bullet μ_1) 95% confidence limits for estimated rates. Different approaches are used for calculating confidence intervals for estimates based on the ABS disability survey and estimates based on the National Hospital Morbidity Database.

Confidence intervals for ABS disability survey estimates

The ABS has provided a table of standard errors for a range of sizes of survey estimate. These are used as a basis for calculating 95% confidence intervals for indirectly standardised prevalence rates based on survey data.

Indirectly standardised prevalence rates are calculated using the method described in Section 4.1.

To calculate upper and lower confidence limits for an indirectly standardised rate, the rate is multiplied by the total population of the study group (e.g. the total number of people born in 'non-English-speaking countries') to obtain the theoretical number of 'cases' that would give rise to such a rate in that population. The relative standard error (RSE) for an estimate of this size is calculated (using linear interpolation) from the table provided by the ABS. This RSE is used to calculate 95% confidence limits for the indirectly standardised rate (ISR), as follows:

$$[\mu_0; \mu_1] = ISR \pm 1.96(RSE \times ISR)$$

Confidence limits for estimates based on hospital morbidity data

The method used for calculating confidence limits for estimates based on the National Hospital Morbidity Database is taken from Esteve et al. (1994:65). The method can be applied to both unstandardised and indirectly standardised rates.

It is assumed that the sole source of variability in an estimated rate is the numerator, which is the number of 'cases' (e.g. hospital episodes) observed in the study population of interest (Esteve et al. 1994:20, 63). Therefore, upper and lower confidence limits for the observed number of cases can be used to calculate upper and lower confidence limits for the corresponding unstandardised and indirectly standardised rates.

Confidence limits for the number of observed cases (O) are calculated as follows:

$$[\mu_0; \mu_1] = \left[\left(\frac{Z_{\alpha/2}}{2} - \sqrt{O} \right)^2 ; \left(\frac{Z_{\alpha/2}}{2} + \sqrt{O+1} \right)^2 \right]$$

For a 95% confidence interval, $Z_{\alpha/2}$ is 1.96.

To calculate lower and upper confidence limits for rates, μ_0 and μ_1 (respectively) are substituted for O in the following equations for calculating unstandardised and indirectly standardised rates.

$$\text{Unstandardised rate} = \frac{O}{M}$$

$$\text{Indirectly standardised rate} = \left[\frac{O}{\sum_{x=1}^g m_x \lambda_x} \right] \times \text{Std rate}$$

Where M is the total number of people in the study population, m_x is the number of individuals in age-sex group x in the study population, λ_x is the rate for group x in the standard population, and 'Std rate' is the overall rate for the standard population.

Appendix 3: 1993 ABS disability survey questions on limitations, restrictions and need for assistance

Note: these questions were only asked for the household component of the survey.

Question number	Question wording	Population who could be asked depending on survey sequencing
Q41=1	Do you ever have difficulty showering or bathing without help or supervision?	All aged 5+ with a disability (except those with 'hearing loss' only)
Q43=1	Do you ever have difficulty dressing without help or supervision, for example doing up shoe laces, buttons or zips?	As above
Q45=1	Do you ever have difficulty eating a meal without help or supervision?	As above
Q47A=1	Do you have any difficulty controlling your bladder?	As above
Q47B=1	Do you have any difficulty controlling your bowel?	As above
Q49=1	If shaded box marked for any 'personal care' task (Q40–Q48)	As above
Q61=3	Do you ever need help or supervision when going to, or getting around, a place away from home?	As above
Q62=1	Do you ever find it difficult to go somewhere away from home without help or supervision?	As above
Q63=3	Do you ever need help to move about the house because of your condition?	As above
Q64=1	Do you ever find it difficult to move about the house without help or supervision?	As above
Q66=1	If shaded box marked for any 'mobility' task (Q61–65)	As above
Q95=1	If shaded box marked for any 'communication' task (Q89–Q93)	All aged 5+ with a disability
Q111=1	If '1' in Q106 (having difficulty holding a book or magazine, or turning the pages) or '1' in Q109 (having difficulty reading normal print)	All aged 10+ with a disability
Q132=2	Aids used (Questions 113–130 relate to aids and equipment)	All aged 5+ with a disability
Q139=1, Q142=1	Changes made or needed to dwelling	As above
Q148=1	If shaded box marked for any 'health care' task (Q146 & Q147)	All aged 15+ with a disability
Q161=1 or 2	What makes it difficult for you to do these tasks (household chores) by yourself? What would prevent you from doing these tasks (household chores) by yourself?	All aged 15+ with a disability, and all persons aged 60+
Q167=1 or 2	What makes it difficult for you to do these household chores by yourself?	As above

