

Health Indicators for New Zealanders with Intellectual Disability

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Summary

This report presents a selection of health status and health care utilisation indicators for New Zealanders with and without intellectual disability. The indicators have been developed using data from a range of Ministry of Health data sets.

Because of the nature of the data available, the study uses a broad definition of intellectual disability that encompasses a range of causes of this disability. For example, because age of onset could not be established from the available data, the study includes people whose intellectual disability was evident prior to adulthood, as well as some whose cognitive impairment may have started later in life and were recorded as having an intellectual disability in Ministry of Health data sets.

Internationally, studies have shown that people with intellectual disability tend to experience poorer health outcomes than the rest of the population. However, there is a distinct lack of up-to-date, New Zealand-specific health status and health care utilisation data for people with intellectual disability. This makes it difficult to evaluate the extent to which this group of New Zealanders are currently experiencing poorer health than the rest of the population.

The report's study population consisted of 31,847 people identified as having intellectual disability, and 4,261,600 people identified as not having intellectual disability. Altogether, 0.7 percent of the study population were classified as having intellectual disability. Compared to the group without intellectual disability, the group with intellectual disability included relatively high proportions of children, teenagers and people aged 85 and over. People with intellectual disability were also more likely to live in the most socioeconomically deprived areas of New Zealand.

Overall results

For all indicators examined in this report, people with intellectual disability were more disadvantaged, in terms of their health and life expectancy, compared to people without intellectual disability. The group with intellectual disability experienced higher rates of specific health conditions, and they also used health services more (apart from preventive screening services). These results are consistent with those from similar overseas studies.

Life expectancy

- Males with intellectual disability had an average life expectancy of 59.7 years, which is more than 18 years below the life expectancy for all New Zealand males (78.4 years).
- Females with intellectual disability had an average life expectancy of 59.5 years, which is almost 23 years below the life expectancy for all New Zealand females (82.4 years).

Care and treatment for health conditions

Compared to people without intellectual disability, people with intellectual disability were:

- about 1.5 times more likely to receive care or treatment for one or more of six selected chronic health conditions (nearly a third of people with intellectual disability, 31.5 percent, had care or treatment for one or more of these conditions)
- about 1.5 times more likely to receive care or treatment for chronic respiratory disease (22.2 percent had care or treatment for chronic respiratory disease)
- almost twice as likely to receive care or treatment for coronary heart disease
- about 1.5 times more likely to receive care or treatment for cancer
- almost twice as likely to receive care or treatment for diabetes
- twice as likely to receive renal replacement therapy in a public hospital
- over four times more likely to receive morbid obesity treatment in a public hospital
- over 30 times more likely to be getting care or treatment for epilepsy
- almost twice as likely to receive injury treatment in a public hospital
- over 15 times more likely to receive dental treatment in a public hospital
- over three times more likely to receive care or treatment for any type of mental disorder
- twice as likely to receive care or treatment for a mood disorder
- 17 times more likely to receive care or treatment for a psychotic mental disorder
- 10 times more likely to receive care or treatment for dementia.

Use of primary health care, screening services and pharmaceuticals

Compared to people without intellectual disability, people with intellectual disability were:

- slightly more likely to be enrolled in a primary health organisation (an age-adjusted rate of 95.2 percent, compared with 91.8 percent)
- more than twice as likely to be enrolled in Care Plus primary health care services (for people who use high levels of care or have high needs because of chronic conditions)
- nearly 1.5 times more likely to consult a general practitioner in a three-month period
- less likely to have had breast screening and much less likely to have had cervical screening (for women)
- likely to be dispensed almost twice as many different types of prescription drugs from community pharmacies.

Use of public hospital services

Compared to people without intellectual disability, people with intellectual disability were:

- over twice as likely to receive elective or arranged public hospital treatment
- almost three times more likely to receive acute public hospital treatment
- two-and-a-half times more likely to go to public hospital emergency departments
- over four times more likely to have public hospital admissions that could have been avoided.

Cost of government-funded primary and secondary health services

In the financial year to 30 June 2008, the average annual total cost per person of government-funded health care (primary health services plus secondary health services) for people with intellectual disability was \$3,001, which is nearly three times higher than the cost for people without intellectual disability (\$1,028).

Limitations of the study

There were a number of limitations to the research methods used for this study, including the following.

- The study relied on information available from Ministry of Health databases, which did not record information about the age of onset, or the causes or severity¹ of intellectual disability, meaning that analyses relating to these factors could not be done.
- Apart from life expectancy, the health indicators reported were related to health service use rather than a more direct measurement of health status; people's actual need for the services was unable to be measured directly.
- People with moderate or severe intellectual disability who needed health and support services were more likely to have been identified as having intellectual disability than people with mild intellectual disability.

¹ It was possible to identify cause and severity for only a relatively small proportion of people with an intellectual disability in the study population.

1 Introduction

Aim of this report

This report presents a selection of health status and health care utilisation indicators for New Zealanders with and without intellectual disability. The indicators have been developed using data from a range of Ministry of Health data sets.

A previous study by the National Advisory Committee on Health and Disability (2003), *To Have an 'Ordinary' Life*, gathered information to help better understand the lives of adults with an intellectual disability who are supported by government-funded services in New Zealand. This included reviewing overseas and local research on the health of people with intellectual disability. The study found that this group have generally experienced poorer health outcomes than the rest of the population. It also showed that there is a relative absence of New Zealand-specific health status and health care utilisation indicators for people with intellectual disability.

Research on the health of people with intellectual disability helps to achieve the objectives of the New Zealand Disability Strategy (Minister for Disability Issues 2001) and the United Nations Convention on the Rights of Persons with Disabilities (the UN Convention) (United Nations 2006). Objective 7.6 of the Disability Strategy refers to the need to ensure that disability services 'recognis[e] that disabled people do need access to health services without discrimination', while the UN Convention recognises that people with disability 'have the right to the enjoyment of the highest attainable standard of health without discrimination on the basis of disability'.

In 2009 the Ministry of Health commenced a work programme to understand the health of people with intellectual disability in New Zealand. As part of this work, the Ministry's Health and Disability Intelligence unit (HDI) developed a methodology to analyse a range of existing Ministry of Health data sets for information specifically comparing the health status and health service utilisation patterns of people with and without intellectual disability. Preliminary data from this analysis showed that people with intellectual disability tend to be more at risk of experiencing a range of health conditions, and have higher rates of illness and disease, than the rest of the population. Some of these initial results were presented at the 2009 New Zealand Association of the Study of Intellectual Disability (NZASID) conference.

This report builds on the initial HDI analysis by providing further detail on the indicators presented at the conference, as well as some additional health indicators for people with and without intellectual disability. The report is essentially descriptive, presenting tables and charts for each indicator, accompanied by a brief commentary summarising key information. The report does not examine in detail possible determinates of, or reasons for, the results.

Due to time and resource constraints, only a selected number of indicators have been able to be included. These focus mainly on chronic diseases, mental health, and the utilisation of primary health care and public hospital services.

This report is intended to be used by people with intellectual disabilities, their families and whānau, policy makers, service funders, service planners and service providers, and the wider disability sector. It will provide an information base in an area where little information has previously been available in New Zealand.

Methods

Three main steps were used to extract and analyse the data for this report from existing Ministry of Health databases:

- Step 1: define the study population
- Step 2: identify people with and without intellectual disability in the study population
- Step 3: compare health indicators for people with and without disability in the study population.

Throughout this process, people were identified using encrypted codes. The study did not have access to personal identifying information such as people's names and addresses.

Step 1: Define the study population

The study population² was defined as people usually resident in New Zealand who:

- were alive on 30 June 2007
- had a National Health Index (NHI) identifier³
- had contact with health services in New Zealand between 1 July 2007 and 30 June 2008
- were New Zealand residents, or if they did not have New Zealand resident status, had received health services for more than a three-month period.

