

# ARE PEOPLE WITH DISABILITY AT RISK AT WORK?

A REVIEW OF THE EVIDENCE

MARCH 2007



Australian Government

Australian Safety and Compensation Council

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## Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ASCC	Australian Safety and Compensation Council
CI	Confidence Interval
CWCA	Comprehensive Work Capacity Assessment
DDA	Disability Discrimination Act
DEAC	Disability Employment Action Centre
DEWR	Department of Employment and Workplace Relations
DSP	Disability Support Pension
EEO	Equal Employment Opportunity
HILDA	Household, Income and Labour Dynamics in Australia
HREOC	Human Rights and Equal Opportunity Commission
JAN	Job Accommodation Network
OR	Odds Ratio
SDAC	Survey of Disability, Ageing and Carers

## Executive Summary

1. Australia is currently facing a labour force shortage. As part of a variety of initiatives to help ensure the maximum workforce, people with disability (who have lower labour force participation rate compared to the general rate) are being encouraged to join the workforce. The expected increase in workforce participation of people with disability and the employer concern about increased risk of occupational injury for this group of people meant that the extent to which they are at increased risk of occupational injury needed to be reviewed.
2. Contrary to the common perception of increased OHS risk for people with disability, a national study of employers in Australia found that workers with disability have a lower number of OHS incidents compared to an average employee. The study also found that workers compensation costs and OHS costs for employees with disability are much lower compared to the average employee.
3. Moreover, the literature on productivity of employees with disability has consistently shown that productivity of employees with disability is similar to that of employees with no disability. Some studies have found that employees with disability are longer serving and have less turn over. Studies both in Australia and overseas have shown that the actual cost of workplace accommodations is quite low, and that the economic benefits of employing people with disability exceed the costs.
4. Over 2 million working age Australians (almost 1 in 6) have a disability. Labour force participation rate is lower for people with disability compared to the rate of the general Australian population. However, labour force participation rate varies according to the type and severity of disability, the number of co-existing impairments and age. People with disability with only one impairment tend to have a participation rate equal to or higher than that of the general population (exceptions include people with mental illness). Those least likely to be in the workforce are older people with multiple disabilities. This group of people also have the poorest health.
5. Large proportions of people with disability currently work in white collar employment where the risk of traumatic injury is low and this may also be a contributing factor to low injury rates.
6. Accommodating people with one disability does not appear to be an issue. However, a third to half of people with disability requiring accommodation are not receiving it. This is despite the fact that anti-discrimination legislations require employers to provide "reasonable" accommodation for people with disability. Most accommodations reported in literature are related to access, not safety.
7. Analysis of the educational qualification of the potential workforce of people with disability (either unemployed or out of the workforce) showed that the majority are qualified to work in occupations which are predicted to have slight or moderate future growth. However, as the majority of the potential workforce will be workers with a disability type which currently have lower workforce participation rates (e.g. psychological disability), general accommodation may pose some challenges. Guidelines addressing the perceived risk of injury and accommodation issues could assist employers in providing a safe place or work for people with disability.

## Key Messages

- People with disability are a diverse group and a large percentage of people with disability reported having a hidden disability.
- A nationally representative Australian study in 2002 found that employees with disability have lower number of OHS incidents and lower workers compensation costs.
- People with disability currently self-select themselves into “safe” jobs, that is jobs with little or no risk of traumatic injury.
- An analysis of available employment skills against foreseeable market demand indicates that people with disability have skills that correspond to the skill needs of the workforce.
- The literature on productivity of employees with disability has shown that productivity of employees with disability is similar to that of employees with no disability.
- Studies have found that workers with disability have a higher retention rate than workers without disability, which leads to reduced costs in terms of recruitment and training of new staff.
- Employers report a high benefit to cost ratio for providing workplace accommodation for people with disability.
- There is little focus in the literature on accommodating people with psychological disabilities.
- As people with mental illness or nervous/emotional condition have the highest employment rates, accommodation of people with psychological disability is an issue which needs to be investigated.

## Introduction

8. As the case with many developed nations around the world, Australia is currently facing skills and labour shortages (Department of Prime Minister and Cabinet and The Treasury, 2006, The Treasury 2004, Jackson 2003) and these shortages have threatened to reduce economic growth (OECD 2006a). The skills shortage has been attributed to growth in demands for skills, vacancy trends, the ageing of the workforce, migration, workers not using their skills and new skills requirements (Department of Education, Science and Training 2002). In response to this skills shortage, governments around the world, including Australia, have been developing strategies to

optimise workforce participation, including the employment of people with disability<sup>1</sup> who may otherwise have not been in the workforce (Treasury 2003; Orzechowska-Fischer 2004; Harding et al., 2005; Nygren 2006).

9. At the same time that the Government seeks to employ more people with disability the Australian Human Rights and Equal Opportunity Commission (HREOC) (2005b) reported that '(O)ne of the main impediments to the employment of people with disability lies in employer concerns about increased exposure to legal and financial risks related to occupational health and safety' (2005b:101).
10. The convergence of these two issues (the demand for a better use of the labour power of people with disability and employer concerns about their legal liabilities in this area) provided the necessary impetus for a review of the safety implications of people with disability in the workforce. At the heart of these two issues was the question as to whether a person may be at increased risk of traumatic injury at work due to their pre-existing disability (European Commission 2005: 12). This then lead to the question of what an employer may be reasonably expected to do to accommodate a person with disability at work in terms of OHS requirements (Commission for European Communities, 2003).

## **Methodology**

11. Four processes were undertaken. First, a search was conducted on the existing literature on the topic. These materials would provide an overview of the issue as it is presently understood. Second, a review was conducted on jurisdictional activity being conducted in this area. This analysis would provide an insight into policy responses made to date to address the issue. Third, an analysis was conducted on the Survey of Disability, Aging and Carers (2003). This data would provide empirical evidence of the current work undertaken by people with disability, including data on the prevalence of work related injuries. Fourth, an analysis was conducted on the projected changes in labour market demand, vis-à-vis, the skills of the workforce defined by people with disability. These data would provide insight into where people with disability may be employed in the future and identify potential changes to patterns of injury.

### ***Literature Review***

12. The information included within the review was sourced through formal literature; informal literature; formal and informal contacts and networks.

### **The formal literature**

13. A comprehensive review of the OHS literature was undertaken using a range of online bibliographic databases provided by:
  - Medline
  - Cinahl
  - PsychLit

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<sup>1</sup> The term "people with disability" has been used through out this report to keep the report consistent with the term used in the final report of the Human Rights and Equal Opportunity Commission's National Inquiry into Employment and Disability.

- Journals @ Ovid

14. The following search terms were used in the searches in a variety of Boolean combinations:

- Disability
- Insurance
- Occupational health and safety
- Workers' compensation
- Employing a person with disability (disability, employment)
- Health and safety
- Comparative studies
- Cost-benefit analysis
- Handicap
- Impairment
- Occupational or work injury
- Disability evaluation
- Accidents

15. Initially, literature published from 1999 to 2006 inclusive were targeted. These time frames were extended to the early 1990s and some secondary follow-up of sources cited in reference lists was also taken. Abstracts were read and assessed for relevance against the objectives of the project, taking into account the appropriateness of the study methodology.

### **Informal literature**

16. In addition to the formal literature described above, a range of Internet sites of national and international organisations recognised as having involvement in the discipline of occupational health and safety (OHS) or disability were explored. Other than local sites, the primary focus for the project were the internet sites of disability management and research institutes in continental Europe, UK, USA and Canada. From these principal sites, links to other resources were pursued as was appropriate. The following sources were specifically targeted:

- National Institute of Disability Management and Research – Canada
- Employment and Disability Institute, Cornell University – USA
- National Council on Disability – USA
- The British Council of Disabled People
- The Employer's Forum on Disability – UK
- United States Department of Health and Human Services – USA
- Human Rights and Equal Opportunity Commission (HREOC) – Australia
- Finnish Institute of Occupational Health
- Disabilityinfo.gov – USA
- National Institute for Occupation Safety and Health – USA
- National Organization on Disability (NOD) - USA
- National Disability Services (formerly ACROD)– Australia
- Employers Making a Difference – Australia
- CRS Australia
- Disability Studies and Research Institute (DSaRI) – Australia
- JobAccess – Australia

17. During both the formal and informal literature searches, information gathered was limited to those that were fully published in the English language.

### **Formal and informal contacts and networks**

18. The following formal and informal contacts and networks were also used:

- Dr Beth Haller
- Associate Professor Christopher Newell
- DEWR

19. The initial plan for this project envisaged a review of the literature and of existing OHS regulations concerning the safety of people with disability at work. It was thought that the literature would discuss issues such as:

- 1) the nature and extent of the current risk and possibly identify trends in risk rates over time;
- 2) the extent to which the OHS needs of people with disabilities were accommodated in the workplace;
- 3) the nature and extent of regulatory responses to the issue; and
- 4) the opportunities and costs to employers and employees.

20. However, it quickly became apparent that very limited literature was available. Moreover, while anti-discrimination legislations exist, there was a lack of clear guidelines on occupational health and safety of employees with disability, especially with regards to accommodation. Two questions then emerged. Either the risks facing people with disability at work were large but undiscovered or that there was no cause for concern.

21. Fortunately, a dataset existed which could be investigated to examine the industries in which people with disability worked. This could then be compared to industries and occupations with high risk for traumatic injury, and provide information on the extent of work-related injury sustained by people with disability. The project used this data and the available empirical evidence to examine the question: are people with disability at risk at work?

### ***Data Analysis: Survey of Disability, Ageing and Carers (SDAC) 2003***

22. The data analysis contained in this report is based on the confidentialised unit record file (CURF) of the Australian Bureau of Statistics (ABS) 2003 Survey of Disability, Ageing and Carers. The SDAC dataset provides statistics on people with disability, older people and carers across Australia. It includes basic demographic and further lifestyle information. It is produced every five years, the most recent being the 2003 SDAC. The survey included people in private and non-private dwellings (including cared accommodations), in both urban and rural areas in all states and territories in Australia. In 2003, data was collected from 36,088 persons for the household component and 5,145 persons for the cared-accommodation component. The data has person weight applied to ensure that person estimates conform to an independently estimated distribution of the population by age, sex, state/territory and sections of the state rather than the distributions within the sample itself. In regression analysis, data weighting may lead to a distortion in the results. This does not appear

to be an issue in the more basic modelling reported in this analysis. However, this factor should be taken into account should more advanced analysis be conducted on this topic with this data set.

23. The Survey defined a person as having a disability if he/she had one or more of the limitations, restrictions, or impairments listed below which had lasted, or was likely to last for a period of six months or more **and** which restricted daily activities, consistent with the International Classification of Functioning, Disability and Health<sup>2</sup>. These are:

- Loss of sight (not corrected by contact lenses or glasses)
- Loss of hearing where communication is restricted or an aid to assist with or substitute for hearing is used
- Speech difficulties
- Chronic or recurrent pain or discomfort causing restriction
- Shortness of breath or breathing difficulties causing restriction
- 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
- Nervous or emotional condition causing restriction
- Restriction in physical activities or doing physical work
- Disfigurement or deformity
- Mental illness or condition requiring help or supervision
- Long-term effects of head injury, stroke or other brain damage causing restriction,
- Receiving treatment or medication for any other long term condition or ailment and still restricted, and
- Other long term condition resulting in a restriction.

24. For further information on data variables and data methodology, see **Appendix A**.

### ***Skills for the Future***

25. The cohort for this analysis was people with disability who were either unemployed or were not in the labour force, who were aged 20 to 64 years old. Information on non-school qualifications of this cohort was obtained from SDAC data<sup>3</sup>. Assumptions about the type of occupation were made based on specific fields of study within each broad field of study. For example, for those with qualification in accounting (specific field of study) under the broad field *Management and Commerce*, accountant was chosen as the most likely type of occupation.

26. Subsequently, occupations corresponding to the three most common non-school qualifications for people in this cohort were compared against the Job Prospects Matrix in Australian Jobs 2006 (DEWR 2006) and statistics from the Australian

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<sup>2</sup> **Note:** It is acknowledged in the survey that disability is a difficult concept to measure, particularly in cases where the survey was answered by someone on behalf of the respondent, which may result in underestimates.

<sup>3</sup> Fields of study in the SDAC dataset corresponds to the fields in the Australian Standard Classification of Education, ABS 1272.0, 2001

Government's Job Outlook website<sup>4</sup> to obtain information on job prospects with regards to field of study. Future job growth predictions reported in Australian Jobs 2006 are for the period 2010-11 and are based on occupational employment projections by the Centre of Policy Studies at Monash University. Future employment growth is classified into five numerical groups:

- 1 is where growth is  $\leq -1.0\%$  per annum (decline)
- 2 is where growth is  $-0.9$  to  $0.4\%$  per annum (remain steady or falling slightly)
- 3 is where growth is  $0.5$  to  $1.3\%$  per annum (slight growth)
- 4 is where growth is  $1.4$  to  $2.4\%$  per annum (moderate growth), and
- 5 is where growth is  $\geq 2.5\%$  per annum (strong growth).

## People with disability in employment: A current picture from the 2003 SDAC<sup>5</sup>

27. The following paragraphs provide a current picture of employment for people with disability in Australia. As this paper examines the question *are people with disability at risk at work?* it is important to look at the types of employment currently pursued by this cohort. Subsequently, information available on high risk occupations and industries for traumatic injury can be used to assess inherent risks associated with the common types of employment for people with disability. Similarly, in an era of changing work patterns, the safety of future work patterns for people with disability also needs to be considered.

### ***The nature of disability***

28. Approximately 2.2 million (2,238,144) people aged 15-64 years report having a disability in 2003. This represents approximately 17% of working aged people.

29. Disabilities can be broadly grouped depending on the type of functional limitation (ABS 2005) and a person can identify himself /herself under more than one disability group. There are five main disability groups: sensory and speech, intellectual, psychological, physical restriction, and head injury/stroke/other type of brain damage. Of the five main disability groups, the most common groups are physical restrictions (72%) and sensory and speech (22%) (see Table 1). Apart from the five main disability groups, almost half (47%) of people with disability reported having *other* disability, which include disabilities resulting from hidden difficulties such as chronic pain. Due to this diverse nature of disability, in terms of assessing safety risks, all disabilities should be considered on a case by case basis. There is an absence of guidance material in this area.