(continued)

Question number	Question wording	Population who could be asked depending on survey sequencing
Q174=1 or 2	What makes it difficult for you to do these tasks (home maintenance) by yourself? What would prevent you from doing these tasks (home maintenance) by yourself?	As above
Q180=1 or 2	What makes it difficult for you to do these household chores by yourself?	As above
Q187=1 or 2	What makes it difficult for you to do these tasks (meal preparation) by yourself? What would prevent you from doing these tasks (meal preparation) by yourself?	As above
Q193=1 or 2	What makes it difficult to prepare meals by yourself?	As above
Q198=1	If shaded box marked in Q196 or Q197 (financial management, writing letters)	As above
Q209=2	Is there any form of public transport that you could use?	All aged 5+ with a disability
Q210/212=1	Do you ever need help or supervision when using (the) public transport (that you can use)?	All aged 5+ with a disability/all persons aged 60+
Q211/213=1	(Does/do) your condition(s) make it at all difficult for you to use (the) public transport (that you can use)?	All aged 5+ with a disability/all persons aged 60+
Q223=1	As a result of your (age/condition(s)), is it difficult for you to get out of a car parked in a standard width parking space?	All aged 5+ with a disability and all persons aged 60+
Q239=2	If the other (person/people) in this household had to go away for a few days would you be able to look after yourself?	All aged 15+ with a disability and all persons aged 60+
Q242=1	Would you find it difficult to look after yourself?	As above
Q252=2	Are you able to use a standard telephone?	All aged 5+ with a disability and all persons aged 60+
Q258=1	Is the reason does not attend school because of condition(s)?	All aged 5–14 with a disability
Q268=1	On average, do you need at least one day a week off from (specify institution in Q261) because of your condition(s)?	All aged 5+ with a disability, attending education other than school
Q269=1	Do you have any difficulty at (specify institution in Q261) because of your condition(s)?	As above
Q273=1	Do you go to special school because of your condition(s)?	All aged 5+ with a disability who attend school
Q274=1	Do you have to attend special classes because of your condition(s)?	As above
Q275=1	On average, do you need at least one day a week off from school because of your condition(s)?	As above
Q276=1	Do you have any difficulty at school because of your condition(s)?	As above
Q293=1	(Does/do) your condition(s) prevent you from undertaking (further) study?	All aged 15+ with a disability, not currently studying

(continued)

Question number	Question wording	Population who could be asked depending on survey sequencing
Q295=3	Does...currently work in a job, business or farm?	All aged 15+ with a disability
Q318=1	(Does/do) your condition(s) restrict the type of hours you can work?	All aged 15+ with a disability, who currently work
Q319=1	(Does/do) your condition(s) restrict the number of hours you can work?	As above
Q322=1	On average, do you need at least one day a week off from work because of your condition(s)?	As above
Q324=1	Was it necessary for your employer to provide any equipment, or make any arrangements for you, because of your condition(s)?	As above
Q328=1	(Does/do) your condition(s) make you permanently unable to work?	All aged 15+ with a disability, who are not currently working
Q341=1	Would your condition(s) restrict the type of job you could do?	As above
Q342=1	On average, would you need at least one day a week off from work because of your condition(s)?	As above
Q343=1	Would your condition(s) restrict the number of hours you could work?	As above

Note: The screening question relating to the use of long-term treatment or medication also forms part of the 'activity limitation filter' used in the 'all disabling conditions plus activity limitation' approach to estimating the prevalence of ABI-related disability (Section 4.3).

Source: Madden et al. 1995, Appendix B.