Ministry of Health records used to identify people who had contact with health services included:

- the Primary Health Organisation (PHO) Enrolment Register (general practice consultation date or current PHO enrolment)
- National Minimum Dataset (NMDS) public hospital event (admission or discharge date)
- laboratory testing claims
- community pharmaceutical dispensing
- General Medical Subsidy (GMS) payments

² Also known as the New Zealand Health Tracker study population.

³ The National Health Index (NHI) is a database maintained by the Ministry of Health and used by public hospitals and other health and disability support services to assign a unique alphanumeric identifier to people who use their services.

- Client Claims Processing System (CCPS) payments
- National Non-Admitted Patient Collection (NNAPC) emergency department or outpatient visit.

Altogether, 4,293,447 people were in the study population on 30 June 2008, accounting for 100.6 percent of Statistics New Zealand's estimated usually resident population (4,268,900) for the same period.⁴

Step 2: Identify people with and without intellectual disability

Intellectual disability can be defined in several different ways (Bray 2003a). Many definitions specify that intellectual disability begins early in life. For example, in *To Have an 'Ordinary' Life* (National Advisory Committee on Health and Disability 2003:10), intellectual disability is defined as:

- a significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with
- a reduced ability to cope independently (impaired social functioning)
- which started before adulthood, with a lasting effect on development.⁵

Other definitions of intellectual disability are based on how an individual is functioning at a particular time (World Health Organization 1992). An example is the International Classification of Diseases' (ICD-10) definition of 'mental retardation' as:

a condition of arrested or incomplete development of the mind, which is especially characterised by impairment of skills manifested during the developmental period, skills which contribute to the overall level of intelligence, ie, cognitive, language, motor and social abilities. ... Intellectual abilities and social adaptation may change over time and, however poor, may improve as a result of training and rehabilitation. Diagnosis should be based on the current levels of functioning. (World Health Organization 1992:369)⁶

This definition is less specific about the age at which the intellectual disability develops, and instead refers to 'impairment of skills manifested in the developmental period'.

⁴ The population estimate may have involved a slight undercount and/or the study population a slight overcount. For example, it is likely the study population is slightly overcounted because some individuals have more than one NHI number.

⁵ This is the same definition as is used in the United Kingdom (Department of Health 2001).

⁶ The term 'mental retardation' tends to be used in the United States, but is being replaced with the term 'intellectual disability'; for example, in the DSM-IV classification of mental disorders. The term 'learning disability' tends to be used in the United Kingdom, although this term also includes some developmental disorders such as dyslexia and dyspraxia (Ministry of Health unpublished). However, developmental disorders such as dyslexia and dyspraxia are not necessarily associated with intellectual disability.

Intellectual disability can be caused by a wide range of conditions, including (Bray 2003b; Cooper 1998; Fletcher et al 2007; Harris 2006; O'Hara et al 2010):

- **causes occurring before birth**, including chromosomal disorders (such as Down syndrome, Fragile X syndrome), inborn metabolic disorders (such as phenylketonuria), Rett syndrome, some neural tube defects (such as hydrocephalus), environmental influences (such as fetal alcohol syndrome, placental insufficiency), and congenital infections (such as cytomegalovirus, rubella, HIV)
- **causes occurring around the time of birth**, including asphyxia (lack of oxygen) and placenta previa
- **unknown causes** – this is common, particularly for people with mild intellectual disability and when cognitive impairment, that is recorded as intellectual disability, is not identified until a person is older
- **other causes**, including brain injuries; encephalitis; meningitis; stroke; malnutrition; child abuse or neglect; environmental, sensory or social deprivation; poisoning (eg, from lead, mercury or copper); seizure disorders; demyelinating disorders; degenerative disorders; and brain tumours.

Due to the nature of the data available, the current study uses a broad definition of intellectual disability that includes people with a range of causes of intellectual disability, which may have started at any time during their life. It was not possible from the available Ministry of Health databases to identify people who first developed intellectual disability early in their life (apart from people in the younger age groups who were identified as having intellectual disability at the time of the study).

People in the study population were identified as having an intellectual disability if they met the criteria described below for one or more of the following health and disability support services administrative databases (see Glossary for further details).

Ministry of Health database	Criteria for defining intellectual disability
National Minimum Dataset (NMDS)	<ul style="list-style-type: none"> • A diagnosis of intellectual disability ('mental retardation' in the ICD-9, ICD-10 or DSM-IV classification systems) between 1 January 1988 and 30 June 2008, and/or⁷ • inpatient / day patient treatment by health specialties for people with intellectual disability in public hospitals between 1 January 1988 and 30 June 2008.
Mental Health Information National Collection (MHINC)	<ul style="list-style-type: none"> • A diagnosis of intellectual disability ('mental retardation' in the ICD-9, ICD-10 or DSM-IV classification systems) in secondary mental health and addiction services (inpatient, outpatient or community) between 1 July 2000 and 30 June 2008, and/or • placed under an Intellectual Disability (Compulsory Care and Rehabilitation) Act (IDCCRA) order between 1 July 2000 and 30 June 2008, and/or • treatment by an intellectual disability dual diagnosis team (Team Type 12) between 1 July 2000 and 30 June 2008.
Client Claims Processing System (CCPS)	<ul style="list-style-type: none"> • Had a Needs Assessment and Service Co-ordination (NASC) assessment resulting in receipt of intellectual disability services between 1 January 1999 and 30 June 2008.
SOCRATES (NASC information system) ⁸	<ul style="list-style-type: none"> • Recorded in the SOCRATES database as having an intellectual disability in the Referral Diagnosis / Health Condition field, as at April 2009.

This method of identifying people with intellectual disability is likely to be reasonably accurate for people with moderate or severe intellectual disability who need help from formal disability support services or who have serious health conditions. However, people with mild intellectual disability in good health are less likely to be counted because they may not have come into contact with disability support services or health services during the study period.⁹ They also may be less likely to be recorded as having an intellectual disability when coming into contact with health services.

⁷ The term 'mental retardation' is being replaced with the term 'intellectual disability' in DSM-IV.

⁸ SOCRATES is a national database of the Ministry of Health's Disability Support Services clients and service providers. Information for SOCRATES is supplied by Needs Assessment and Service Co-ordination agencies (NASCs) throughout New Zealand. SOCRATES does not include information on other (usually older) people with disability whose supports are funded by district health boards.

⁹ In the 2006 New Zealand Disability Survey, 12 percent of children (aged 0–14) and 26 percent of adults (aged 15+) with intellectual disability living in households did not need any help from other people or organisations because of disability (data from Statistics New Zealand). This meant these adults did not require disability supports such as: help with personal care, housework, shopping, finances or communication; disability-related equipment; or modifications to their work environment. Children did not require: respite care; disability-related equipment; special help at school; accommodation modifications; or special transport.

Step 3: Compare health indicators

Once people in the study population were identified as having, or not having, intellectual disability, a variety of health indicators were then able to be examined and compared by analysing relevant Ministry of Health databases. Particular indicators were chosen because they are important general health indicators, or are related to conditions that other research has suggested are relatively more common among people with intellectual disability.

These health indicators were chosen to represent various aspects of people's 'health status'; that is, how healthy or unhealthy they are. Apart from a comparison of life expectancy, the indicators were based on people's use of health services rather than on a more direct measurement of their health status (as would be done in a health survey). One limitation of this 'proxy' way of measuring health status is that people who had a health condition, but were not treated by health services, were not counted as having that condition.

When reading this report, readers should bear in mind that people's access to health care, and their willingness and support to seek help for health conditions, will affect their use of health services as well as whether or not they experience certain health conditions.