<sup>4</sup> [www.jobsearch.gov.au/joboutlook](http://www.jobsearch.gov.au/joboutlook)

<sup>5</sup> Unless stated otherwise, all data reported relates to people who are 15-64 years old, according to the ABS's definition of people of working age. The disability types discussed corresponds to the 16 limitations and restrictions listed in paragraph 15.

**Table 1. Percentage of people with disability (aged 15-64) in each of the broad disability groups**

Disability groups	Percentage
Sensory and speech	22
Intellectual	12
Physical restriction	72
Psychological	15
Head injury, stroke or brain damage	6.9
Other	47
Total*	174.9

\* The total percentage is more than a 100% because some people identified themselves under more than one disability group.

30. As a person could have multiple disabilities present, survey respondents were asked to identify the most problematic conditions that they experienced. As can be seen in Table 2, almost a quarter of people with disability (24.0%) reported that chronic pain caused the most problem for them. Disfigurement/deformity was least likely to be reported as the disability type causing the most problems (1.8%). The most problematic condition may not be as good a guide when considering implications of particular workplace situations, e.g. a person with chronic pain might see this as a problem when he/she is required to sit all day at a desk but pain may be much less limiting if this person works in a prone condition.

**Table 2. Disability type causing the most problems in 15-64 year olds with a disability**

Disability type that causes most problems	Percent
Loss of sight	3.2
Loss of hearing	8.1
Speech difficulties	1.3
Breathing difficulties	4.5
Chronic or recurring pain or discomfort	24.0
Blackouts, fits or loss of consciousness	3.2
Slow at learning or understanding	6.1
Incomplete use of arms or fingers	2.9
Difficulty gripping or holding things	7.2
Incomplete use of feet or legs	3.8
Nervous or emotional condition	5.5
Restriction in physical activities or work	16.2
Disfigurement or deformity	1.8
Mental illness	2.9
Other limitations and restrictions	9.2
Total	100.0

31. Only 7.4% of main conditions causing disability were present at birth (Table 3). The main condition *just came on* in approximately 20% of people with disability, and 21% were caused by accident or injury. Work conditions or over work were the cause of main condition among 14% of people with disability.

32. Among people with disability (all age groups), 60.8% had onset of the main condition/accident causing disability when they were of working age (Appendix B, Table B1). Only 1 in 5 persons had disability onset before 15 years of age.
33. The prevalence of disability also increases with age (Appendix B, Table B2). The rate of disability was 9% and 39% for 15-19 year olds and 60-64 year olds respectively. The proportion of people with disability who reported as permanently unable to work also increased with age, from 7.5% in 15-19 year olds to 48.8% in 60-64 year olds (Appendix B, Table B3).

**Table 3. Cause of main condition in 15-64 years old with a disability**

Cause of main condition	Percent
Just came on	19.8
Disease or illness or hereditary	13.1
Accident or injury	21.0
Working conditions or work or overwork	13.7
Present at birth	7.4
Old age	.9
Stress	2.3
War or peacekeeping service	.6
Personal or family problems or death	3.0
Allergy (e.g. food, climate, medication, environment)	1.0
Medication or medical procedure	1.2
Smoking	.8
Own pregnancy or childbirth	.9
Overweight	.2
Other cause	3.8
Don't know	10.3
Total	100.0

### ***Labour force participation by people with disability***

34. The labour force participation rate is a leading national statistic that reports on the number of people in paid work or actively looking for work (ABS 2005). As seen in Table 4, the labour force participation rate for people with disability was much lower (53.3%) compared to the rate for those with no reported disability (80.6%), or the rate for all Australians of working age (82.5%) (ABS 2006).

**Table 4: Labour force status by disability status for persons 15-64 years of age**

	<b>With reported disability (%)</b>	<b>No reported disability (%)</b>	<b>Australian population<sup>6</sup></b>
Employed working full-time	30.9	54.3	67.4
Employed working part-time	17.9	22.3	11.0
Unemployed looking for full-time work	2.8	2.7	3.3
Unemployed looking for part-time work	1.7	1.4	0.8
Not in the labour force	46.7	19.4	17.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

35. Among people with disability, labour force participation rates differed according to disability status, where rates were lower for those with profound or severe core activity limitation (see Table 5). For more information on core activity limitations, please see Appendix A.

36. Of working age people with disability who were not in the labour force, a majority (58%) reported being permanently unable to work. The age groups with the highest percentage of people who were permanently unable to work were 55-59 yrs with 43.7% and 60-64 years with 48.8% (See Appendix B, Table B3). Among those with disability who reported as being permanently unable to work, 66% reported a level of disability being moderate or worse in terms of restrictions in their core activities and provided their own illness or disability as the main reason for not looking for work.

**Table 5. Labour force participation status for 15-64 year olds with disability by disability status**

	<b>Profound core activities limitation</b>	<b>Severe core activities limitation</b>	<b>Moderate core activities limitation</b>	<b>Mild core activities limitation</b>	<b>Not limited in core activities but restricted</b>	<b>Not limited in core activities, or restricted</b>	<b>Total</b>
Employed working full-time	6.6	16.7	27.1	29.1	36.9	55.2	30.9
Employed working part-time	6.5	15.9	17.2	17.6	21.7	21.6	17.9
Unemployed looking for full-time work	0.0	2.5	2.2	2.8	5.3	2.8	2.8
Unemployed looking for part-time work	2.1	0.9	1.4	1.1	4.5	0.7	1.7
Not in the labour force	84.8	64.0	52.0	49.4	31.6	19.6	46.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

37. It is important to note that people with disability are a diverse group. Labour force participation rates varied according to the type of disability. As seen in Table 6,

<sup>6</sup> The data for the Australian population is from the ABS Australian Labour Market Statistics 6105.0 Jul 2006 whereas the rest of the data in the table are based on SDAC 2003.

persons with mental illness had the lowest overall participation rate of 21.9% and people with loss of hearing and disfigurement/ deformity had the highest participation rates (58.3% and 59.9%).

38. Backward logistic regression was then performed to assess the influence of age, gender, educational level and country of birth<sup>7</sup> (English vs. non English speaking countries) on labour force participation. It was found that people with disability who are of younger age (OR 1.176, CI 1.175-1.177), male (OR 1.688, CI 1.679-1.698) from English speaking background (OR 1.347, CI 1.342-1.353) and have a higher level of education (OR 1.215, CI 1.214-1.216) were more likely to be in the labour force.
39. Another important point, as shown in Table 6, is that lower labour force participation rates are associated with presence of more than one disability or impairment. If a person has only one disability, the labour force participation rate is very high, either at, or higher than, the rate for the general population. Disability types with high labour force participation rates (rates are for those with one impairment) were incomplete use of arms/fingers (88.2%) disfigurement/deformity (87.3%), loss of sight (76.9%), loss of hearing (76.1%). However, as the number of co-existing impairments increases, the labour force participation rate decreases.

**Table 6. Labour force participation rate for all persons aged 15-64 by disability type**

Disability types	Labour Force Participation rate			
	Overall	1 impairment	2-5 impairments	6-10 impairments
Loss of sight	48.4	76.9	38.0	16.0
Loss of hearing	58.3	76.1	50.2	12.2
Speech difficulties	38.1	69.4	42.8	16.4
Breathing difficulties	35.5	71.8	35.9	15.2
Chronic pain	42.0	73.8	42.7	12.8
Blackouts	43.4	72.7	42.3	4.6
Slow at learning	41.2	65.8	39.4	14.7
Incomplete use of arms/fingers	42.6	88.2	51.5	19.7
Difficulty holding/gripping things	40.8	72	41.9	16.1
Incomplete use of feet/ legs	33.0	67.4	44.4	13.5
Nervous and emotional condition	26.3	48.6	30.3	9.4
Restrictions in physical activities or physical work	37.0	63.1	38.4	13.6
Disfigurement/deformity	59.9	87.3	68.6	20.7
Mental illness	21.9	34.8	29	7.4
Head injury/ stroke/ brain damage	32.0	73.5	40.2	8.8
Other disability types	38.9	67.1	36.8	14.1

<sup>7</sup> Ethnicity data not available.

## Employment Restrictions

40. The nature of employment restrictions facing people with disability give an indication of the types of workplace accommodations they needed. While the SDAC data shows that a majority of people with disability (71%) *report* having employment restrictions (ABS 2005), the majority of these restrictions are those concerning type of job or hours of work and do not relate to safety (see Table 7).<sup>8</sup> People with disability manage the restriction in the type of job they can perform by the types of work that they accept.
41. The employment restrictions that could have some safety implications are the need for the employer to provide special equipment or arrangement, the need for a support person at work and the need for ongoing supervision or assistance. Less than 15% of people with disability reported having either one of these types of potentially safety related employment restrictions.

**Table 7. Types of employment restrictions in people with disability (aged 15-64)**

Employment restrictions	Percentage
No employment restrictions	
Restricted in type of job	36.3
Restricted in # of hrs	22.1
Difficulty changing jobs / getting a preferred job	30.0
Need time off from work (at least 1 day/wk)	12.1
Need for employer provided equipment / special arrangements	8.0
Need for support person at work or is receiving assistance	1.4
Need for ongoing supervision or assistance	5.0

42. It is important to note that people with multiple impairments are more likely to report that they have employment restrictions. People with only one impairment report a much lower rate of employment restrictions (48.7%) compared to the reported rate for the entire cohort of people with disability (70%) (Table 8).

**Table 8. Employment restriction in people with disability who has only one impairments**

	People with disability who has only one impairment	All with disability
Has employment restriction	48.7	70.3
Does not have employment restriction	51.3	29.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

<sup>8</sup> These data refer to all people with disability of working age.

43. Table 9 shows that people with disability who reported having employment restrictions are less likely to be in the labour force. Among 1.5 million people with disability who reported having an employment restriction, 39% reported being permanently unable to work.

**Table 9. Labour force status among people with disability by employment restriction status**

Labour force status	Have employment restriction	No employment restriction
Not applicable	1.1	0.0
Working full-time	23.8	47.5
Working part-time	16.6	20.5
Unemployed looking for full-time work	3.0	2.3
Unemployed looking for part-time work	2.0	0.9
Not in the labour force	53.5	28.8
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

44. When examined by type of disability, people with hearing loss reported the lowest rate of employment restriction (45.7%). Persons with a psychological condition reported the highest rate of employment restriction (91% for mental illness and 88% for emotional/nervous condition). Of note were high reported employment restriction rates for people with “invisible” disabilities, for example, 78% of those with chronic pain. Tables on types of employment restriction by disability type are provided in **Appendix C**.

45. Special arrangements are provided by some employers to accommodate about 12% of people with disability in the workplace. Of these 6% of employees were provided with special equipment and 3% were allocated different duties. Among different disability types, those with hearing loss and blackouts are least likely to have had a special arrangement made for them by their employer where only 8.9% and 7.3% reported having received any arrangement by the employer. For tables on employer arrangements by each of the 16 disability types, see **Appendix D**.

46. The analysis of factors influencing labour force participation was then repeated (see paragraph 38) to include specific types of workplace accommodations (i.e. employer arrangements). Factors that significantly contribute to labour force participation were being male (OR 1.676), English language skills (OR 1.355), education (OR 1.214), and provision of training/retraining by employer (OR 1.505). Physical modification of buildings had a small positive but significant impact on labour force participation (OR 1.087). Those requiring a special support person at work are less likely to be participating in the workforce (OR 0.408).

### ***Common employing occupations and industries***

47. SDAC data on the most common employing occupations and industries for people with disability provided a picture of where people with disability were working in 2003. When people with disability were examined as a group (see Table 10), the major industries of employment were *Retail trade* (12%) and *Manufacturing* (11.4%). The most common occupations (see Table 11) were *Professionals* (18.4%) and

*Intermediate Clerical, Sales and Service Workers* (16.3%). However, there were variations in industries and occupations of employment depending on the type of disability. In the paragraphs below, industry and occupation profile for people with disability are discussed according to the five broad disability groups. Information on specific disability types can be found in Table 12.

**Table 10. Industry of employment for 15-64 year olds with disability who are in the workforce**

<b>Industry of employment</b>	<b>Percentage</b>
Agriculture, Forestry & Fishing	5.3
Mining	1.4
Manufacturing	11.4
Electricity, Gas & Water Supply	0.6
Construction	9.0
Wholesale Trade	4.2
Retail Trade	12.0
Accommodation, Cafes & Restaurants	3.8
Transport & Storage	5.1
Communication Services	1.4
Finance & Insurance	2.3
Property & Business Services	10.4
Government Administration & Defence	5.8
Education	8.7
Health & Community Services	10.7
Cultural & Recreation Services	2.3
Personal & Other Services	5.5
<b>Total</b>	<b>100.0</b>

**Table 11. Broad level occupations for 15-64 year olds with disability who are in the workforce**

<b>Occupations</b>	<b>Percentage</b>
Managers and Administrators	8.4
Professionals	18.4
Associate Professionals	9.6
Tradespersons and Related Workers	11.8
Advanced Clerical and Service Workers	4.4
Intermediate Clerical, Sales and Service Workers	16.3
Intermediate Production and Transport Workers	10.6
Elementary Clerical, Sales and Service Workers	9.5
Labourers and Related Workers	10.9
Inadequately described	0.1
<b>Total</b>	<b>100.0</b>

### ***Sensory Disability***

48. Even though vision loss, hearing loss and speech difficulties are grouped together as sensory and speech disabilities, the profile of occupations and industries for these three disability types are quite different. The main occupations for persons with vision loss were office occupations, which includes *Professionals* and *Managers and administrators*. For people with hearing loss, the two most common occupations were

*Professionals and Tradespersons and related professionals.* The two industries with the highest proportion of workers with hearing loss were *Manufacturing and Construction* industries where noise exposure is common. Hearing loss could be a result of noise exposures in these industries, rather than persons with pre-existing hearing loss choosing to work in these industries (work caused the disability in 63.4% of workers with hearing loss in the *Construction* industry and 45.6% in *Manufacturing* industry). Another factor could be that people with hearing loss reported low employment restrictions and could work safely in “high risk” industries. People with speech difficulties were most likely to be employed in low skilled occupations such as *Elementary clerical, sales and service workers* and *Labourers and related workers* (35%) mainly in *Retail Trade and Health and Community Services* industries. Approximately 15% of people with speech difficulties were also working as professionals in industries such as *Health and Community Services* and *Cultural and Recreational Services*.