Appendix 4: Additional data tables

Table A4.1: Traumatic brain injury: hospital separations, by sex, by age, Australia 1996–97

Age	Males		Females		Persons	
	Number	Rate (/100,000)	Number	Rate (/100,000)	Number	Rate (/100,000)
0–4	1,874	281	1,275	202	3,149	243
5–9	1,518	226	835	131	2,353	179
10–14	2,088	311	764	119	2,852	218
15–19	2,735	415	888	142	3,623	282
20–24	2,524	360	709	104	3,233	234
25–29	1,786	248	543	76	2,329	162
30–34	1,248	174	459	64	1,707	119
35–39	1,003	137	379	52	1,382	94
40–44	839	123	337	49	1,176	86
45–49	622	95	268	42	890	69
50–54	494	92	211	41	705	67
55–59	411	96	154	37	565	67
60–64	357	100	145	40	502	70
65–69	309	92	166	47	475	69
70–74	332	119	233	71	565	93
75–79	275	149	273	109	548	126
80–84	204	191	289	163	493	174
85+	211	341	351	242	563	272
Total	18,830	206	8,279	89	27,110	147

Source: AIHW analysis of 1996–97 National Hospital Morbidity Database.

Table A4.2: Population: country of birth, by sex and age, Australia, 30 June 1996

Age	Australia		Non-English-speaking		Other English-speaking ^(a)		Total	
	Number	%	Number	%	Number	%	Number	%
Males								
0-4	648,360	9.3	10,083	0.8	7,168	0.8	665,611	7.3
5-14	1,230,174	17.7	72,069	5.6	37,235	4.4	1,339,478	14.7
15-19	561,628	8.1	63,807	4.9	29,910	3.5	655,345	7.2
20-29	1,150,477	16.5	168,982	13.1	99,901	11.8	1,419,360	15.6
30-44	1,516,905	21.8	354,627	27.5	251,990	29.7	2,123,522	23.3
45-64	1,223,999	17.6	433,723	33.6	287,718	33.9	1,945,440	21.4
65+	635,578	9.1	187,802	14.5	135,919	16.0	959,299	10.5
<i>Total</i>	<i>6,967,121</i>	<i>100.0</i>	<i>1,291,093</i>	<i>100.0</i>	<i>849,841</i>	<i>100.0</i>	<i>9,108,055</i>	<i>100.0</i>
Females								
0-4	615,218	8.7	9,612	0.7	6,608	0.8	631,438	6.9
5-14	1,170,991	16.5	68,540	5.3	35,257	4.3	1,274,788	13.9
15-19	536,140	7.6	59,533	4.6	28,101	3.4	623,774	6.8
20-29	1,122,103	15.8	175,755	13.6	97,663	11.8	1,395,521	15.2
30-44	1,510,852	21.3	376,404	29.2	244,813	29.5	2,132,069	23.2
45-64	1,243,734	17.6	399,525	31.0	258,053	31.1	1,901,312	20.7
65+	885,902	12.5	199,622	15.5	158,233	19.1	1,243,757	13.5
<i>Total</i>	<i>7,084,940</i>	<i>100.0</i>	<i>1,288,991</i>	<i>100.0</i>	<i>828,728</i>	<i>100.0</i>	<i>9,202,659</i>	<i>100.0</i>
Persons								
0-4	1,263,578	9.0	19,695	0.8	13,776	0.8	1,297,049	7.1
5-14	2,401,165	17.1	140,609	5.4	72,492	4.3	2,614,266	14.3
15-19	1,097,768	7.8	123,340	4.8	58,011	3.5	1,279,119	7.0
20-29	2,272,580	16.2	344,737	13.4	197,564	11.8	2,814,881	15.4
30-44	3,027,757	21.5	731,031	28.3	496,803	29.6	4,255,591	23.2
45-64	2,467,733	17.6	833,248	32.3	545,771	32.5	3,846,752	21.0
65+	1,521,480	10.8	387,424	15.0	294,152	17.5	2,203,056	12.0
Total	14,052,061	100.0	2,580,084	100.0	1,678,569	100.0	18,310,714	100.0

(a) United Kingdom, Ireland, Canada, the United States of America, South Africa and New Zealand, according to the ABS standard classification of countries for social statistics. These are countries from which people migrating to Australia are likely to be English-speaking.

Source: ABS population estimates.