Estimating the true prevalence of intellectual disability in the study population

In addition to comparing health indicators for people with and without intellectual disability, a separate analysis was undertaken to calculate an estimate of the 'true' prevalence of intellectual disability in the study population. This analysis used a statistical method (capture–recapture) to estimate the number of people with intellectual disability in the study population who had *not* been counted in the available Ministry of Health databases.

Content of the report

The rest of the report covers the following topics:

- a demographic profile – people's age, gender and ethnic groups, and where they live (socioeconomic and district health board areas)
- life expectancy
- chronic and other physical health conditions – coronary heart disease, chronic respiratory disease, diabetes, chronic kidney disease (renal replacement therapy), cancer, morbid obesity
- epilepsy and other physical health conditions – epilepsy, injuries, dental treatment
- mental health conditions – mood disorders, psychotic disorders, dementia
- use of primary health care – enrolments in primary health organisations (PHOs), enrolments in Care Plus primary health services, general practice consultations, pharmaceuticals
- screening services – breast and cervical screening

- use of secondary health care – inpatient hospitalisations for elective, arranged and acute treatment, emergency department visits, avoidable hospitalisations
- health care costs – primary and secondary health care costs
- a discussion of the results.

In each section of the report, text and charts are used to highlight selected data comparing people with intellectual disability to people without intellectual disability. If special caution is needed when considering the data in a section, this is noted in the text.

A Glossary provides a summary of definitions and terms used throughout the report. In the appendices:

- Appendix A gives statistical estimates of the ‘true’ number of people in the study population with intellectual disability – the ‘capture–recapture’ analysis
- Appendix B contains tables showing all data prepared for the demographic profile
- Appendix C contains tables showing all data for the health and health service utilisation indicators
- Appendix D contains tables for the capture–recapture analysis
- Appendix E contains a table showing the confidence intervals for key data in the report.

Presentation of data

In the text and tables of the report, percentages and rates are rounded to one decimal place. Unrounded percentages and rates are shown in the charts. In the tables, where cell numbers were between 1 and 4 (ie, small numbers), the symbol < 5 has been used to ensure individuals cannot be identified.

Age-standardised rates have been calculated when comparing results between groups, such as between people with and people without intellectual disability. Age standardisation enables research data from two or more population groups with different age profiles to be compared. Age standardisation adjusts for the differing age profiles of the groups by applying age-specific rates to a standard population and producing a single, age-adjusted rate for each group. For this report, age-standardised rates (ASRs) have been calculated using the World Health Organization (WHO) world standard population, because this is appropriate for developed countries.

The confidence intervals listed in Appendix E indicate the statistical reliability of key data in the report. In general, the confidence intervals are narrow, especially for the data on people without intellectual disability. This is because the relevant numbers of people for most health indicators are large, and therefore the results are relatively reliable.

2 Demographic Profile

Introduction

The information in this report comes from a study population of nearly 4.3 million New Zealanders who had a National Health Index identifier and who had contact with national health services between 1 July 2007 and 30 June 2008. This section presents data on the prevalence of intellectual disability in this study population, and compares the demographic characteristics (eg, age, gender, ethnic group) of the people in the population identified as having intellectual disability and the people identified as *not* having intellectual disability. This provides a context for interpreting the health status and health service utilisation data in the remainder of the report.

Prevalence of intellectual disability

In the study population of 4,293,447 New Zealanders, a total of 31,847 people or 0.7 percent of the study population, were identified as having intellectual disability (Table 1). The remaining 4,261,600, or 99.3 percent, were counted as not having intellectual disability.¹⁰

Table 1: People with and without intellectual disability

Population	No.	Percent
With intellectual disability	31,847	0.7
Without intellectual disability	4,261,600	99.3
Total	4,293,447	100.0

Source: Ministry of Health Health study population, 1 July 2007–30 June 2008

These figures differ from the results of the 2006 New Zealand Disability Survey, in which 50,600 New Zealanders living in households and residential facilities were estimated to have intellectual disability (a prevalence of 1.3 percent) (data from Statistics New Zealand).

¹⁰ Using the capture–recapture (C–RC) statistical method to estimate the true prevalence of intellectual disability, it is estimated that an additional 14,817 people in the study population would have had intellectual disability, giving a total number of 46,664, or a true prevalence of 1.1 percent. (See Appendix A for further details of these estimates for different age, gender, ethnic and socioeconomic groups, and for each of the DHBs.) Note, however, that the actual counts of people in the study population have been used for the remainder of this demographic profile and in the analysis of health indicators, not C–RC estimates.

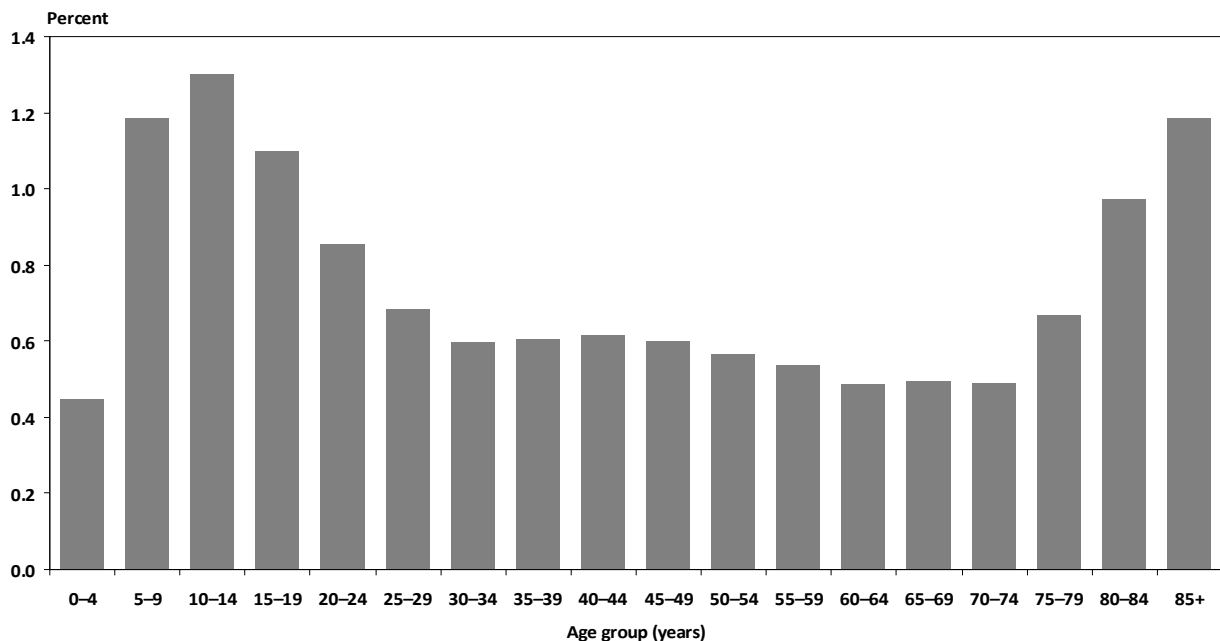
Age

The group of people with intellectual disability in the study population comprised:

- 9029 children aged 0–14
- 18,987 adults aged 15–64
- 3831 older adults aged 65 and over.