### ***Intellectual Disability***

49. Just over 25% of people with difficulty in learning or understanding were working as *Intermediate and Elementary clerical, sales and service workers*. Another 11% were working as *Tradespersons and related workers*. The industries with a high proportion of workers with this type of disability were the *Retail Trade* and *Manufacturing* industries. The highly repetitive nature of manufacturing was reported by employers as a factor making it easier to employ people with disabilities, especially those with learning disabilities (Roberts et al. 2004).

### ***Physical Disability***

50. People with chronic pain, incomplete use of arms/fingers or incomplete use of feet/legs and disfigurement/deformity are classified as persons with physical disabilities. As with sensory disabilities, the skills and occupations, and industries of employment for people within the physical disability group were quite different, depending on the specific disability type.

51. Earlier, it was noted that chronic pain was the most commonly reported main condition causing impairment (see Table 2). Almost 40% of people with chronic pain were in the work force with the two most common occupations being *Professionals* and *Intermediate clerical, sales and service workers* (similar to the general population occupational profile). They were most likely to be working in the *Health and Community Services* and the *Retail Trade* industries (23%).

52. In 2003, 38% of people with incomplete use of arm/fingers were in the workforce. The two most common occupations were *Intermediate* and *Elementary clerical, sales and service workers* (32%) and top two employing industries (29%) were the *Retail Trade* and *Construction* industries. Approximately 45% of people working in the *Construction* industry stated that their disability was caused by work, indicating they were already working in the industry before onset of their disability.

53. The occupational profile for persons with incomplete use of feet/legs is quite different from that of persons with incomplete use of arms/fingers. Over 40% of those in the workforce were working as *Professionals* and *Intermediate clerical, sales and service*

workers. The top two employing industries were the *Manufacturing* and the *Health and Community Services* industries (27%). In the *Manufacturing* industry, they were employed in all types of occupations except as *Associate professionals*. In the *Health and Community Services* industry, they were also working in a variety of occupations although most commonly as *Professionals*. It appears that even with employment restrictions, people with this disability are working in a wide range of occupations, with no apparent increase in OHS risk.

54. Approximately 38% of persons with difficulty in holding, gripping were in employment in 2003. The top two occupations were *Intermediate clerical, sales and service workers* and *Professionals* and the top two employing industries were *Property and Business Services* and the *Retail Trade* industries where they worked in a variety of occupations.

### ***Psychological Disability***

55. People with nervous or emotional condition and people with mental illness are broadly grouped as those with psychological disability. Only 21% of people with nervous/emotional condition were working and the most common occupations for people with nervous/emotional condition are *Professionals* (21%) and *Elementary clerical, sales and service workers* (16%). The top employing industries were *Property and Business Services* (17%) and *Manufacturing* (11%). Within the *Property and Business Services* industry, they were most commonly working as *Professionals* and *Labourers and related workers*. Among those working in the *Manufacturing* industry, the majority were working either as *Intermediate production and transport workers* or *Tradespersons and related workers*. The data indicates that people with nervous and emotional condition work in a wide range of occupations but least likely as *Advanced clerical and service workers*.
56. People with mental illness had a similar employment rate (22%) to those with nervous/emotional condition. Approximately 37% of those are employed as *Labourers and related workers* and a further 32% as *Tradespersons and related workers* and *Elementary clerical, sales and service workers*. The top employing industry for people with this disability was the *Health and Community Services* industry (27.6%) where the majority were working as *Labourers and related workers*. The second top employing industry was *Retail trade* (17.4%) where the majority were working either as *Elementary clerical, sales and service workers* and *Tradespersons and related workers*. Persons with mental illness are least likely to be employed in the *Construction* industry (0.1%).

### ***Head Injury, Stroke or Brain Damage***

57. Approximately 30% of people with head injury, stroke or brain damage were working in 2003. The most common occupations are *Labourers and related workers* and *Intermediate production and transport workers*, 18% and 17% respectively. The most common industries of employment were *Retail trade* (14.2%) and *Personal and other services* (13.2%). Well over 50% of those in the *Retail trade* industry were working as *Elementary clerical, sales and service workers*. Within the *Personal services* industry, they were employed in a wide range of occupations, but most commonly also as elementary clerical, sales and service workers. Persons with this type of disability

were least likely to be employed in the *Accommodation, cafes and restaurants* industry (0.1%).

**Table 12. Four most common occupations and industries for people with disability by disability type**

Disability types	# of people with this condition	Employed (%)	common employing occupations (ASCO)*	common employing industries (ANZSIC)*
Loss of sight	112852	44%	2, 1, 6, 3	H, A, L, C
Loss of hearing	292931	53%	2, 4, 6, 9	C, E, L, G
Speech difficulties	92393	34%	9, 8, 2, 4	G, O, L, C
Breathing difficulties	216837	31%	8, 2, 6, 9	G, N, O, L
Chronic pain	830265	39%	2, 6, 4, 7	O, G, C, L
Blackouts	140684	40%	6, 9, 2, 4	G, O, L, C
Slow at learning	264558	34%	6, 8, 4, 7	G, C, O, L
Incomplete use of arms/ fingers	230445	38%	6, 8, 2, 3	G, E, L, C
Difficulty holding/gripping things	456989	38%	6, 2, 4, 8	L, G, O, N
Incomplete use of feet/ legs	247780	31%	2, 6, 8, 9	C, O, E, M
Nervous and emotional condition	258554	21%	2, 8, 3, 9	G, C, L, O
Restrictions in physical activities or work	990715	34%	2, 6, 7, 8	G, O, C, L
Disfigurement/ deformity	125065	56%	2, 6, 9, (4, 8)	L, G, O, E
Mental illness	128631	18%	9, 4, 8, 6	O, G, Q, C
Head injury/ stroke/ brain damage	153591	29%	9, 7, 8, 2	G, Q, O, C
Other disability types	1035415	36%	2, 6, 3, 4	O, C, N, G

These codes correspond to Australian Standard Classification of Occupations and Australian and New Zealand Standard Industry Classification codes (see **Appendix E**).

### ***Permanently unable to work***

58. Among people with disability, there was an age associated increase in the percentage of people *reporting* that they were permanently unable to work. The proportion increased from 8.1% among people 15-29 years of age to 48.8% among people 60-64 years of age (see Table 13). The underlying reasons for a person reporting that he/she is permanently unable to work is not available from the SDAC data.

**Table 13. People with disability who reported being permanently unable to work by age**

Age	Percentage of people reporting permanently unable to work
15 - 29	8.1
30 - 39	15.1
40 - 49	21.7
40 - 59	37.2
60 - 64	48.8

59. To examine the impact of the presence of multiple impairments and older age on the likelihood of reporting that they were permanently unable to work, a backward logistic regression was performed. It was found that people with multiple impairments (OR

1.447, CI 1.443-1.450) and older people (OR 1.337, CI 1.335-1.339) were more likely to report that they are permanently unable to work.

60. To further explore this issue, a cross-tabulation was performed for people who reported being permanently unable to work by main type of impairment and age. When inspecting the data, it was apparent that the reporting of permanent inability to work increased with age (particularly for 50-59 years age group) for certain disabilities but not others. Chronic pain (29.8%), restrictions in physical activities or physical work (19.8%) and loss of hearing (10.3%) were the most common impairments associated with an aged related increase in people reporting permanently unable to work. The main conditions of concern were dorsopathies (26.5%) and arthritis (14.6%).
61. Backward logistic regression was then repeated controlling for age, number of impairments, occupation, sex, and education to include the three main impairment types showing an age related trend (chronic pain, restrictions in physical activities/work, loss of hearing). As seen in Table 14, increasing age and the presence of multiple impairments were significantly more likely to result in people reporting as being permanently unable to work. People with restrictions in physical activities were found to be 2.25 times more likely to report that they are permanently unable to work. In contrast, persons with hearing loss are half as likely to report that they are permanently unable to work.

**Table 14. Risk factors for occupational injury adjusted for age, number of impairments, occupation, sex and education**

<b>Risk Factor</b>	<b>OR (95% CI)*</b>
Age	1.333 (1.331-1.335)
Multiple impairments	1.287 (1.284-1.291)
Chronic pain	1.045 (1.035-1.055)
Restrictions in physical activities/work	2.252 (2.229-2.276)
Hearing loss	0.489 (0.483-0.496)

\*OR indicates odds ratio; CI, confidence interval.

62. For people with disability who reported that they were permanently unable to work, SDAC contained a question on what would be the requirements, such as training, and time off, which would enable this cohort to participate in the workforce. Over 90% of people who reported that they were permanently unable to work regardless of their disability type stated that they could not work at all and they did not think either additional training or special work arrangements would enable them to join the workforce (See **Appendix F** for tables for requirements to enable workforce participation by disability type). This means that less than 10% of people in the “permanently unable to work” cohort could be encouraged to work by providing either training, provision of special equipment, arrangement to work from home, having time off, or assistance with personal care tasks. Persons with difficulty learning/understanding (8.6%) and persons with mental illness (7.4%) most commonly stated that training would enable them to work. The safety of the disabled worker is not identified as a barrier to employment.

### ***Employment and Physical and Mental Health Status***

63. Being in the labour force is beneficial for people with disability in terms of their health related quality of life. Mean SF 12 scores (for Methodology, see Appendix A) for people with disability for each of the 16 disability types (both mental and physical scores) were compared between those in the labour force and those who are not in the labour force. A higher score indicates better health. The results (see **Appendix G** for a table of SF12 scores by disability type and labour force participation status) showed that for all disability types physical health scores for those in the labour force were significantly higher ( $p < .001$ ) than those not in the labour force. A similar trend was observed for mental health scores where for all disability types, those in the labour force had significantly higher mean scores, except in people with disfigurement/deformity.

### ***Key findings from the SDAC data***

64. People with disability are a diverse group and the most common group of disability is physical disability. A person can have multiple disabilities and when asked to identify the most problematic disability type, chronic pain was most commonly reported disability type.

65. The labour force participation rate of people with disability is lower than the labour force participation rate of the general population. Labour force participation among people with disability differs according to type and severity of disability and the number of co-existing impairments. Persons with psychological disability have the lowest labour force participation rates. A decline in labour force participation is observed as the severity of the disability or the number of impairments increases. In keeping with this, people with only one impairment tend to have similar or higher labour force participation rates compared to the general population. In terms of better enabling people with disability to enter the workforce, as the data indicates, the focus will need to be on people with multiple disabilities and those with psychological disability.

66. Most people on first entering the workforce do not have a disability. Disability is predominantly acquired in adult life. Later in paragraph 107, it is shown that of those people in the workforce, pre-existing disability only contributes 3.5% of workplace injuries. The SDAC data shows that the majority of processes leading to disability largely occur outside the workplace. Only 14% of disability was found to be directly attributable to workplace injuries, with a further 21% to accidents in adult life. A safe and durable return to work (RTW) is a common requirement under RTW rehabilitation programs. However, the extent to which this requirement is followed by rehabilitation providers and employment providers is unknown. Moreover, the extent to which the focus of RTW plans is on the fitness of the worker, versus the safety of the workplace, is not clear.

67. In general, approximately 70% of 15-64 year olds with disability reported having one or more employment restrictions. Specifically, the prevalence of employment restrictions is dependent on the number of impairments a person has and for people with only one impairment, the rate of employment restriction is only 48%. The prevalence and type of employment restrictions also vary by disability type. Accommodations explicitly for safety purposes are noticeably absent in these data. The most common restrictions are restrictions in type of jobs and the number of hours

the person can work. Only a small percentage required accommodations that could be safety related, such as requirement for special equipment or special arrangements.

68. A number of observations can be made about the types of work undertaken by people with disability. Large proportions of people with disability work in white collar employment where the risk of traumatic injury is low. For example, professionals, managers and administrators, and intermediate and elementary clerical, sales and service workers were the most common occupations for people with vision loss, chronic pain, intellectual disability, difficulty holding/gripping things and nervous/emotional conditions. This finding was also noted by DEAC (1991) where 44% of employees with disability were working in the administration industry<sup>9</sup>.
69. When people with disability are working in “high risk” industries (e.g. people with hearing loss in the construction industry), it is likely that the disability is caused by the work that they undertook and they continued working in the same industry with continued exposures after the onset of their disability. For example, two thirds of workers with hearing loss in the construction industry attributed their hearing disability to their work. Almost half of workers with incomplete use of fingers or arms who worked in the manufacturing industry also attributed their disability to their work.
70. Given the diversity of disability experiences, the capacity of a specific worker to achieve a safe and durable return to the workforce needs to be assessed on an individual basis, within the context of a specific workforce.

## Disability, OHS and the Changing Workforce

### *Changing Workforce*

71. In May 2005, the Australian Government announced significant changes to the Disability Support Pension (DSP) as part of its *Welfare to Work* (Australian Government 2005) reform package. The *Welfare to Work* reforms took effect from July 2006. As noted in the introduction to this paper, the reforms aimed to increase the rate of workforce participation, including the employment of people with disability who may otherwise have not been able to access the workforce.
72. There are two groups of potential workers among people with disability; those who are unemployed and those out of the labour force. The calculation of unemployment rate is based on the number of people actively looking for part-time or full-time work and varies by disability type. Therefore, the unemployment rate potentially reflects the number of workers with disability who are work ready. In contrast, those outside the labour force may not be work ready. Table H1 and H2 in **Appendix H** show that the readiness for work declines with increasing number of impairments. That is, those with multiple disabilities are more likely to be out of the labour force.

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<sup>9</sup> Survey respondents in this study were given a choice of 9 industries to choose from as their industry of employment. It is not known how the administration industry corresponds to the ANSZIC industry classification.