Table A4.3: Population age structure: Indigenous status, by sex and age, Australia, 30 June 1996

Age	Indigenous		Non-Indigenous		Total	
	Number	%	Number	%	Number	%
Males						
0-4	28,263	14.8	637,348	7.1	665,611	7.3
5-14	50,461	26.5	1,289,017	14.5	1,339,478	14.7
15-19	19,141	10.0	636,204	7.1	655,345	7.2
20-29	34,155	17.9	1,385,205	15.5	1,419,360	15.6
30-44	34,930	18.3	2,088,592	23.4	2,123,522	23.3
45-64	19,184	10.1	1,926,256	21.6	1,945,440	21.4
65+	4,334	2.3	954,965	10.7	959,299	10.5
<i>Total</i>	<i>190,468</i>	<i>100.0</i>	<i>8,917,587</i>	<i>100.0</i>	<i>9,108,055</i>	<i>100.0</i>
Females						
0-4	27,318	14.0	604,120	6.7	631,438	6.9
5-14	48,347	24.7	1,226,441	13.6	1,274,788	13.9
15-19	18,873	9.6	604,901	6.7	623,774	6.8
20-29	36,223	18.5	1,359,298	15.1	1,395,521	15.2
30-44	38,309	19.6	2,093,760	23.2	2,132,069	23.2
45-64	20,727	10.6	1,880,585	20.9	1,901,312	20.7
65+	5,784	3.0	1,237,973	13.7	1,243,757	13.5
<i>Total</i>	<i>195,581</i>	<i>100.0</i>	<i>9,007,078</i>	<i>100.0</i>	<i>9,202,659</i>	<i>100.0</i>
Persons						
0-4	55,581	14.4	1,241,468	6.9	1,297,049	7.1
5-14	98,808	25.6	2,515,458	14.0	2,614,266	14.3
15-19	38,014	9.8	1,241,105	6.9	1,279,119	7.0
20-29	70,378	18.2	2,744,503	15.3	2,814,881	15.4
30-44	73,239	19.0	4,182,352	23.3	4,255,591	23.2
45-64	39,911	10.3	3,806,841	21.2	3,846,752	21.0
65+	10,118	2.6	2,192,938	12.2	2,203,056	12.0
Total	386,049	100.0	17,924,665	100.0	18,310,714	100.0

Source: ABS population estimates.

Table A4.4: People with a disability: ABI-related disability (all disabling conditions plus activity limitation), by age and sex, Australia 1993

Age	Males		Females		Persons	
	Number	%	Number	%	Number	%
0-4	**1.3	**0.2	**0.6	**0.1	*2.0	*0.2
5-9	*4.9	*0.7	*3.6	*0.6	8.5	0.7
10-14	*6.2	*1.0	*3.3	*0.5	9.5	0.8
15-19	*4.4	*0.7	*4.1	*0.6	8.6	0.7
20-24	*6.8	*0.9	*7.2	*1.0	14.0	1.0
25-29	*6.2	*0.9	*3.9	*0.6	10.2	0.7
30-34	11.7	1.6	*6.5	*0.9	18.2	1.2
35-39	13.2	1.9	*5.1	*0.7	18.3	1.3
40-44	*7.5	*1.1	*7.8	*1.2	15.3	1.2
45-49	8.7	1.5	*6.1	*1.1	14.8	1.3
50-54	13.3	2.9	*6.6	*1.5	19.9	2.2
55-59	14.4	3.8	*6.1	*1.6	20.5	2.7
60-64	18.6	5.2	*6.7	*1.9	25.3	3.5
65-69	17.6	5.4	13.2	3.7	30.9	4.5
70-74	22.8	9.2	18.0	6.0	40.8	7.4
75-79	16.9	10.3	14.8	6.4	31.6	8.0
80-84	20.3	14.2	30.1	10.8	50.4	12.0
Total	194.9	2.2	143.8	1.6	338.7	1.9

(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.

Source: AIHW analysis of 1993 ABS Survey of Disability, Ageing and Carers data.