Looking at the prevalence of intellectual disability by five-year age groups, the lowest prevalence was in young children aged 0–4 years (0.4 percent of children in this age group). This is likely to be because, depending on the cause, intellectual disability may not be diagnosed until later in childhood, or initially may be diagnosed as a developmental disorder.¹¹ The highest rates of intellectual disability were in older children aged 10–14 years (1.3 percent) and in older adults aged 85+ years (1.2 percent) (see Figure 1).¹²

Figure 1: Rates of intellectual disability, by age (five-year age bands)



Source: Ministry of Health study population, 1 July 2007–30 June 2008

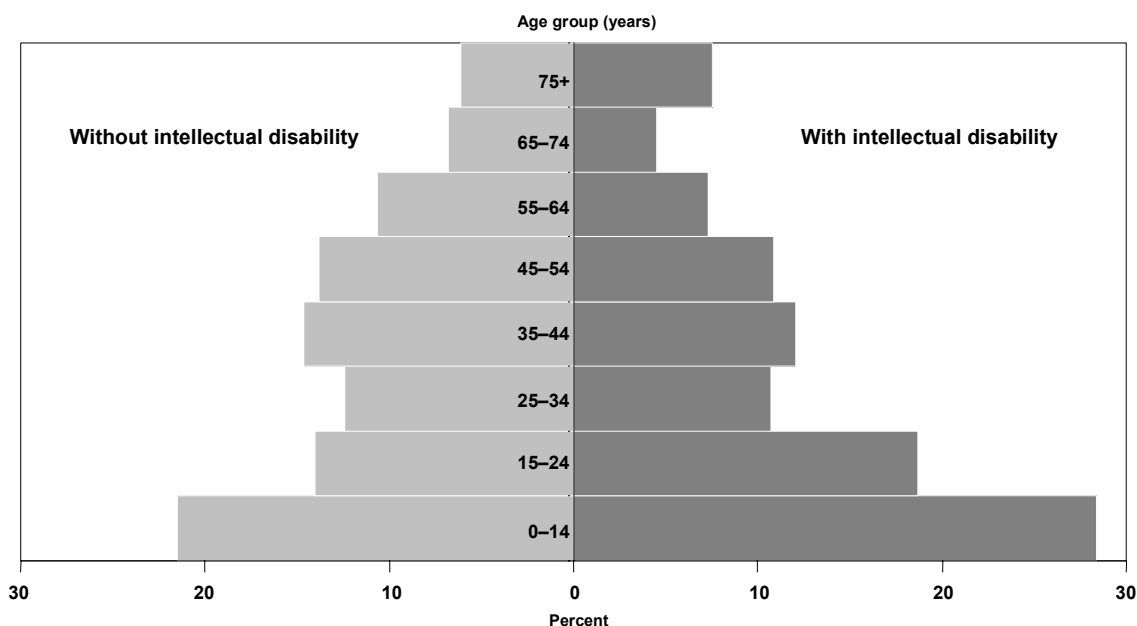
Note: Data in appendix table B.1.

Reflecting these rates, compared to New Zealanders without intellectual disability, the intellectual disability group contained relatively high proportions of children, teenagers and people in the oldest age group, 85+ (see Figure 2).

¹¹ See Appendix A for estimates of the 'true' prevalence of intellectual disability for different age groups in the study population, based on the capture–recapture analysis.

¹² See section 11, Discussion, for possible explanations of the higher rates for these older age groups.

Figure 2: Age profiles of people with and without intellectual disability



Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Data in appendix table B.5.

Comparing people with and people without intellectual disability in broader age bands:

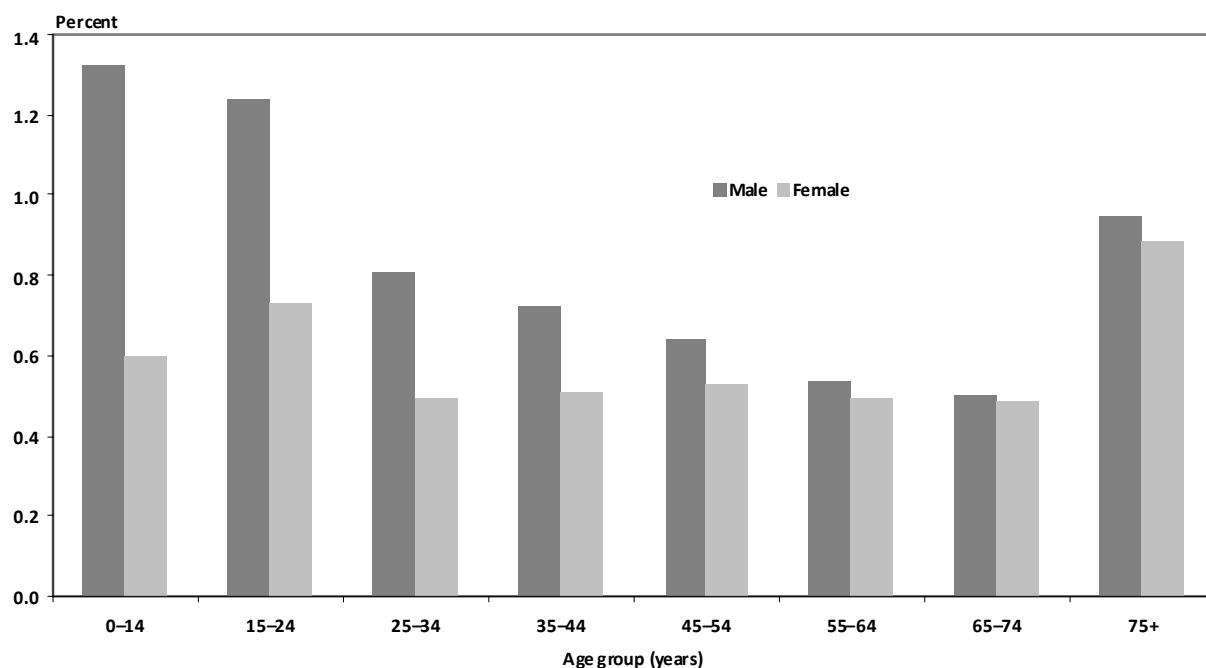
- 28 percent of people with intellectual disability were children aged 0–14, compared with 22 percent of people without intellectual disability
- 60 percent of people with intellectual disability were aged 15–64, compared with 66 percent of people without intellectual disability
- 12 percent of people with intellectual disability were older adults aged 65+, compared with 13 percent of people without intellectual disability.

Gender

In the study population, a total of 18,921 males and 12,926 females were identified as having intellectual disability. In all age groups in the study population, males had a higher rate of intellectual disability than females. This difference was especially marked in the younger age groups; in particular, among children aged 0–14, the intellectual disability rate for boys was over twice the rate for girls (see Figure 3).¹³

¹³ See Appendix A for estimates of the 'true' prevalence of intellectual disability for males and females in the study population, based on the capture–recapture analysis.

Figure 3: Rates of intellectual disability, by gender and age



Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Data in appendix table B.2.

Reflecting these differences, males had a higher total population rate of intellectual disability, with an age-standardised rate (ASR) of 0.9 percent, than females (ASR 0.6 percent), even after adjusting for the different age profiles of the males and females in the population. Altogether, males made up 59.4 percent and females 40.6 percent of the people with intellectual disability in the study population (see appendix table B.5).