### **Skills for the Future**

73. To assess the range of available employment skills against foreseeable market demand, the current skills set of the two groups of potential workers (see Section 4.1), based on non-school qualification data from SDAC, were compared against the projected job opportunities reported in the Australian Jobs 2006 publication (DEWR 2006) and statistics from the Australian Government's Job Outlook website<sup>10</sup>.
74. According to SDAC, among people with disability who were unemployed, 42.5% had non-school qualifications, which was substantially lower than the percentage of people with non-school qualifications for the working age Australian population (51%) (ABS 2005). The percentage of people with non-school qualification was even lower among people with disability who were not in the labour force (36.2%).
75. As shown in tables 15 and 16, the profile of the field of non-school qualification by people with disability differs from the non-school qualification profile of the general Australian population. Moreover, among people with disability, the non-school qualification profile differs between those who were unemployed and those who were not in the labour force. The most common non-school qualifications (based on Australian Standard Classification of Education by the ABS) for people with disability who were *unemployed* were:
- Management and Commerce (27%),
  - Engineering and related technologies (24%), and
  - Food and hospitality (11%).
76. In contrast, the most common non-school qualifications for people with disability who were *not in the labour force* were:
- Engineering and related technologies (23.7%)
  - Management and Commerce (17.4%) and
  - Health (12.2%).
77. The non-school qualifications of people with disability (unemployed and not in the labour force) were then compared with the Job Prospects Matrix in Australian Jobs 2006 (DEWR 2006) to obtain information on job prospects with regards to field of study. As seen in Table 17 below, the majority of fields of study for people with disability lead to occupations experiencing slight or moderate growth and not in occupations experiencing a decline in employment (for detailed tables, see **Appendix H**). This means that people with disability have skills that correspond to the skill needs of the workforce.

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<sup>10</sup> [www.jobsearch.gov.au/joboutlook](http://www.jobsearch.gov.au/joboutlook)

**Table 15. Fields of Non-school qualifications of 20-64 years old by disability who are not in full time or part time employment<sup>11</sup>(SDAC 2003)**

	A	B	A + B
	Unemployed but looking for work	Not looking for work	All persons NOT in full time or part time employment
<b>Fields of non-school qualifications</b>			<b>employment</b>
Natural and physical sciences	3.9	1.6	1.8
Information technology	5.5	2.5	2.7
Engineering and related technologies	<b>24.0</b>	<b>23.7</b>	<b>23.7</b>
Architecture and building	3.2	7.1	6.8
Agriculture, environmental and related studies	4.1	1.2	1.5
Health	7.3	<b>12.2</b>	<b>11.8</b>
Education	1.6	9.9	9.1
Management and commerce	<b>26.9</b>	<b>17.4</b>	<b>18.3</b>
Society and culture	9.8	11.6	11.5
Creative arts	0.4	3.7	3.4
Food, hospitality and personal services	<b>10.9</b>	7.9	8.2
Mixed field programmes/Field not determined	2.4	1.2	1.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100</b>

**Table 16. Fields of non-school qualifications for all Australians aged 15-64 in 2004 (ABS 2004)**

<b>Fields of non-school qualifications</b>	<b>Percentage</b>
Natural and physical sciences	3.6
Information technology	3.9
Engineering and related technologies	<b>19.7</b>
Architecture and building	6.7
Agriculture, environmental and related studies	2.7
Health	9.5
Education	7.5
Management and commerce	<b>22.6</b>
Society and culture	11.9
Creative arts	4.3
Food, hospitality and personal services	<b>6.4</b>
Mixed field programmes/Field not determined	1.2
<b>Total</b>	<b>100</b>

<sup>11</sup> Excludes persons with learning difficulties.

**Table 17. Main fields of non-school qualifications by people with disability who are unemployed and who are not in the labour force**

Fields	Future job growth
UNEMPLOYED	
Management and Commerce	Slight Growth (3.6)
Engineering and related technologies	Steady (2.4)
Food and Hospitality	Moderate Growth (4.0)
NOT IN THE LABOUR FORCE	
Management and Commerce	Slight growth (3.6)
Engineering and related technologies	Steady (2.4)
Health	Moderate growth (4)

78. To examine whether the risk of occupational injury will increase if this cohort (PWDs 20-64 who were unemployed or who were not in the labour force) moves into employment, the National Workers' Compensation data (NDS) was examined to identify occupations and injuries with high number of claims due to occupational injury. According to the NDS data for 2003, the industries with the highest number of injuries are *manufacturing, health and community services, retail trade, construction and transport and storage* industries (Table 18). Based on the fields of non-school qualifications, the majority of people in this cohort are likely to be employed in the *property and business services* industry, the *finance and insurance* industry and the *accommodation, cafes and restaurants* industry which are all non high-risk industries. The only high risk industry which could see an increase in participation of people with disability is the *health and community services* industry as 12.2% of people with disability who were not in the labour force are qualified in the field of health.
79. "High risk" occupations for occupational injury identified from the NDS are *labourers and tradespersons* (see Table 18). Again, based on fields of non-school qualifications, the majority of people in this cohort would not be looking for jobs in "high risk" occupations but in white-collar occupations such as *professionals, associate professionals or intermediate and elementary clerical, sales and service workers*.
80. The changing nature of work may mean that people with disability may work in sectors where the risks associated with the work are higher and therefore the injury rate amongst this cohort will increase. This of course would not be a function of disability but of existing work risks. The analysis of non-school qualifications of people with disability who are not employed revealed that they possess the skills that match the skill needs of the workforce. If this cohort is to move into the workforce, the majority is predicted to be employed in industries and occupations with lower risk of occupational injury. The limitation of this analysis is that it is a simple comparison between qualifications of people with disability and employment projections and is based on a number of assumptions regarding potential occupations of people with disability.

**Table 18. High risk industries and occupations for occupational injury (NDS 2003)**

<b>INDUSTRIES reporting highest number of injuries in 2003</b>	
<i>INDUSTRY</i>	<i>No. of cases</i>
1. Manufacturing	28, 842
2. Health & Community Services	16, 201
3. Retail Trade	13, 927
4. Construction	12, 817
5. Transport & Storage	11,167
<b>OCCUPATIONS reporting highest number of injuries in 2003</b>	
<i>OCCUPATION</i>	<i>No. of cases</i>
1. Labourers and related workers	36, 250
2. Tradespersons and related workers	26, 045
3. Intermediate production and transport workers	23, 939
4. Intermediate clerical, sales and service workers	15, 903
5. Professionals	11, 976

81. Among both groups of potential workers, it is most likely that people with one impairment would move into work as these people have a lower prevalence of employment restrictions. The safety accommodation of people with one impairment has not been found to be a major issue in the literature although there is little information on general accommodation of people with psychological disability. As people with mental illness or nervous/emotional condition have the highest unemployment rates, accommodation of people with psychological disability is an issue which needs to be investigated. For people with multiple impairments, it is not possible at this stage to assess OHS implications of them joining the workforce as the issues are numerous and complex.
82. A changing pattern of work may also mean that people with disability find more employment in small and medium enterprises, rather than in larger business as is presently the case (DEWR 2005). Small businesses make up over 90% of businesses in Australia and 68% of all businesses have less than five employees (Mayhew 1997, ABS 2001). Larger organisations tend to have more resources available for occupational health and safety and are likely to have ready access to OHS professionals (Caple 2003). Larger organisations offer greater choice of jobs, thus a person with a disability is more likely to be able to move into a more suitable job if the need arises (Roberts et al. 2004). As the majority of small businesses are family operated and are operating at marginal economic levels, Caple (2003) argues that they may be unlikely to spend the necessary time and effort in occupational health and safety, since it is not regarded as a core business activity.

## Policy Background

83. The Commonwealth Disability Discrimination Act (DDA<sup>12</sup>) 1992 is the main Commonwealth legislation to provide protection of people with disability in Australia against discrimination. The DDA makes it unlawful for people to discriminate against someone with disability in a number of areas such as employment, education, access to public premises and provision of goods, services and facilities. In terms of employment, employers are under an obligation to provide reasonable accommodation for people with disability. This includes making reasonable adjustments to:

- a) recruitment and selection procedures to provide an equal opportunity for employment
- b) to enable them to perform the requirements of the job, and
- c) to get access to equal terms and conditions of employment.

84. Reasonable adjustments that can be made under the DDA in the workplace include:

- 1) *Changing recruitment and selection procedures.* For example, providing a sign language interpreter for a deaf person, or ensuring the medical assessor is familiar with a person's particular disability and how it relates to the job requirements.
- 2) *Modifying work premises.* For example, making ramps, modifying toilets, providing flashing lights to alert people with a hearing loss.
- 3) *Changes to job design, work schedule or other work practices.* For example, swapping some duties among staff, regular meal breaks for a person with diabetes, regular breaks for a person with chronic pain or fatigue.
- 4) *Modifying equipment.* For example, lowering a workbench, providing an enlarged computer screen, arranging telephone typewriter (TTY) phone access for an employee who is deaf or speech impaired, screen reading software for employees with vision impairments.
- 5) *Providing training or other assistance.* For example, induction programs for staff with disability and co-workers, mentors or support person for a person with an intellectual disability, including staff with disabilities in all mainstream training.

85. In Australia, reasonable accommodation for workers with disability is usually defined in terms of anti-discrimination laws. There are no specific guidelines for what is considered reasonable accommodation in terms of occupational health and safety legislations. All states and territories have their own anti-discrimination and/or equal opportunity legislation. The range of reasonable accommodation that can be made under anti-discrimination laws means that accommodation is required not only for access but also to ensure safety. For example, adjustments such as providing flashing lights and changes to job design, work schedule or work practices can be accommodations that are both employment enabling and safety enhancing.

86. While the employer is obligated to make reasonable adjustments, the DDA does not require workplace changes to be made if this will cause major difficulties or unreasonable costs to a person or organisation. While employers are to

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<sup>12</sup> Unless stated otherwise, the acronym DDA refers to the Commonwealth Disability Discrimination Act 1992.

accommodate people with disability, they are not required to hire someone who could pose a serious OHS risk either to himself or to others. However, the onus is on the employer to prove that a substantial OHS risk exists which cannot be reduced or eliminated by accommodation (HREOC 2005b).

87. To assist with these costs the Australian Government funds a workplace modification scheme which pays for the costs involved in modifying the workplace or purchasing special or adaptive equipment for eligible employees with disability. It is also available to existing employees if they have had a change in duties, career progression, a change in disability and/or a new modification becomes available that would increase their productivity. Employers who employ someone with disability for at least eight hours a week can access this scheme. The average cost of workplace accommodation made under this scheme between 1998 and 2002 was \$2,200. The twenty most expensive accommodations during this period cost between \$7,815 and \$14,636 (Productivity Commission 2004).

## Review of current jurisdictional activity

88. All states and territories in Australia have equal opportunity and/or anti-discrimination legislation that complements the Commonwealth Disability Discrimination Act (1982). Some guidelines such as the NSW Public Employment Office's *adjustments at work: rights of people with a disability* are available online for reference.

89. The Queensland Government recently provided three Queensland disability service providers with over \$1.1 million to improve training, service delivery and client support. The funding will give greater access to disability service providers staff in rural areas with access to training opportunities. Extra funding for occupational health and safety is part of the package.

90. The increase in funding is aimed at developing the skills and knowledge of disability service provider staff, not people with disability. Ultimately, however, this boost in training should benefit people with disability, who will receive better support and service delivery, especially those with specialised needs.

91. In order to address perceptions of occupational health and safety and disability discrimination risks associated with employing a person with disability, the Human Rights and Equal Opportunity Commission's (HREOC) inquiry into Employment and Disability recommended the engagement of State Workers Compensation Authorities in disseminating information and developing disability employment strategies. Based on information available from the websites of each state and territory OHS authority, there appears to be a lack of clear guidelines on OHS issues for people with disability at the workplace. However, WorkCover South Australia (WorkCover SA)<sup>13</sup> provides practical guidelines for employers to promote workplace safety for people with disability. WorkCover SA has a range of information available on their website

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<sup>13</sup> WorkCover South Australia provides a 'Safe Work' checklist to guide staff in disability open employment services assist a job seeker move safely into employment.  
<http://www.workcover.com/Home/AboutUs/Workingwithstakeholders/Accessandequitystrategy/Stakeholdercommittees/DisabilityStakeholderCommittee/Informationforworkerswithadisability.aspx>

regarding the safe employment of people with disabilities as well as guidelines for people who assist job seekers with disability move safely into the workplace.

## Main findings from literature

92. There is limited literature on the question, *are people with disability at risk at work*. The majority of research into the employment of people with disability has mainly focused on income support, workplace accommodations (in terms of access), supported employment and barriers to employment (Farris & Stancliffe 2001, Jenaro et al. 2002). Issues of income support, supported employment and general barriers to employment predominantly fall outside the scope of this work, with the latter barriers not being identified as relating to OHS issues.
93. Three issues directly relevant to this project were identified from the literature examined:
- 1) what are the workplace accommodations reported in literature vis-à-vis OHS requirements,
  - 2) whether disability is associated with an increase in OHS risk, and/or
  - 3) whether employees with disability are associated with an increase in costs and reduction in productivity because of OHS factors.
94. Literature examining these issues is discussed in the following paragraphs (paragraphs 92-118).

### **Workplace Accommodations**

95. Zwerling et al. (2003) examined the extent of workplace accommodations for people with disability in the United States. This investigation presented data from the National Health Interview Survey Disability Supplement 1994-1995 (NHIS-D) which described the nature of workplace accommodations in the American workforce and factors associated with the provision of such accommodations. The study sample is a nationally representative sample of workers aged 18 to 69 years with a wide range of impairments. Approximately 16% of workers reported needing accommodation and 12% reported receiving workplace accommodations (see Table I1, **Appendix I**). Overall, 78% of those needing accommodation received it from their employers. The most common accommodations which were provided were accessible parking or transportation, an elevator, a specifically designed work station, handrails or ramps and reduced or part-time hours. Those with mental health conditions were less likely than others to receive accommodations. College graduates, older workers, full time workers and the self-employed were more likely than others to receive accommodations.
96. In the United Kingdom, Watson et al. (1998) examined 40 employers in terms of integration of disabled employees, including workplace accommodations. They found that the most common types of accommodations made by employers were adjustments to the physical working environment (43%) and the provision of support or assistance (27%). Roberts et al. (2004) in their research for the Department of Work and Pension (UK) reported that 56% of employers who had disabled employees said they provided car parking space and provided flexible working time (55%) (see

Table I2, Appendix I). The authors noted that the larger employers are more likely to say they had provided workplace adjustments for employees with disability.