Table A4.5: Population: States and Territories, by sex and age, Australia 1993

Age	States and Territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
Male									
0–4	225,793	164,971	117,658	64,653	50,937	17,920	11,735	8,586	662,253
5–19	656,347	487,326	362,929	196,334	155,489	54,930	36,211	22,160	1,971,726
20–64	1,788,839	1,331,996	919,085	505,608	434,663	136,126	93,379	54,332	5,264,028
65+	312,648	225,980	151,127	73,638	83,634	24,833	8,471	2,478	882,809
<i>Total</i>	<i>2,983,627</i>	<i>2,210,273</i>	<i>1,550,799</i>	<i>840,233</i>	<i>724,723</i>	<i>233,809</i>	<i>149,796</i>	<i>87,556</i>	<i>8,780,816</i>
Female									
0–4	215,018	156,772	111,351	61,456	47,762	17,132	11,095	8,258	628,844
5–19	624,649	463,037	342,342	185,472	147,586	52,471	34,604	20,673	1,870,834
20–64	1,759,029	1,327,146	900,312	490,755	428,872	135,522	91,625	49,398	5,182,659
65+	417,564	304,207	190,203	94,618	111,111	32,580	11,215	2,402	1,163,900
<i>Total</i>	<i>3,016,260</i>	<i>2,251,162</i>	<i>1,544,208</i>	<i>832,301</i>	<i>735,331</i>	<i>237,705</i>	<i>148,539</i>	<i>80,731</i>	<i>8,846,237</i>
Persons									
0–4	440,811	321,743	229,009	126,109	98,699	35,052	22,830	16,844	1,291,097
5–19	1,280,996	950,363	705,271	381,806	303,075	107,401	70,815	42,833	3,842,560
20–64	3,547,868	2,659,142	1,819,397	996,363	863,535	271,648	185,004	103,730	10,446,687
65+	730,212	530,187	341,330	168,256	194,745	57,413	19,686	4,880	2,046,709
Total	5,999,887	4,461,435	3,095,007	1,672,534	1,460,054	471,514	298,335	168,287	17,627,053

Source: AIHW analysis of 1993 ABS Survey of Disability, Ageing and Carers data.

Table A4.6: Population age structure: States and Territories, by sex and age, Australia 1993

Age	States and Territories								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
Male									
0-4	7.6	7.5	7.6	7.7	7.0	7.7	7.8	9.8	7.5
5-19	22.0	22.0	23.4	23.4	21.5	23.5	24.2	25.3	22.5
20-64	60.0	60.3	59.3	60.2	60.0	58.2	62.3	62.1	59.9
65+	10.5	10.2	9.7	8.8	11.5	10.6	5.7	2.8	10.1
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
Female									
0-4	7.1	7.0	7.2	7.4	6.5	7.2	7.5	10.2	7.1
5-19	20.7	20.6	22.2	22.3	20.1	22.1	23.3	25.6	21.1
20-64	58.3	59.0	58.3	59.0	58.3	57.0	61.7	61.2	58.6
65+	13.8	13.5	12.3	11.4	15.1	13.7	7.6	3.0	13.2
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
Persons									
0-4	7.3	7.2	7.4	7.5	6.8	7.4	7.7	10.0	7.3
5-19	21.4	21.3	22.8	22.8	20.8	22.8	23.7	25.5	21.8
20-64	59.1	59.6	58.8	59.6	59.1	57.6	62.0	61.6	59.3
65+	12.2	11.9	11.0	10.1	13.3	12.2	6.6	2.9	11.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: AIHW analysis of 1993 ABS Survey of Disability, Ageing and Carers data.

Table A4.7: 'ABS group' hospital separations (see Table 4.1), by sex and age, Australia 1996–97

Age	Males		Females		Persons	
	Number	Rate (/100,000)	Number	Rate (/100,000)	Number	Rate (/100,000)
0–4	2,065	310	1,370	217	3,435	265
5–9	1,560	232	903	141	2,463	188
10–14	2,138	318	823	129	2,961	226
15–19	2,861	434	942	150	3,803	296
20–24	2,690	384	806	118	3,496	253
25–29	1,993	277	687	96	2,680	186
30–34	1,471	205	651	90	2,122	148
35–39	1,305	178	622	85	1,927	131
40–44	1,223	179	677	99	1,900	139
45–49	1,284	197	701	110	1,985	154
50–54	1,499	279	806	156	2,305	219
55–59	1,932	453	999	241	2,931	349
60–64	2,500	700	1,361	378	3,861	538
65–69	3,996	1,186	2,345	664	6,341	919
70–74	5,258	1,889	3,450	1,053	8,708	1,437
75–79	4,823	2,615	4,079	1,635	8,902	2,051
80–84	3,641	3,410	4,262	2,403	7,903	2,781
85+	2,387	3,854	4,481	3,095	6,869	3,323
Total	44,626	487	29,965	324	74,592	405

Note: see Table 4.1.

Source: AIHW analysis of 1996–97 National Hospital Morbidity Database.