Ethnic group

In the study population, a total of:

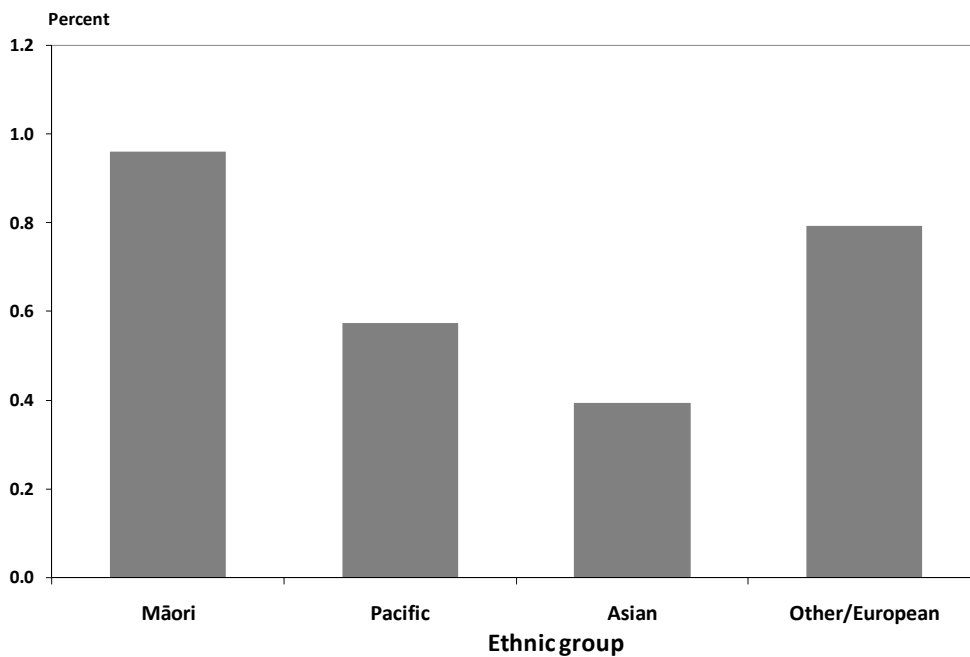
- 5185 Māori people
 - 1636 Pacific people
 - 1141 Asian people
 - 23,885 Other/European people
- were identified as having intellectual disability.¹⁴

Adjusting for the different age profiles of these four ethnic groups, Māori had the highest rates of intellectual disability (with an ASR of 1.0 percent), followed by Other/European (ASR 0.8 percent), Pacific (ASR 0.6 percent) and Asian (ASR 0.4 percent) people (see Figure 4).¹⁵

¹⁴ For a description of how ethnic group/ethnicity was defined for the study population, see the Glossary (a prioritisation system was used to classify people identifying with more than one ethnic group).

¹⁵ See Appendix A for estimates of the 'true' prevalence of intellectual disability for the different ethnic groups in the study population, based on the capture–recapture analysis.

Figure 4: Age-standardised rates of intellectual disability, by ethnic group



Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Data in appendix table B.3.

Compared with people without intellectual disability, people with intellectual disability were:

- more likely to be Māori (16.3 percent of people with intellectual disability were Māori, compared with 12.8 percent of people without intellectual disability)
- slightly more likely to be from the Other/European ethnic group (75.0 percent compared with 74.1 percent)
- less likely to be Asian (3.6 percent compared with 6.6 percent)
- slightly less likely to be from a Pacific ethnic group (5.1 percent compared with 6.5 percent).

(For details, see appendix table B.5.)

Socioeconomic area

The New Zealand Deprivation Index, 2006 version (NZDep2006), measures the level of socioeconomic deprivation in small geographic areas of the country. A score of 1 indicates people are living in the least deprived 20 percent ('quintile') of New Zealand's geographic areas, while a score of 5 indicates they are living in the most deprived 20 percent.¹⁶

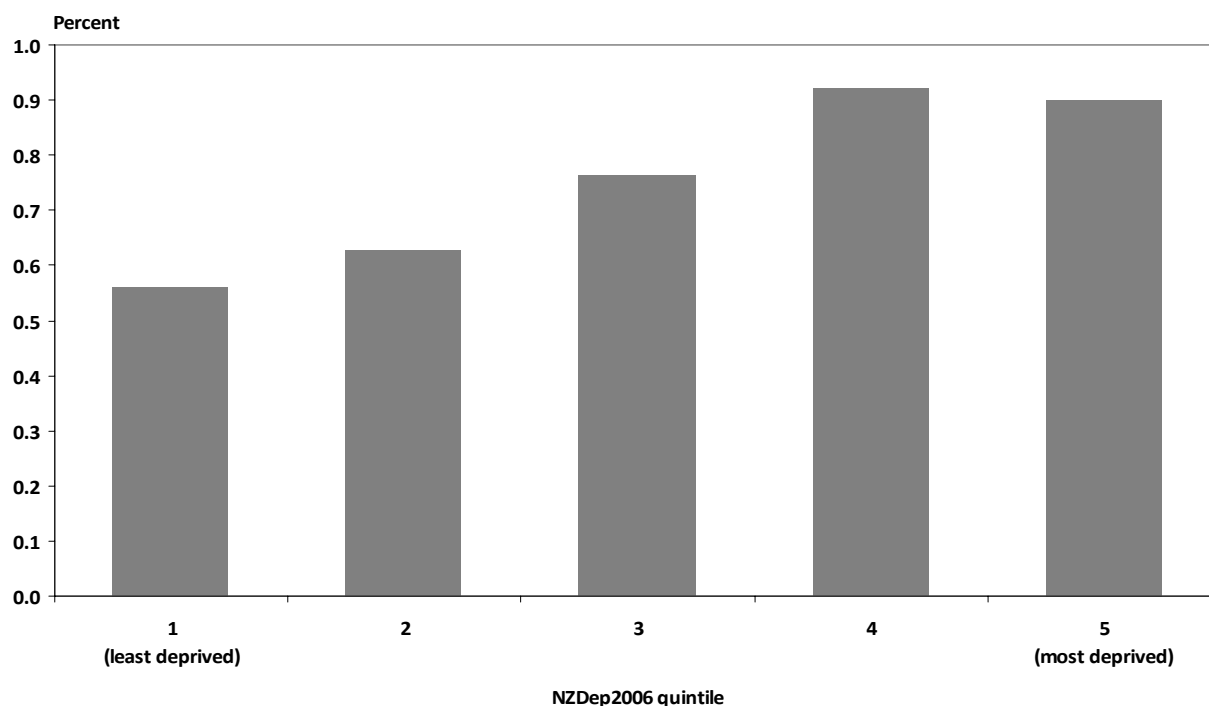
In the study population, people from the more socioeconomically deprived areas of New Zealand tended to have higher rates of intellectual disability than people from the less deprived areas. For example, 0.9 percent of people from NZDep quintile 5 – the areas of New Zealand with the highest levels of deprivation – had intellectual disability. This compares with 0.6 percent of people from NZDep quintile 1, the areas of New Zealand with the lowest levels of deprivation (see Figure 5).

Reflecting these rates, a higher proportion of people with intellectual disability (27.1 percent) were living in the most socioeconomically deprived areas of New Zealand (NZDep quintile 5) than people without intellectual disability (22.3 percent) (see appendix table B.5).¹⁷

¹⁶ NZDep2006 is calculated using 2006 Census data on the following social and economic variables: household access to vehicles and telephones, receipt of means-tested benefits, unemployment, household income, sole parenting, educational qualifications, home ownership and home living space (Salmond et al 2007). Readers should note that the index refers to the average socioeconomic circumstances of the *whole* population of a census area unit, not to individuals. Caution is therefore required when interpreting NZDep2006 data. See the Glossary for further details of how NZDep was measured in this study.

¹⁷ See Appendix A for estimates of the 'true' prevalence of intellectual disability for people living in different socioeconomic areas of New Zealand, based on the capture–recapture analysis.