97. In Australia, 12% of people with disability reported that their employers provided workplace accommodations (SDAC 2003).<sup>14</sup> Although only broad categories of accommodation were included in the survey, it can be estimated that close to 50% of these accommodations were potentially safety related accommodations (see Appendix I). This is similar to the range of accommodations reported by people with disability in the Zwerling et al. (2003) study where 47% (8 out of 17) are potentially accommodations concerning safety.

***Is disability associated with an increase in OHS risk?***

98. There is a common perception by employers that people with disability have a higher risk of occupational injury. As part of a study to examine strategies to support the Disability Support Pension (DSP) recipients with existing Job Network Services (DEWR 2005), focus groups of employers were used to evaluate employer attitudes to people with disability in the workplace. Some employers in these groups *expressed particular concern* in relation to occupational health and safety and workers' compensation costs, particularly in occupations involving high use of machinery. However, these concerns were challenged by other similar employers who had hired employees with disabilities in such situations.

99. Some submissions to the National Inquiry into Employment and Disability also suggested that hiring a person with disability may result in an increased risk in terms of litigation and insurance premiums (Human Rights and Equal Opportunity Commission-HREOC 2005a). The inquiry found that employers were particularly concerned about the risk of unfair dismissal claims, workers' compensation claims and discrimination claims although some submissions stated that there was no evidence to support the view that people with disability had a higher incidence of occupational injury. The final inquiry report stated that unsubstantiated assumptions existed about people with disability with regards to safety and cost and is a major barrier to employment of people with disability (HREOC 2005b).

100. This perception of higher OHS risks for people with disability which becomes a barrier to employment was also reported in a 1996 study by the Institute for Employment Studies in the United Kingdom. The study reported that 60% of employers *believed* that safety was a barrier to employing people with epilepsy, 23% for mobility related and visual disabilities and 20% for hearing problems (cited in Tearle 2001).

101. When examining studies on OHS risk of employees with disability, the best Australian evidence available against this perception comes from a 2002 nationally representative study (Graffam et al. 2002). This study surveyed 643 employers across Australia who had employed someone with disability. The questionnaire for the study was designed in consultation with representatives from national and state chambers of commerce and industry, disability employment services, disability self-advocacy organisations and the Australian Government.

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<sup>14</sup> These data were derived from analysis of the Survey of Disability, Ageing and Carers (ABS, 2003), conducted as part of this study.

102. The researchers (Graffam et al. 2002) reported that the number of OHS incidents in an employee with disability was six times lower than that of an average employee (Table 19). The same trend was observed for the number of workers compensation incidents, where the number of incidents for an employee with disability was four times lower than that of an average employee.

**Table 19. Mean records and estimates of reliability and employee maintenance costs of employing a person with a disability and the average employee**

Type of benefit or cost	Employees with a disability		"Average" employee	
	Record	Estimate	Record	Estimate
<b>Reliability</b>				
- No of days absent	8.31	12.15	9.71	9.94
- Accrued cost / absent sick leave	\$408	\$988	\$881	\$1384
<b>Employee Maintenance</b>				
- Cost of recruitment	\$141	\$337	\$1079	\$1336
- No of OHS incidents	0.37	1.03	2.24	2.28
- Accrued OHS costs	\$64	\$164	\$180	\$2323
- No of Comp incidents	0.20	0.28	0.81	1.77
- Accrued Comp costs	\$82	\$1318	\$1564	\$4250
- Accrued other insurance costs	\$40	\$411	\$826	\$1193

Table from Graffam et al. 2002.

103. Moreover, employees with disability had lower days of sickness absence compared to an average employee (8.31 vs. 9.71) (Graffam et al. 2002). The accrued cost of sickness absence in employees with disability was less than half of the cost for an average employee (\$408 vs. \$881).
104. Graffam et al. (2002) also found that when comparing the actual numbers versus estimates, employers over estimated OHS and workers compensation incidents for employees with disability (between 1.4 to 2.8 times).
105. The finding of the Graffam study is supported by an American case-control study of railway workers where the authors found that the risk of occupational injuries was actually related to type of jobs and work conditions (Chau et al. 2004). The study found no significant association between physical disabilities, hearing disorder and vision order and occupational injury. However, this result may be due to the relatively small sample of people with disability in the study population.
106. A series of studies by the DuPont Corporation in the United States found that employees with disability had similar or better performance in terms of workplace safety. The DuPont Corporation began surveying supervisors and managers of people with disabilities in 1958, and the survey was repeated in 1973, 1981 and 1990 (as cited in Unger 2002). The 1990 study (the latest DuPont survey) found that 97% of workers with disabilities had average or above average safety records. However, it is unclear whether the same survey questions were used in all four surveys or what workplace safety performance was based on.

107. In contrast, some overseas studies reported an association between disability and workplace injuries (Zwerling et al. 1997, Zwerling et al. 1998). The 1997 study examined injury rates for workers with disability (18-65 years) and found that existing disability was associated with occupational injury and that risk varies by the nature of disability, taking into account occupation, age and employment status (Table 20).<sup>15</sup>

**Table 20. Risk factors for occupational injury adjusted for occupation, self-employment and age among a cohort of employed Americans (non-farmers) from the national health interview survey, ages 18-65 years, 1985-1994.**

<b>Risk Factor</b>	<b>OR (95% CI)*</b>
Disabled work (work limitations)	<b>1.36 (1.19-1.56)</b>
Blind	<b>3.21 (1.32-7.85)</b>
Visual impairment	1.37 (0.87-2.17)
Deaf	<b>2.19 (1.17-4.12)</b>
Hearing impairment	<b>1.55 (1.29-1.87)</b>
Back impairment	1.10 (0.91-1.33)
Upper extremity impairment	<b>1.46 (1.05-2.05)</b>
Lower extremity impairment	1.20 (0.94-1.53)
Diabetes	1.47 (0.90-2.40)
Epilepsy	1.56 (0.50-4.89)
Arthritis	<b>1.34 (1.07-1.68)</b>

\*OR indicated odds ratio; CI, confidence interval (Table from Zwerling et al. 1997)

108. The 1998 study (Zwerling et al. 1998) of older workers in the United States (51-61 years of age) reported that older workers with disability were 1.58 times more likely to report a work-related injury and notably workers with poor sight and particularly poor hearing were found to be at risk. In this study, workers were rated as having poor hearing or sight if they continued to experience sensory disability even when wearing hearing aids or using glasses. In terms of criteria defined in SDAC 2003 (**Appendix A**), this level of disability would be rated as severe. This means that an association was found mainly between severe sensory disabilities and occupational injury.
109. A limitation of these Zwerling studies was that information was not provided on the nature or extent of resulting injuries and no adjustment was made for the fact that these workers would have had cumulative exposure risks that may have resulted in musculoskeletal disorders (MSDs) occurring anyway. Even after controlling for occupation, injury risks for workers with jobs requiring heavy lifting are twice as high as those with less physically demanding work. A multiplier effect may be in place in that people in risky jobs sustain disability and continue to work in the same jobs and sustain further injuries.

<sup>15</sup> Note: confidence intervals which pass through unity (i.e. one) (for example visual impairment) are not statistically significant.

110. Nonetheless, Zwerling et al. (1997) estimated that only 3.5% of occupational injuries could be due to an existing disability among workers. The study also observes that an overwhelming majority of occupational injuries are not related to any pre-existing disability of employees.
111. Choi et al. (2005) followed 150 farmers in Iowa between 1998 and 2002. Injury information was collected by telephone interviews at two and five months intervals and hearing levels were measured annually using the pure tone audiometry and self report. The authors found that hearing loss in the better ear and hearing asymmetry both resulted in increased risk of agricultural injury, 1.62 times and 1.67 times respectively. While the analysis controlled for a variety of factors known to confound results (e.g. work with livestock, dust and gases) in this industry, the nature of tasks being undertaken was not controlled for. As agriculture is a high risk industry, this is a serious limitation to this study. Injuries resulting from the nature of agricultural work (for example fencing or vehicle roll over) may well be common injuries in this industry and be sustained irrespective of hearing status.
112. In 1991, the Victorian Disability Employment Action Centre (DEAC) conducted a study concerned with the occupational health and safety of workers with disability. This DEAC study reported that 18 per cent of employees with disability reported being involved in some form of accident at work. The study then compared this accident figure to the background workers' compensation claims rate of the time, which they cite as 14.7 per cent and stated that the rate of accidents in the study population was comparable to the background workers' compensation claims rate. While innovative for its time, the DEAC study had three significant methodological problems:
- 1) a non-representative sample was used;
  - 2) the sample size is small (50);
  - 3) the estimate of work injuries was based on the question *have you had an accident at work in the last twelve months?* There is no indication as to what an accident means and whether or not it resulted in a lost time injury or worker's compensation claim.

### ***Are increased costs and reduced productivity associated with disability?***

113. Some employers have expressed the concern that employing a person with disability is associated with an increase in costs such as OHS and workers' compensation insurance and a reduction in productivity<sup>16</sup> (HREOC 2005, DEWR 2004, Malatest 2003, Roberts et al. 2004). While the existence of this perception by employers was acknowledged in a number of studies (Lester and Caudill 1987, Unger 2002, Hindle et al. 1999), no empirical evidence was found in the examined literature to support the proposition. However, a body of evidence was identified which showed that workers with disability incurred either equal to, or in fact lower, costs or negative productivity impacts than workers without disability.
114. Pizza Hut in the USA, for example, found that their workers with disability had a retention rate in employment of 71%, which is five times higher than for other

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<sup>16</sup> Productivity costs refer to the value of loss production as a result of ill health or disability of an individual. Productivity can be measured on a number of factors such as length of service, efficiency of customer service, etc.

employees (Zivolich & Millard 1990, cited in O'Donoghue 1997). Higher retention rates would lead to reduced costs in terms of recruitment and training of new staff. However, as no information was available on the methodology for the Pizza Hut study, it is difficult to determine whether the study is methodologically sound.

115. In 1999, an Australian study comparing the productivity of workers with and without disability was conducted at a large Telstra call centre (Hindle et al. 1999). Although call centre selection was not random, the random sampling of workers within this call centre reduces the sampling bias. The six productivity measures tested were length of service, absent days, logon ratio (total hours spent on calls divided by total paid hours), contact efficiency (percentage of total customer contact hours), upgrade sales effectiveness index and new sales effectiveness index. Workers with and without disability performed similarly on five of the six productivity measures. On the sixth measure, length of service, workers with disability significantly served longer than those without disability. This finding supports the finding in the USA Pizza Hut study.
116. In the UK, case studies of 40 employers found that the most common (44% of all accommodations) cost of accommodation was less than £50 (Watson et al. 1998). Although sample selection was not random but selected to contain employers with a positive attitude, this was not likely to have an impact on the reported costs of workplace accommodations. Based on the analysis of an employer survey (n=126) in the USA, the most common accommodation cost for workers with intellectual disability was also less than US\$50 (34%) (Olson et al. 2001). In addition, workers' compensation and insurance costs for people with intellectual disability were no different from the costs for the general workforce (Olson et al. 2001). However, as the focus of the Olson study was people with intellectual disability, caution needs to be taken to generalise the results to other types of disability.
117. The cost and benefit of providing accommodation to employees with disability was analysed by Cantor (1996) based on statistics from the United States Job Accommodation Network. Cantor (1996) reported that for every dollar spent on cost, there were \$29 of benefits in employing and accommodating a person with disability. He reported that the average cost of accommodating people with injuries and disabilities was quite low, with the majority of accommodations costing less than US\$500. Almost 40% of companies reported a saving of between \$1 and \$5,000, a third reported a saving of \$5,000 to \$20,000 and another 25% reported a saving of \$20,000 to \$200,000. A more up-to-date statistics by the US Job Accommodation Network (JAN, 1999)<sup>17</sup> suggests that the benefit to cost ratio for making workplace adjustments may be as high as 40:1 (using median cumulative figures). According to JAN, employer reported benefits of providing workplace accommodation include enabling retention or hiring of a qualified employee (56%), eliminated the cost of training a new employee (31%), saved workers' compensation and other insurance costs (38%) and increased the worker's productivity (54%).
118. As stated previously, in Australia, the only large scale and authoritative study of cost and benefits associated with employing a person with disability was that conducted by Graffam et al. in the late 1990s (Australian Government 2006). One of the significant results to emerge from the study was that employer estimates of these tangible costs of employing a person with disability were higher than actual (recorded)

<sup>17</sup> <http://www.jan.wvu.edu/media/Stats/BenCosts0799.html>, accessed on 1 December 2006.

costs (See Table 19) (Graffam et al. 2002). The actual costs associated with accrued insurance costs and workers compensation claims were lower than the employers initially projected. The accrued OHS costs were lower for employees with disability compared to the average employee (\$64 vs. \$180). Moreover, the accrued cost associated with workers compensation claims over employment was substantially lower for persons with disability (\$82) compared to the “average” employee (\$1564).

119. In relation to organisation performance, Graffam (2002a) reports that there were more benefits than costs reported for six of the seven aspects of organisation performance: productivity (61.3% reporting benefits); staff skills (82.9% reporting benefits); staff practices (75.1% reporting benefits); general work practices (73.2% reporting benefits); and customer relations (72.3% reporting benefits). In relations to workplace accommodations, a large majority (74.7%) reported the financial effect of workplace modifications to be cost neutral, with fewer reporting either a financial benefit or cost (12.7% each).
120. The final results from the Graffam (2002a) study showed that employees with disability were rated lower than average employees on productivity factors (speed and accuracy) and better than average employees on reliability factors (attendance and sick leave) and employee maintenance factors (recruitment, safety, insurance costs). The outcome for an employer is generally a reasonably productive, reliable employee who costs marginally less to maintain in employment.
121. The Graffam study (2002a) also reported cost neutral effects for most workplace accommodations, with financial benefits outnumbering costs. There was a clear performance benefit advantage resulting from workplace modifications and changes to staff training and supervision associated with all aspects of organisation performance except profit. These results suggest that employers have experienced material and non-material benefits to their organisations from employing a person with disability, with those benefits being financially cost neutral or cost beneficial in a large proportion of cases.

### ***Summary of key findings from the literature***

122. There is very little research on OHS risks of people with disability and most studies are conducted overseas. The only large Australian study comparing employees with disability and average employees found that employees with disability have a much lower number of OHS incidents. In addition, the cost of workers' compensation is also lower in employees with disability (Graffam et al. 2002).
123. This finding could mean either one or more of the following:
- a) workers with disability are actually at no increased risk of occupational injury;
  - b) workers with disability self select themselves into comparatively safe jobs such as those associated with administrative duties;
  - c) there is under-reporting, or
  - d) there is a healthy worker effect.
124. When some association is reported in the literature between a pre-existing disability and an increased risk of occupational injury, it is for people with severe hearing loss and severe vision loss. Based on SDAC (2003), 60,025 people with

hearing loss have severe or profound disability and 38,618 people with vision loss have severe or profound disability (according to SDAC criteria, those with severe or profound disability are either completely restricted from undertaking everyday activities such as dressing, eating or they sometimes or always require assistance from others to do these activities or they have difficulty communicating, for example, even with hearing aid). As these two groups represent a small percentage (0.7%) of the working age population, the impact of such pre-existing disability on the overall occupational injury rates in Australia would be fairly low. However, it should be noted that there are limitations to these studies (paragraph 109).

125. Moreover, the literature on productivity of employees with disability has consistently shown that productivity of employees with disability is similar to that of employees with no disability. Some studies have found that employees with disability are longer serving and have less turn over. Studies both in Australia and overseas have shown that the actual cost of workplace accommodations is quite low, that they have lower workers' compensation costs and that the economic benefits of employing people with disability exceed the costs. There is no evidence to indicate that disability is associated with increased insurance premiums than other workers, the literature cited here refutes the claim.
126. The literature on workplace accommodations indicate that up to a quarter of the expressed accommodation needs of employees with disability are not being met. This is despite the fact that reasonable accommodation is required under anti-discrimination legislations. When accommodations are provided to workers with disability, most accommodations are not addressing safety concerns, but are put in place to enable a person to work in a particular environment. The issue of reasonable accommodation on the basis of safety hazards is not identified as a criterion within the data. Three potentialities exist; accommodation requirements concerning safety on the basis of disability are not required; have been adequately addressed or have been completely overlooked by employers.

## Conclusion

127. Although the perception that employees with disability have a higher OHS risk is common, the evidence for Australian workers shows that people with disability do not have a higher risk of occupational injury, rather incidence of occupational injury is lower in people with disability.
128. Moreover, it was shown that the potential workforce of people with disability (those who are unemployed and those out of the labour force) have appropriate skills which could enable them to re-enter the workforce into occupations which are a low risk for traumatic injury.

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## Appendix A

**Table A1. List of data variables**

<b>Variable Label</b>	<b>Variable</b>
age of person	agepc
All persons with a disability	popdisab
Disability status	disbstat
Disability groups	impgrala impgralb impgralc impgrald impgrale impgralf impgralg
Disability type causing the most problems	mainimp
Age when accident happened/onset of main condition	aconsec
main field of highest non-school qualification	edufldnc
employment restrictions	emprca emprcb emprcc emprcd emprce emprcf emprcg emprch emprci emprcj
Total weekly cash income- person	incwkpsc
Industry of employment	lfsinduc
Main reason for not looking for work	lfsmrwkc
Other employer arrangements	empothca empothcb empothcc empothcd empothce empothcf empothcg empothch
Severity of employment restriction	empsevr
Cause of main condition	causecnd
Requirements to enable workforce participation	empwkrea empwkreb empwkrec empwkred empwkree empwkref empwkreg empwkreh
Labour force status and full-time/part-time status	lfsftpt
Occupation - broad groupings	lfsocbr
Disability type(s) (1)	restimpa restimpb restimpc restimpd restimpe restimpf restimpg restimph restimpi restimpj restimpk restimpl restimpm restimpn restimpo restimpp
SF-12 Mental health scale range	sfrgemot
SF-12 Physical health scale range	sfrgphys
Whether completed Year 12	yr12comp
Industry sector in which employed	lfsisect

All data included in this report have person weight applied to ensure that account be taken of a person's chance of selection in the survey or of different response rates across population groups. The application of person weight ensured that person estimates conform to an independently estimated distribution of the population by age, sex, state/territory and sections of the state rather than the distributions within the sample itself. The person weight was benchmarked to the estimated population at 30 June 2003, based on results of 2001 Census on Population and Housing.

The SDAC dataset contains mental and physical health scores based on the SF 12 health survey. The SF 12 is a shorter form of the SF 36 Health Survey, containing 12 items and appropriate for use when the sample size is larger than 500. It is designed to measure

the physical and mental aspects of health separately by addressing limitations due to health across eight dimensions. Of the two measures, the physical component summary (PCS) focuses mainly on limitations in physical functioning, role limitations due to physical health problems, bodily pain and general health. The mental component summary (MCS) focuses mainly on role limitations due to emotional problems, social functioning, mental health and vitality. A higher score indicates better health. Version 1.0 of the SF-12, used in the SDAC dataset, was constructed to reproduce the SF-36 physical and mental health summary measures with at least 90% accuracy and allows for calculation of the PCS and MCS summary scores. When comparisons are made between the PCS and MCS scores between samples in the SDAC dataset and general population, the South Australian population norms for 2003 are used (Avery et al. 2004).

### **Severity of disability**

Severity of disability is based on the level of core activity limitations which are defined as:

<i>Profound</i>	Unable to do, or always need help with a core activity task
<i>Severe</i>	Sometimes needing help to perform a core activity
<i>Moderate</i>	Not needing help but having difficulty performing a core activity
<i>Mild</i>	Needing no help and having no difficulty in performing a core activity but- <ul style="list-style-type: none"> <li>• Uses aids or equipments</li> <li>• Cannot easily walk 200 metres</li> <li>• Cannot walk up and down the stairs without using a handrail</li> <li>• Cannot easily bend to pick up an object from the floor</li> <li>• Cannot use public transport or can use but needs help or supervision or has difficulty using public transport without needing help or supervision</li> </ul>

A person with disability may have restrictions in one or more of the three areas of core activities:

- Self care: bathing, showering, dressing, eating, toileting, bladder or bowel control
- Mobility: moving about the usual place of residence, getting into and out of a bed or a chair, going to or getting around a place away from the usual place of residence; and
- Communication: understanding and being understood by others (strangers, family, and friends).

## Appendix B

**Table B1. Age at accident happened/onset of main condition (all persons with disability)**

<b>Age at accident happened/onset of main condition</b>	<b>Percentage</b>
Not Applicable	4.5
0-4 years	12.1
5-9 years	4.2
10-14 years	3.8
15-19 years	5.3
20-24 years	5.4
25-29 years	6.1
30-34 years	5.8
35-39 years	6.1
40-44 years	7.1
45-49 years	6.6
50-54 years	7.4
55-59 years	5.5
60-64 years	5.4
65-69 years	4.5
70-74 years	3.8
75-79 years	3.0
80-84 years	1.3
85 years and over	0.8
Don't know	1.2
Total	100.0

**Table B2. Prevalence of disability by age****Age of person \* All persons with a disability Crosstabulation**

Age of person		All persons with a disability		Total
		Has a disability	Not in this population	
0-4 years	Count	53483	1169000	1222483
	% within Age of person	4.4%	95.6%	100.0%
5-9 years	Count	118247	1180920	1299167
	% within Age of person	9.1%	90.9%	100.0%
10-14 years	Count	146131	1182869	1329000
	% within Age of person	11.0%	89.0%	100.0%
15-19 years	Count	118414	1226716	1345130
	% within Age of person	8.8%	91.2%	100.0%
20-24 years	Count	130884	1310348	1441232
	% within Age of person	9.1%	90.9%	100.0%
25-29 years	Count	150141	1281120	1431261
	% within Age of person	10.5%	89.5%	100.0%
30-34 years	Count	164192	1353484	1517676
	% within Age of person	10.8%	89.2%	100.0%
35-39 years	Count	195563	1248068	1443631
	% within Age of person	13.5%	86.5%	100.0%
40-44 years	Count	222948	1285268	1508216
	% within Age of person	14.8%	85.2%	100.0%
45-49 years	Count	278358	1121220	1399578
	% within Age of person	19.9%	80.1%	100.0%
50-54 years	Count	300417	989688	1290105
	% within Age of person	23.3%	76.7%	100.0%
55-59 years	Count	345988	797465	1143453
	% within Age of person	30.3%	69.7%	100.0%
60-64 years	Count	331239	520310	851549
	% within Age of person	38.9%	61.1%	100.0%
65-69 years	Count	284196	417000	701196
	% within Age of person	40.5%	59.5%	100.0%
70-74 years	Count	308068	313213	621281
	% within Age of person	49.6%	50.4%	100.0%
75-79 years	Count	307188	217280	524468
	% within Age of person	58.6%	41.4%	100.0%
80-84 years	Count	257535	108732	366267
	% within Age of person	70.3%	29.7%	100.0%
85 years and over	Count	233407	50194	283601
	% within Age of person	82.3%	17.7%	100.0%
Total	Count	3946399	15772895	19719294
	% within Age of person	20.0%	80.0%	100.0%
		100.0%	100.0%	100.0%

**Table B3. Percentage of people with disability who are permanently unable to work by age.**

<b>Age group</b>	<b>Permanently unable to work (%)</b>
15-19	7.5
20-24	8.4
25-29	8.2
30-34	11.3
35-39	18.3
40-44	18.3
45-49	24.4
50-54	29.8
55-59	43.7
60-64	48.8

## Appendix C

**Table C1: Employment restrictions in people with vision loss aged 15-64 and in the labour force (N=54723)**

Employment restrictions	Percentage with restriction
No employment restrictions	42.1
Restricted in type of job	46.4
Restricted in # of hrs	23.8
Difficulty changing jobs / getting a preferred job	43.3
Need time off from work (at least 1 day/wk)	8.5
Need for employer provided equipment / special arrangements	16.7
Need for support person at work or is receiving assistance	2.2
Need for ongoing supervision or assistance	3.6

**Table C2: Employment restrictions in people with hearing loss aged 15-64 and in the labour force (N= 170870)**

Employment restrictions	Percentage with restriction
No employment restrictions	54.3
Restricted in type of job	37.8
Restricted in # of hrs	17.3
Difficulty changing jobs / getting a preferred job	34.5
Need time off from work (at least 1 day/wk)	7.1
Need for employer provided equipment / special arrangements	8.1
Need for support person at work or is receiving assistance	0.5
Need for ongoing supervision or assistance	3.2

**Table C3: Employment restrictions in people with speech difficulties aged 15-64 and in the labour force (N= 35229)**

Employment restrictions	Percentage with restriction
No employment restrictions	36.2
Restricted in type of job	58.7
Restricted in # of hrs	22.7
Difficulty changing jobs / getting a preferred job	48.9
Need time off from work (at least 1 day/wk)	7.8
Need for employer provided equipment / special arrangements	6.7
Need for support person at work or is receiving assistance	14.2
Need for ongoing supervision or assistance	24.0

**Table C4: Employment restrictions in people with breathing difficulties aged 15-64 and in the labour force (N= 77008)**

Employment restrictions	Percentage with restriction
No employment restrictions	28.4
Restricted in type of job	67.2
Restricted in # of hrs	45.8
Difficulty changing jobs / getting a preferred job	52.7
Need time off from work (at least 1 day/wk)	21.2

Need for employer provided equipment / special arrangements	8.3
Need for support person at work or is receiving assistance	3.7
Need for ongoing supervision or assistance	8.8

**Table C5: Employment restrictions in people with chronic pain aged 15-64 and in the labour force (N= 348931)**

Employment restrictions	Percentage with restriction
No employment restrictions	21.9
Restricted in type of job	67.6
Restricted in # of hrs	46.7
Difficulty changing jobs / getting a preferred job	58.3
Need time off from work (at least 1 day/wk)	21.1
Need for employer provided equipment / special arrangements	14.7
Need for support person at work or is receiving assistance	2.5
Need for ongoing supervision or assistance	6.5

**Table C6: Employment restrictions in people with black outs aged 15-64 and in the labour force (N= 61120)**

Employment restrictions	Percentage with restriction
No employment restrictions	57.2
Restricted in type of job	35.5
Restricted in # of hrs	23.6
Difficulty changing jobs / getting a preferred job	30.9
Need time off from work (at least 1 day/wk)	10.0
Need for employer provided equipment / special arrangements	4.8
Need for support person at work or is receiving assistance	2.6
Need for ongoing supervision or assistance	3.8

**Table C7: Employment restrictions in people with slow at learning disability aged 15-64 and in the labour force (N= 108917)**

Employment restrictions	Percentage with restriction
No employment restrictions	31.1
Restricted in type of job	61.2
Restricted in # of hrs	26.5
Difficulty changing jobs / getting a preferred job	56.7
Need time off from work (at least 1 day/wk)	13.1
Need for employer provided equipment / special arrangements	10.7
Need for support person at work or is receiving assistance	10.2
Need for ongoing supervision or assistance	18.7

**Table C8: Employment restrictions in people who has incomplete use of arms/fingers aged 15-64 and in the labour force (N= 98139)**

Employment restrictions	Percentage with restriction
No employment restrictions	31.3
Restricted in type of job	57.7
Restricted in # of hrs	35.0

Difficulty changing jobs / getting a preferred job	53.7
Need time off from work (at least 1 day/wk)	14.9
Need for employer provided equipment / special arrangements	12.5
Need for support person at work or is receiving assistance	1.4
Need for ongoing supervision or assistance	5.4