Figure 5: Age-standardised rates of intellectual disability, by socioeconomic area (NZDep2006 quintile)



Source: Ministry of Health study population, 1 July 2007–30 June 2008

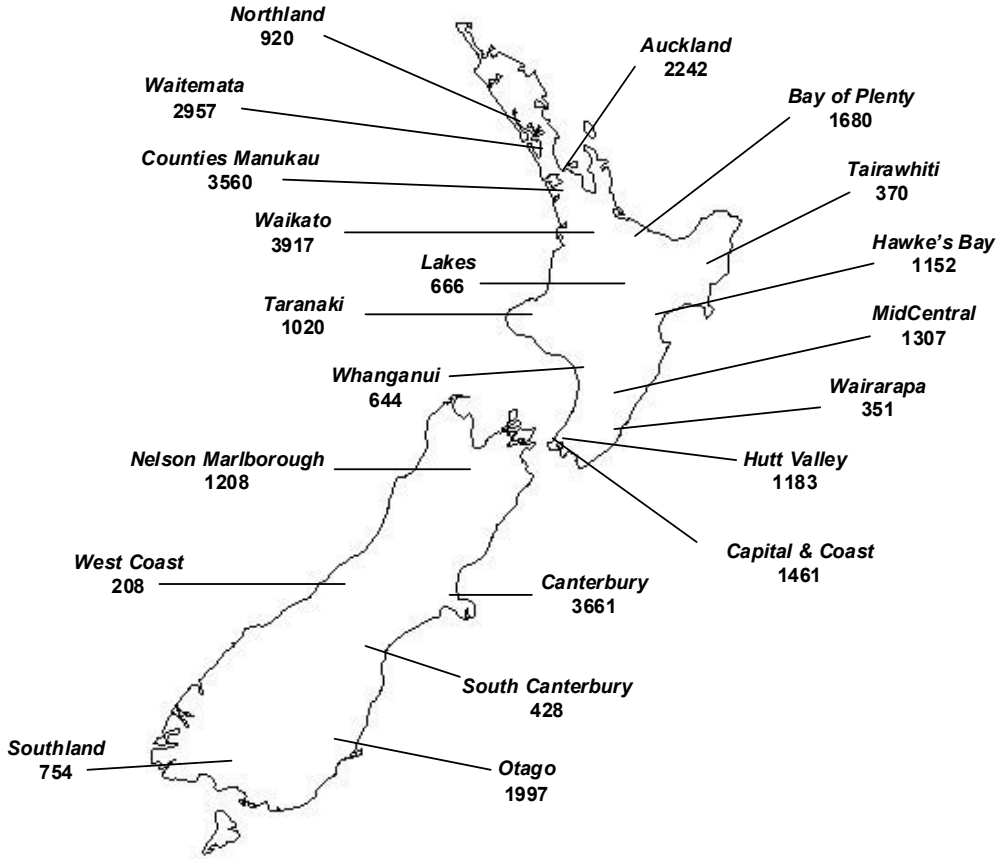
Notes: Data in appendix table B.4. Excludes people whose socioeconomic area was not specified.

District health boards

Based on the study population examined for this report, this section looks at the prevalence of intellectual disability in New Zealand's 21 district health boards (DHBs).¹⁸ The number of people with intellectual disability living in each DHB area is shown in Figure 6. As might be expected, DHB areas with larger populations generally had higher numbers of people with intellectual disability (see appendix table B.6). Waikato DHB had the largest number of people with intellectual disability, followed by Canterbury DHB and Counties Manukau DHBs.

¹⁸ There are now only 20 DHBs, because Otago and Southland DHBs have joined to become Southern DHB.

Figure 6: Number of people with intellectual disability, by district health board



Source: Ministry of Health study population, 1 July 2007–30 June 2008

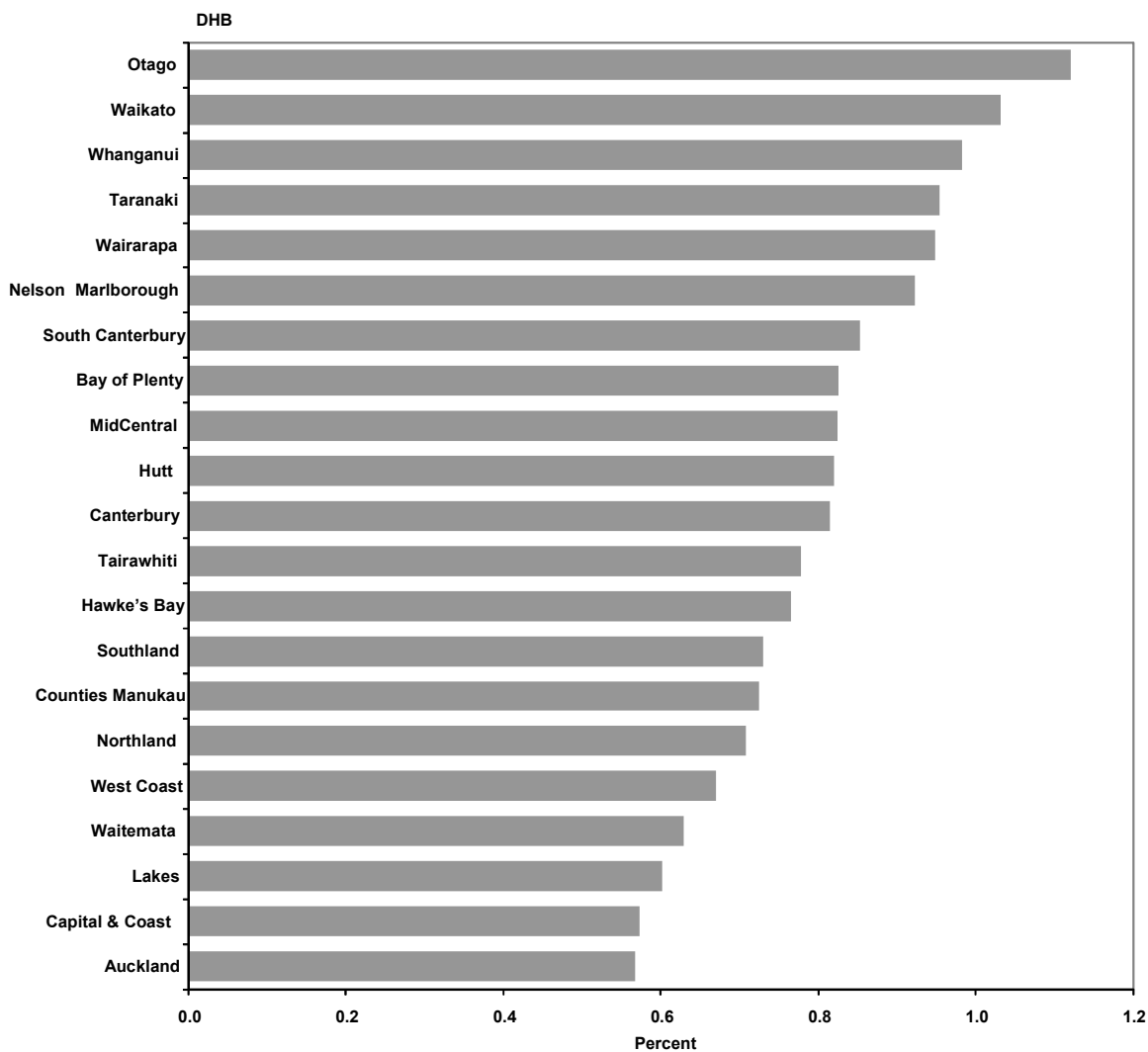
Notes: Data in appendix table B.6. Excludes people whose DHB area was not specified.

Adjusting for the different age profiles of the DHB populations, Otago and Waikato DHBs had the highest percentages (rates) of people with intellectual disability in their total populations (ASRs of 1.1 and 1.0 percent, respectively). Auckland and Capital & Coast DHBs had the lowest age-standardised rates (ASRs of 0.6 percent) (see Figure 7).^{19,20}

¹⁹ See Appendix A for estimates of the 'true' prevalence of intellectual disability in each of these 21 DHB areas, based on the capture–recapture analysis.

²⁰ The difference in rates may be partly related to people with intellectual disability who were deinstitutionalised staying in the area where the institutions were located (see the Discussion for further details).