**Table C9: Employment restrictions in people who has difficulty holding/gripping things aged 15-64 and in the labour force (N= 186287)**

Employment restrictions	Percentage with restriction
No employment restrictions	34.4
Restricted in type of job	54.3
Restricted in # of hrs	33.7
Difficulty changing jobs / getting a preferred job	48.9
Need time off from work (at least 1 day/wk)	13.0
Need for employer provided equipment / special arrangements	10.6
Need for support person at work or is receiving assistance	1.8
Need for ongoing supervision or assistance	4.9

**Table C10: Employment restrictions in people who has incomplete use of feet/legs aged 15-64 and in the labour force (N= 81764)**

Employment restrictions	Percentage with restriction
No employment restrictions	21.3
Restricted in type of job	65.2
Restricted in # of hrs	42.3
Difficulty changing jobs / getting a preferred job	63.7
Need time off from work (at least 1 day/wk)	20.3
Need for employer provided equipment / special arrangements	18.1
Need for support person at work or is receiving assistance	3.4
Need for ongoing supervision or assistance	10.9

**Table C11: Employment restrictions in people with nervous/emotional condition aged 15-64 and in the labour force (N= 68031)**

Employment restrictions	Percentage with restriction
No employment restrictions	12.2
Restricted in type of job	73.8
Restricted in # of hrs	59.2
Difficulty changing jobs / getting a preferred job	69.3
Need time off from work (at least 1 day/wk)	35.6
Need for employer provided equipment / special arrangements	15.9
Need for support person at work or is receiving assistance	6.1
Need for ongoing supervision or assistance	13.6

**Table C12: Employment restrictions in people who has restriction in physical activities or work aged 15-64 and in the labour force (N= 363498)**

Employment restrictions	Percentage with restriction
No employment restrictions	16.2
Restricted in type of job	75.8
Restricted in # of hrs	50.8
Difficulty changing jobs / getting a preferred job	64.4
Need time off from work (at least 1 day/wk)	24.0
Need for employer provided equipment / special arrangements	15.2
Need for support person at work or is receiving assistance	3.7
Need for ongoing supervision or assistance	9.0

**Table C13: Employment restrictions in people with disfigurement/deformity aged 15-64 and in the labour force (N= 74444)**

Employment restrictions	Percentage with restriction
No employment restrictions	15.3
Restricted in type of job	36.9
Restricted in # of hrs	18.0
Difficulty changing jobs / getting a preferred job	35.3
Need time off from work (at least 1 day/wk)	6.5
Need for employer provided equipment / special arrangements	8.6
Need for support person at work or is receiving assistance	3.0
Need for ongoing supervision or assistance	7.1

**Table C14: Employment restrictions in people with mental illness aged 15-64 and in the labour force (N= 28166)**

Employment restrictions	Percentage with restriction
No employment restrictions	8.8
Restricted in type of job	79.6
Restricted in # of hrs	50.3
Difficulty changing jobs / getting a preferred job	78.5
Need time off from work (at least 1 day/wk)	22.8
Need for employer provided equipment / special arrangements	21.5
Need for support person at work or is receiving assistance	30.8
Need for ongoing supervision or assistance	49.1

**Table C15: Employment restrictions in people with head injury/stroke/other brain damage aged 15-64 and in the labour force (N= 49212)**

Employment restrictions	Percentage with restriction
No employment restrictions	26.0
Restricted in type of job	61.4
Restricted in # of hrs	37.9
Difficulty changing jobs / getting a preferred job	67.8
Need time off from work (at least 1 day/wk)	11.2
Need for employer provided equipment / special arrangements	11.2
Need for support person at work or is receiving assistance	10.4
Need for ongoing supervision or assistance	18.8

**Table C16: Employment restrictions in people with other disability types aged 15-64 and in the labour force (N= 402561)**

Employment restrictions	Percentage with restriction
No employment restrictions	26.2
Restricted in type of job	63.9
Restricted in # of hrs	45.2
Difficulty changing jobs / getting a preferred job	54.7
Need time off from work (at least 1 day/wk)	19.2
Need for employer provided equipment / special arrangements	12.3
Need for support person at work or is receiving assistance	3.9
Need for ongoing supervision or assistance	8.0

## Appendix D

**Table D1: Employer arrangements for people with vision loss aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	1.2
Provided special equipment	13.3
Modified buildings or provided special/free transport	2.4
Provided training/ retraining	2.9
Allocated different duties	1.1
Other	1.1
None of these arrangements required	54.7

**Table D2: Employer arrangements for people with hearing loss aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	0.8
Provided special equipment	3.9
Modified buildings or provided special/free transport	0.6
Provided training/ retraining	1.1
Allocated different duties	1.8
Other	0.7
None of these arrangements required	62.7

**Table D3: Employer arrangements for people with speech difficulties aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	14
Provided special equipment	3.4
Modified buildings or provided special/free transport	0.7
Provided training/ retraining	1.2
Allocated different duties	1.2
Other	0
None of these arrangements required	69.9

**Table D4: Employer arrangements for people with breathing difficulties aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	2.8
Provided special equipment	4.1
Modified buildings or provided special/free transport	3.2
Provided training/ retraining	0
Allocated different duties	2
Other	1.3
None of these arrangements required	69.5

**Table D5: Employer arrangements for people with chronic pain aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	3.1
Provided special equipment	8.3
Modified buildings or provided special/free transport	3.3

Provided training/ retraining	0.9
Allocated different duties	4.5
Other	1.7
None of these arrangements required	58.5

**Table D6: Employer arrangements for people with black outs aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	2.2
Provided special equipment	2.4
Modified buildings or provided special/free transport	0
Provided training/ retraining	0.6
Allocated different duties	0.5
Other	1.6
None of these arrangements required	74.4

**Table D7: Employer arrangements for people with slow at learning disability aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	10.3
Provided special equipment	5.5
Modified buildings or provided special/free transport	2.8
Provided training/ retraining	4.1
Allocated different duties	0.8
Other	0.6
None of these arrangements required	71.8

**Table D8: Employer arrangements for people with incomplete use of arms/fingers aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	3.1
Provided special equipment	3.5
Modified buildings or provided special/free transport	4.4
Provided training/ retraining	1
Allocated different duties	4.5
Other	2
None of these arrangements required	61.5

**Table D9: Employer arrangements for people who has difficulty holding/gripping things, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	2.5
Provided special equipment	4
Modified buildings or provided special/free transport	2.2
Provided training/ retraining	1
Allocated different duties	3.1
Other	2.2
None of these arrangements required	62.5

**Table D10: Employer arrangements for people with incomplete use of legs/feet, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	4.1
Provided special equipment	13
Modified buildings or provided special/free transport	6.6
Provided training/ retraining	2.7
Allocated different duties	4.7
Other	1
None of these arrangements required	54.5

**Table D11: Employer arrangements for people with nervous/emotional condition, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	2.7
Provided special equipment	7.5
Modified buildings or provided special/free transport	3.3
Provided training/ retraining	0.9
Allocated different duties	3.7
Other	4.3
None of these arrangements required	60.5

**Table D12: Employer arrangements for people with restrictions in physical activities or work, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	3.3
Provided special equipment	8
Modified buildings or provided special/free transport	3.2
Provided training/ retraining	1
Allocated different duties	4.3
Other	2.4
None of these arrangements required	57.8

**Table D13: Employer arrangements for people with disfigurement/deformity, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	2.1
Provided special equipment	3
Modified buildings or provided special/free transport	2.3
Provided training/ retraining	2.8
Allocated different duties	2.9
Other	1.4
None of these arrangements required	37.7

**Table D14: Employer arrangements for people with mental illness, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	26.7
Provided special equipment	4.4
Modified buildings or provided special/free transport	6.6
Provided training/ retraining	8
Allocated different duties	5.8
Other	4.6
None of these arrangements required	46.3

**Table D15: Employer arrangements for people with head injury/stroke/brain damage, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	10.1
Provided special equipment	3.4
Modified buildings or provided special/free transport	2.4
Provided training/ retraining	5.4
Allocated different duties	1.2
Other	2.5
None of these arrangements required	61

**Table D16: Employer arrangements for people with other disability types, aged 15-64**

Type of employer arrangements	Percentage
A special support person to assist/train on the job	3.8
Provided special equipment	6.6
Modified buildings or provided special/free transport	2.7
Provided training/ retraining	1.1
Allocated different duties	3.6
Other	1.9
None of these arrangements required	60.1

## Appendix E

**Table E1. Australian standard classification of occupation codes and Australian and New Zealand Standard Industry Classification codes**

<b>ASCO Broad Occupations</b>	<b>ANZSIC Divisions</b>
1 Managers and Administrators	A Agriculture, Forestry and Hunting
2 Professionals	B Mining
3 Associate Professionals	C Manufacturing
4 Tradespersons and related workers	D Electricity, Gas and Water Supply
5 Advanced clerical and service workers	E Construction
6 Intermediate clerical, sales and service workers	F Wholesale Trade
7 Intermediate production and transport workers	G Retail Trade
8 Elementary clerical, sales and service workers	H Accommodation, Cafes and Restaurants
9 Labourers and related workers	I Transport and Storage
	J Communication Services
	K Finance and Insurance
	L Property and Business Services
	M Government Administration & Defence
	N Education
	O Health and Community Services
	P Cultural and Recreational Services
	Q Personal and Other Services

## Appendix F

**Table F1: Requirements for workforce participation for people with vision loss aged 15-64 who are permanently unable to work (N= 36639)**

Requirements for Workforce Participation	Percentage
Training	3.2
Equipment	3.7
Working at home	2.0
Time off	3.2
Assistance with work or personal care tasks	3.2
Other	1.0
Could not work at all	94.1

**Table F2: Requirements for workforce participation for people with hearing loss aged 15-64 who are permanently unable to work (N= 67757)**

Requirements for Workforce Participation	Percentage
Training	1.5
Equipment	1.4
Working at home	0.0
Time off	1.8
Assistance with work or personal care tasks	0.7
Other	0.8
Could not work at all	95.7

**Table F3: Requirements for workforce participation for people with speech difficulties aged 15-64 who are permanently unable to work (N= 34643)**

Requirements for Workforce Participation	Percentage
Training	5.8
Equipment	2.5
Working at home	0.0
Time off	1.3
Assistance with work or personal care tasks	3.2
Other	0.0
Could not work at all	94.2

**Table F4: Requirements for workforce participation for people with breathing difficulties aged 15-64 who are permanently unable to work (N= 104130)**

Requirements for Workforce Participation	Percentage
Training	2.9
Equipment	1.1
Working at home	0.9
Time off	2
Assistance with work or personal care tasks	0.7
Other	0.0
Could not work at all	96.3

**Table F5: Requirements for workforce participation for people with chronic pain aged 15-64 who are permanently unable to work (N= 351330)**

Requirements for Workforce Participation	Percentage
Training	3.3
Equipment	1
Working at home	1.1
Time off	1.6
Assistance with work or personal care tasks	0.5
Other	0.4
Could not work at all	95.3

**Table F6: Requirements for workforce participation for people with black outs aged 15-64 who are permanently unable to work (N= 51292)**

Requirements for Workforce Participation	Percentage
Training	2.9
Equipment	2.5
Working at home	1.4
Time off	2.9
Assistance with work or personal care tasks	3.4
Other	0.6
Could not work at all	95.4

**Table F7: Requirements for workforce participation for people with slow at learning disability aged 15-64 who are permanently unable to work (N= 86193)**

Requirements for Workforce Participation	Percentage
Training	8.6
Equipment	1
Working at home	1
Time off	1.2
Assistance with work or personal care tasks	3
Other	0.6
Could not work at all	90.1

**Table F8: Requirements for workforce participation for people with incomplete use of arms/fingers aged 15-64 who are permanently unable to work (N= 95970)**

Requirements for Workforce Participation	Percentage
Training	1.2
Equipment	1.4
Working at home	0.0
Time off	1.8
Assistance with work or personal care tasks	1.2
Other	0.0
Could not work at all	96.4

**Table F9: Requirements for workforce participation for people with difficulty holding things aged 15-64 who are permanently unable to work (N= 190865)**

Requirements for Workforce Participation	Percentage
Training	2.1
Equipment	1
Working at home	0.9
Time off	1.5
Assistance with work or personal care tasks	0.6
Other	0.2
Could not work at all	96.8

**Table F10: Requirements for workforce participation for people with incomplete use of legs/feet aged 15-64 who are permanently unable to work (N= 124560)**

Requirements for Workforce Participation	Percentage
Training	2.5
Equipment	0.6
Working at home	0.5
Time off	0.9
Assistance with work or personal care tasks	0.5
Other	0.8
Could not work at all	95.8

**Table F11: Requirements for workforce participation for people with nervous/emotional condition aged 15-64 who are permanently unable to work (N= 128309)**

Requirements for Workforce Participation	Percentage
Training	4.3
Equipment	0.6
Working at home	1.1
Time off	1.3
Assistance with work or personal care tasks	1
Other	0.4
Could not work at all	95.4

**Table F12: Requirements for workforce participation for people with restrictions in physical activity or work aged 15-64 who are permanently unable to work (N= 466041)**

Requirements for Workforce Participation	Percentage
Training	3.3
Equipment	1.2
Working at home	1.1
Time off	1.3
Assistance with work or personal care tasks	1
Other	0.4
Could not work at all	95.4

**Table F13: Requirements for workforce participation for people with disfigurement/deformity aged 15-64 who are permanently unable to work (N= 25957)**

Requirements for Workforce Participation	Percentage
Training	3.7
Equipment	6.2
Working at home	2.9
Time off	2.9
Assistance with work or personal care tasks	2.9
Other	0.0
Could not work at all	93.8

**Table F14: Requirements for workforce participation for people with mental illness aged 15-64 who are permanently unable to work (N= 64534)**

Requirements for Workforce Participation	Percentage
Training	7.4
Equipment	0
Working at home	1.9
Time off	1.7
Assistance with work or personal care tasks	4.6
Other	0.6
Could not work at all	91