Figure 7: Age-standardised rates of intellectual disability, by district health board



Source: Ministry of Health study population, 1 July 2007–30 June 2008

Notes: Data in appendix table B.6. Excludes people whose DHB area was not specified.

For all 21 DHBs, males outnumbered females in the group with intellectual disability. The proportion of the population with ID that was male was highest in Waitemata (63.6 percent) and the proportion of the population that was male was lowest in Lakes District DHB (54.8 percent) (see appendix table B.7).

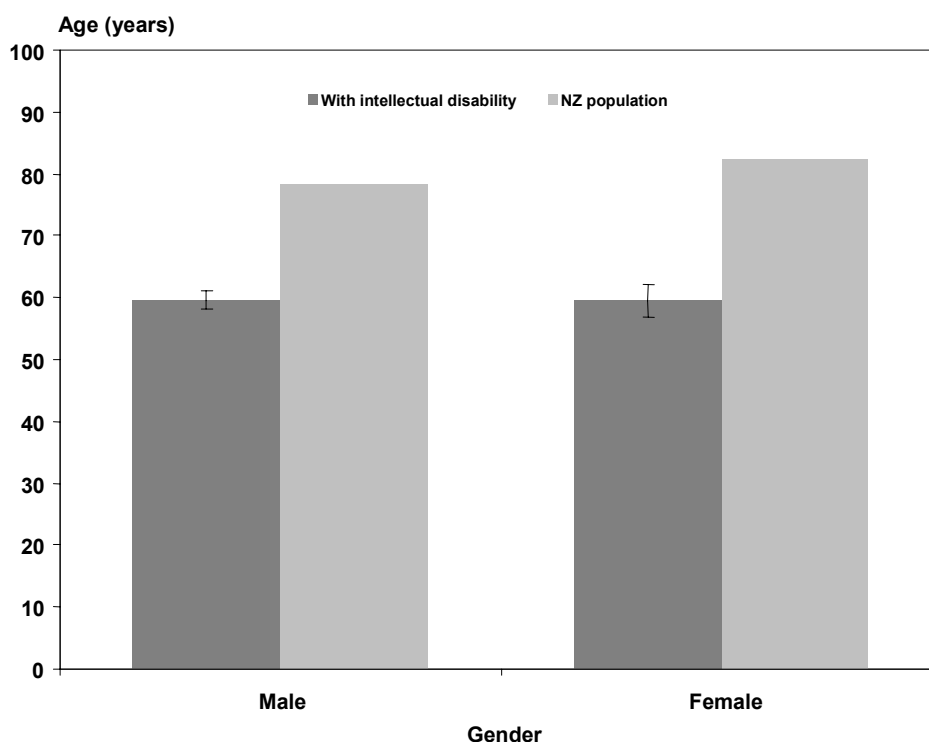
The proportions of people with intellectual disability in the four ethnic groups varied across the DHBs, as would be expected from the ethnic profiles of their general populations. Tairāwhiti DHB had the highest proportion of Māori among the people with intellectual disability (52.7 percent) and Otago had the lowest (5.3 percent). Counties Manukau DHB had the highest proportion of Pacific people with intellectual disability (19.6 percent) and Auckland DHB had the highest proportion of Asian people (12.7 percent). Otago DHB had the highest proportion of people with intellectual disability in the Other/European ethnic group (93.2 percent) and Tairāwhiti had the lowest (46.2 percent) (see appendix table B.8).

In terms of socioeconomic areas (measured by NZDep quintiles), Capital & Coast DHB had the highest proportion of people with intellectual disability in the least deprived areas (23.6 percent), and Tairāwhiti had the highest proportion in the most deprived areas (72.4 percent) (see appendix table B.9).

3 Life Expectancy

Average life expectancy is a broad indicator of the general health status of a population or group. In the three most recent years for which data is available (2006–2009), the life expectancy at birth of the 31,847 people with intellectual disability in the study population was considerably less than that of the general New Zealand population. The life expectancy for males with intellectual disability was 59.7 years, compared with 78.4 years for *all* New Zealand males – a difference of 18.7 years. The life expectancy for females with intellectual disability was 59.5 years, compared with 82.4 years for *all* New Zealand females – a difference of 22.9 years) (see Figure 8).

Figure 8: Life expectancy at birth, people with intellectual disability and total New Zealand population, 2006–09



Sources: Ministry of Health study population data, Statistics New Zealand

Notes: Data in appendix table B.10. Life expectancy for people with intellectual disability is for the three financial years 1 July 2006–30 June 2009. Life expectancy for the total New Zealand population is provisional and is for the three calendar years 2007–2009 (Statistics New Zealand 2010). Life expectancies for people with intellectual disability were calculated using the abridged Chiang II life table method (Chiang 1978, 1984). I = 95 percent confidence interval.

4 Chronic Health Conditions

In this section, health care utilisation data is analysed to provide an indication of the prevalence of six long-term and/or serious health conditions in people with and without intellectual disability:

- coronary heart disease (CHD)
- respiratory disease
- diabetes
- kidney disease
- cancer
- morbid obesity.

These conditions have the potential to be life-threatening or persistently disabling and/or require ongoing health care and support.

The prevalence of the conditions has been calculated by analysing hospitalisation and other health services data, such as records indicating outpatient or community clinic attendances, laboratory tests or prescriptions. This method is considered to provide a reasonable guide to the actual numbers of people receiving care or treatment for these conditions, thus serving as a useful indirect measure (a proxy indicator) of the prevalence of these conditions. Note that the time periods relevant to each condition vary, and are specified in the notes under each chart.

Coronary heart disease

An indication of the prevalence of coronary heart disease (CHD) in the study population was calculated by counting how many people received one or more of the following types of care or treatment:

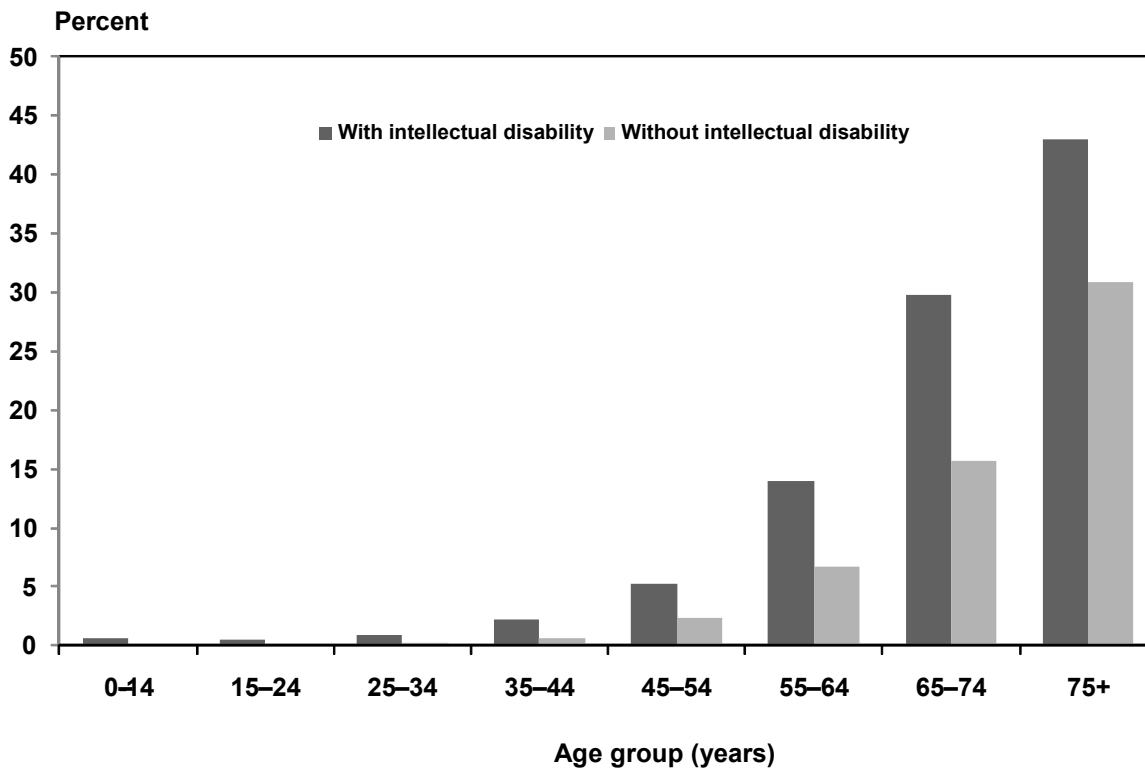
- public hospital treatment for CHD, including treatment for the following conditions: acute myocardial infarction, angina pectoris, other acute or chronic forms of ischaemic heart disease, other unspecified cardiovascular disease
- multiple prescriptions for anti-angina medicine.