**Table F15: Requirements for workforce participation for people with head injury/stroke/other brain damage aged 15-64 who are permanently unable to work (N= 70737)**

Requirements for Workforce Participation	Percentage
Training	3.2
Equipment	0.0
Working at home	0.0
Time off	0.7
Assistance with work or personal care tasks	0.7
Other	0.0
Could not work at all	96.8

**Table F16: Requirements for workforce participation for people with other disability types aged 15-64 who are permanently unable to work (N= 437388)**

Requirements for Workforce Participation	Percentage
Training	3.4
Equipment	1.5
Working at home	1
Time off	1.1
Assistance with work or personal care tasks	0.6
Other	0.4
Could not work at all	95.1

## Appendix G

**Table G1: Comparison of mental and physical health SF-12 scores in persons aged 15-64 with disability by labour force participation status**

Vision loss			T test result
Mental Health Score	In the labour force (n)	45.6 (54723)	t(112850)=88.2, p<.001
	Not in the labour force (n)	35.1 (58129)	
Physical Health Score	In the labour force (n)	39.3 (54723)	t(112850)=100.9, p<.001
	Not in the labour force (n)	27.6 (58129)	
Hearing loss			T test result
Mental Health Score	In the labour force (n)	44.3 (170870)	t(292929)=52.1, p<.001
	Not in the labour force (n)	40.6 (122061)	
Physical Health Score	In the labour force (n)	40.9 (170870)	t(292929)=139.7, p<.001
	Not in the labour force (n)	32.1 (122061)	
Speech difficulties			T test result
Mental Health Score	In the labour force (n)	32.0 (35229)	t(92391)=344.8, p<.001
	Not in the labour force (n)	22.0 (35229)	
Physical Health Score	In the labour force (n)	30.0 (57164)	t(92391)=78.3, p<.001
	Not in the labour force (n)	17.4 (57164)	
Breathing difficulties			T test result
Mental Health Score	In the labour force (n)	40.9 (77008)	t(216835)=23.0, p<.001
	Not in the labour force (n)	37.2 (139829)	
Physical Health Score	In the labour force (n)	32.7 (77008)	t(216835)=114.3, p<.001
	Not in the labour force (n)	25.5 (139829)	
Chronic pain			T test result
Mental Health Score	In the labour force (n)	46.1 (348931)	t(830262)=108.9, p<.001
	Not in the labour force (n)	41.2 (481333)	
Physical Health Score	In the labour force (n)	32.7 (348931)	t(830262)=174.3, p<.001
	Not in the labour force (n)	26.6 (481333)	
Black outs			T test result
Mental Health Score	In the labour force (n)	43.2 (61120)	t(140683)=110, p<.001
	Not in the labour force (n)	32.2 (79565)	
Physical Health Score	In the labour force (n)	44.0 (61120)	t(140683)=193, p<.001
	Not in the labour force (n)	24.7 (79565)	
Slow at learning/ understanding			T test result
Mental Health Score	In the labour force (n)	36.4 (108917)	t(264556)=137.8, p<.001
	Not in the labour force (n)	24.0 (155641)	
Physical Health Score	In the labour force (n)	36.4 (108917)	t(264556)=147.8, p<.001
	Not in the labour force (n)	23.1 (155641)	
Incomplete use of arms/ fingers			T test result
Mental Health Score	In the labour force (n)	47.4 (98139)	t(230444)=117.6, p<.001
	Not in the labour force (n)	38.7 (132307)	
Physical Health Score	In the labour force (n)	37.3 (98139)	t(230444)=174.6, p<.001
	Not in the labour force (n)	26.3 (132307)	

<b>Table G1 continued: Comparison of mental and physical health SF-12 scores in persons aged 15-64 with disability by labour force participation status</b>			
Difficulty holding/ gripping things			T test result
Mental Health Score	In the labour force (n)	46.6 (186287)	t(456987)=96.1, p<.001
	Not in the labour force (n)	41.6 (270702)	
Physical Health Score	In the labour force (n)	35.5 (186287)	t(456987)=165.2, p<.001
	Not in the labour force (n)	27.9 (270702)	
Incomplete use of feet/ legs			T test result
Mental Health Score	In the labour force (n)	47.3 (81764)	t(247778)= 120.8, p<.001
	Not in the labour force (n)	38.0 (166016)	
Physical Health Score	In the labour force (n)	31.4 (81764)	t(247778)= 136.7, p<.001
	Not in the labour force (n)	23.2 (166016)	
Nervous/ emotional condition			T test result
Mental Health Score	In the labour force (n)	30.5 (68031)	t(258552)=62.5, p,.001
	Not in the labour force (n)	27.0 (190523)	
Physical Health Score	In the labour force (n)	39.9 (68031)	t(258552)=119.7, p,.001
	Not in the labour force (n)	30.8 (190523)	
Restriction in physical activities or work			T test result
Mental Health Score	In the labour force (n)	45.9 (363498)	t(990713)=197.1, p<.001
	Not in the labour force (n)	39.0 (627217)	
Physical Health Score	In the labour force (n)	33.0 (363498)	t(990713)=119.3, p<.001
	Not in the labour force (n)	26.2 (627217)	
Disfigurement/ deformity			T test result
Mental Health Score	In the labour force (n)	27.6 (74444)	t(125063)=22.8, p<.001
	Not in the labour force (n)	30.0 (50621)	
Physical Health Score	In the labour force (n)	22.8 (74444)	t(125063)=15.7, p<.001
	Not in the labour force (n)	21.0 (50621)	
Mental illness			T test result
Mental Health Score	In the labour force (n)	25.5 (28166)	t(128629)=51.7, p<.001
	Not in the labour force (n)	18.1 (100465)	
Physical Health Score	In the labour force (n)	30.6 (28166)	t(128629)=65.8, p<.001
	Not in the labour force (n)	20.4 (100465)	
Head Injury/ Stroke/ brain damage			T test result
Mental Health Score	In the labour force (n)	40.6 (49212)	t(153590)=84.8, p<.001
	Not in the labour force (n)	31.7 (104380)	
Physical Health Score	In the labour force (n)	37.4 (49212)	t(153590)=134.7, p<.001
	Not in the labour force (n)	24.6 (104380)	
Other disability types			T test result
Mental Health Score	In the labour force (n)	43.5 (402561)	t(1035413)=141.7, p<.001
	Not in the labour force (n)	38.4 (632854)	
Physical Health Score	In the labour force (n)	34.6 (402561)	t(1035413)=236.7, p<.001

## Appendix H

**Table H1. Unemployment rate by disability type and number of impairments, persons with disability aged 15-64 years**

Disability types	Unemployment Rate			
	Overall	1 impairment	2-5 impairments	6-10 impairments
Loss of sight	4.5	<b>10.2</b>	<b>3.3</b>	0.7
Loss of hearing	5.6	<b>6.4</b>	<b>6.1</b>	3.5
Speech difficulties	4.2	<b>8.6</b>	<b>5.4</b>	0
Breathing difficulties	4.2	3.6	5.4	1.4
Chronic pain	3.0	1.8	3.7	0.9
Blackouts	3.9	4.3	5.6	0.6
Slow at learning	7.3	<b>10.6</b>	<b>8.1</b>	1.9
Incomplete use of arms/fingers	4.2	3.2	7.3	0
Difficulty holding/gripping things	3.2	<b>4.5</b>	<b>3.9</b>	0.7
Incomplete use of feet/ legs	2.0	<b>3.8</b>	<b>3.2</b>	0.3
Nervous and emotional condition	5.0	4.5	7.1	1.1
Restrictions in physical activities or physical work	3.1	<b>4.8</b>	<b>3.5</b>	0.2
Disfigurement/deformity	3.7	<b>6.5</b>	<b>3.8</b>	0.9
Mental illness	4.2	0.0	6.3	0.8
Head injury/ stroke/ brain damage	2.8	1.8	5.0	0
Other disability types	3.0	<b>3.6</b>	<b>3.3</b>	0.7

**Table H2. Percentage of people with disability (15-64 years) who are not in the labour force by disability type and number of impairments**

Disability types	% Not in the labour force			
	Overall	1 impairment	2-5 impairments	6-10 impairments
Loss of sight	49.6	23	61.4	77.8
Loss of hearing	40.9	23.9	49.4	83.6
Speech difficulties	50.7	30	51.7	57.1
Breathing difficulties	63.9	28.2	63.9	83.2
Chronic pain	57.6	26.2	57.2	85.6
Blackouts	53.3	27.3	56.4	85
Slow at learning	53.9	33.9	56.7	73.2
Incomplete use of arms/fingers	55	11.8	48.2	75
Difficulty holding/gripping things	57.9	28	57.9	79.9
Incomplete use of feet/ legs	64.1	32.6	54.9	81
Nervous and emotional condition	71.3	51.4	68.4	85.8
Restrictions in physical activities or physical work	61.9	36.9	61	81.1
Disfigurement/deformity	36.7	12.7	30.4	69.3
Mental illness	69.4	61.2	65.4	77.6
Head injury/ stroke/ brain damage	62.1	25.9	56.7	80.5
Other disability types	59.9	32.9	62.5	81.2

**Table H3. Future job growths for people with disability who are unemployed by main field of education**

<b><i>Management and Commerce</i></b>	
<b>Fields</b>	<b>Future job growth</b>
Accounting	Strong growth (5)
Business and Management	Moderate Growth (4)
Sales and Marketing	Moderate Growth (4)
Tourism	Slight growth (3)
Office Studies	Slight growth (3)
Banking, Finance and related studies	Slight growth (3)
<b>Total</b>	<b>Slight growth (3.6)</b>
<b><i>Engineering and related technologies</i></b>	
<b>Fields</b>	<b>Future job growth</b>
Manufacturing engineering and technology	Steady (2)
Process and resources engineering	Slight growth (3)
Automotive engineering and technology	Steady (2)
Mechanical and Industrial engineering and technology	Slight growth (3)
Civil engineering	Steady (2)
Geomatic engineering	Steady (2)
Electrical and electronic engineering and technology	Steady (2)
Aerospace engineering and technology	Moderate growth (4)
Maritime engineering and technology	Steady (2)
<b>Total</b>	<b>Steady (2.4)</b>
<b><i>Food and Hospitality</i></b>	
<b>Fields</b>	<b>Future job growth</b>
Food and Hospitality	Slight growth (3)
Personal Services	Strong growth (5)
<b>Total</b>	<b>Moderate growth (4.0)</b>

**Table H4. Future job growths for people with disability who are not in the labour force by main field of education**

<b><i>Management and Commerce</i></b>	
<b>Fields</b>	<b>Future job growth</b>
Accounting	Strong growth (5)
Business and Management	Moderate Growth (4)
Sales and Marketing	Moderate Growth (4)
Tourism	Slight growth (3)
Office Studies	Slight growth (3)
Banking, Finance and related studies	Slight growth (3)
<b>Total</b>	<b>Slight growth (3.6)</b>
<b><i>Engineering and related technologies</i></b>	
<b>Fields</b>	<b>Future job growth</b>
Manufacturing engineering and technology	Steady (2)
Process and resources engineering	Slight growth (3)
Automotive engineering and technology	Steady (2)
Mechanical and Industrial engineering and technology	Slight growth (3)

Civil engineering	Steady (2)
Geomatic engineering	Steady (2)
Electrical and electronic engineering and technology	Steady (2)
Aerospace engineering and technology	Moderate growth (4)
Maritime engineering and technology	Steady (2)
<b>Total</b>	<b>Steady (2.4)</b>
<b>Health</b>	
<b>Fields</b>	<b>Future job growth</b>
Medical Studies	Moderate growth (4)
Nursing	Moderate growth (4)
Pharmacy	Moderate growth (4)
Dental Studies	Slight growth (3)
Optical Science	Moderate growth (4)
Veterinary Studies	Slight to moderate growth (3.5)
Public Health	Moderate growth (4)
Radiography	Strong growth (5)
Rehabilitation Studies	Slight growth (3.4)
Complementary Therapies	Strong growth (5)
<b>Total</b>	<b>Moderate growth (4)</b>

## Appendix I

**Table I1. Percent of workers with disabilities who report needing and receiving accommodation, 1994-1995 (n=4937)**

<b>Nature of Accommodation</b>	<b>Percent reporting needing accommodation</b>	<b>Percent reporting receiving accommodation</b>
1. Handrails or ramps	3.5	2.2
2. Accessible parking, accessible transportation	6.1	4.2
3. An elevator	4.9	3.1
4. An elevator designed for persons with special needs	0.9	0.3
5. A workstation specifically adapted for your use	5.1	3.1
6. A restroom designed for persons with special needs	2.5	1.6
7. An automatic door	1.6	0.6
8. A voice synthesizer, telecommunications device or other technical device	0.7	0.5
9. Braille, enlarged print, special lighting or audio	0.4	0.2
10. A reader, oral or sign language interpreter	0.2	0.1
11. A job coach to help train you and supervise your work	0.6	0.6
12. A personal assistant to help you with job related activities	1.1	0.7
13. Special plans or pencils, chairs, office supplies	1.3	0.7
14. Job redesign, modifications of difficult job duties or slowing the pace of tasks	2.1	1.3
15. Reduced work hours to allow for more break or rest periods	2.3	1.4
16. Reduced or part-time hours	2.8	2.1
17. Some other equipment, help or work arrangement	3.2	1.9
At least one of the above 17	15.6	12.2

**Table taken from Zwierling et al. 2003**

**Table I2. Adjustments at the workplace, N= 835 (all where there have ever been disabled employees)**

<b>Adjustments at the Workplace</b>	<b>Percentage</b>
Car parking space for disabled employees	56
Flexible working time or varying hours for disabled employees	55
Adapted work environment to help disabled employees (e.g. adapting premises, furniture, lighting)	42
Flexible work organisation (e.g. transferring people to other jobs, rearranging work duties)	35
Transferring people or jobs to other premises to assist disabled employees	15
Providing appropriate physical assistance (e.g. interpreters for a person who is deaf)	12
Allowing working from home for disabled employees	12
No adjustments in place for disabled employees	17

**Table taken from Roberts et al. 2004**