A total of 2174 people with intellectual disability received these types of CHD care or treatment, equivalent to 6.8 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability were almost twice as likely to receive these types of CHD care or treatment (an ASR of 5.3 percent) as people without intellectual disability (an ASR of 2.7 percent).

In both groups, older people (aged 65 and over) were most likely to be receiving CHD care or treatment. For people with intellectual disability, those aged 75 and over had the highest rate of CHD care or treatment (43.0 percent), followed by those aged 65–74 (29.8 percent, see Figure 9). Males and females had quite similar age-adjusted rates of CHD care or treatment (ASRs of 5.5 and 5.2 percent, respectively).

Among the intellectual disability group, Asian people (ASR 7.5 percent), Māori (ASR 7.3 percent) and Pacific people (ASR 7.1 percent) had similar age-adjusted rates of CHD care and treatment. The rate for Other/European people was somewhat lower (an ASR of 4.9 percent).

Figure 9: Coronary heart disease (CHD) care or treatment, people with and without intellectual disability, by age, to 30 June 2008



Sources: National Minimum Dataset, Pharmaceutical Collection

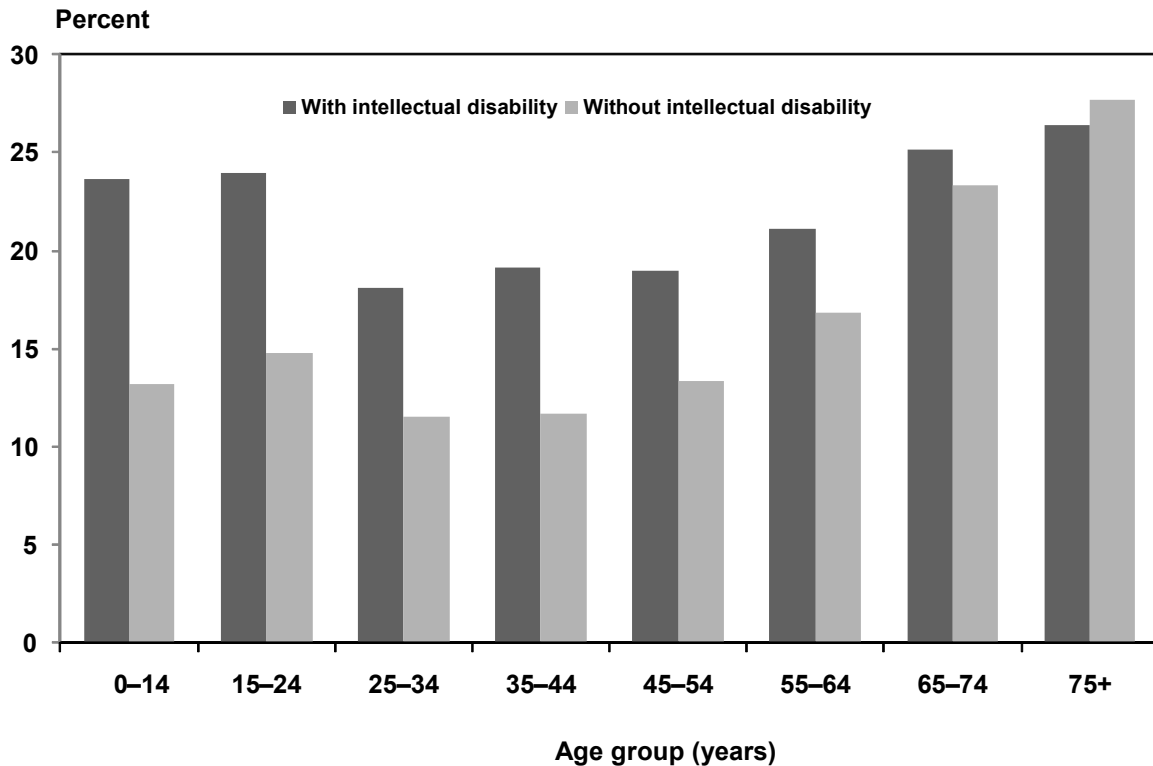
Notes: Data in appendix table C.1. Coronary heart disease care or treatment is defined as receiving public hospital treatment for coronary heart disease between 1 January 1988 and 30 June 2008, and/or multiple prescriptions for anti-angina medicine between 1 July 2001 and 30 June 2008.

Chronic respiratory disease

An indication of the prevalence of chronic respiratory disease in the study population was calculated by counting how many individuals received care or treatment for particular respiratory or lung conditions. This included receiving public hospital care for conditions such as asthma (allergic or non-allergic), chronic bronchitis, bronchiectasis or chronic obstructive pulmonary disease (COPD; eg, emphysema); or receiving prescription medicines (eg, beclomethasone dipropionate, fenoterol hydrobromide) normally used for these types of respiratory or lung conditions.

A total of 7060 people with intellectual disability were recorded as receiving one or more of these types of care or treatment for chronic respiratory disease. This was equivalent to 22.2 percent of all people with intellectual disability in the study population.

Figure 10: Chronic respiratory disease care or treatment, people with and without intellectual disability, by age, to 30 June 2008



Sources: National Minimum Dataset, Pharmaceutical Collection

Notes: Data in appendix table C.2. Chronic respiratory disease care or treatment is defined as receiving public hospital care for chronic respiratory disease (eg, asthma, chronic bronchitis, bronchiectasis, emphysema) between 1 January 1988 and 30 June 2008, and/or receiving selected prescription medicines (eg, beclomethasone dipropionate, fenoterol hydrobromide) used to treat chronic respiratory conditions between 1 July 2001 and 30 June 2008.

Adjusted for age, people with intellectual disability (with an ASR of 21.1 percent) were approximately 1.5 times more likely to receive care or treatment for chronic respiratory disease than people without intellectual disability (ASR 14.3 percent).

For people with intellectual disability, those aged 75 and over had the highest rate of treatment for chronic respiratory disease (26.4 percent), followed by people aged 65–74 (25.2 percent, see Figure 10). However, chronic respiratory disease treatment rates were almost as high in the 0–14 and 15–24 years age groups (23.7 and 24.0 percent, respectively). This contrasts with the situation for people without intellectual disability, where children and young people had markedly lower rates of treatment for chronic respiratory disease compared to people aged 65 or more.

Females with intellectual disability (with an ASR of 21.9 percent) had slightly higher rates of treatment for chronic respiratory disease than males (ASR 20.2 percent).

Looking at ethnic groups, Māori with intellectual disability (with an ASR of 25.7 percent) were the most likely group to receive treatment for chronic respiratory disease. Rates of treatment for chronic respiratory disease were lower for Asian (ASR 21.0 percent), Pacific (ASR 21.0 percent) and Other/European (ASR 20.1 percent) people with intellectual disability.

Diabetes

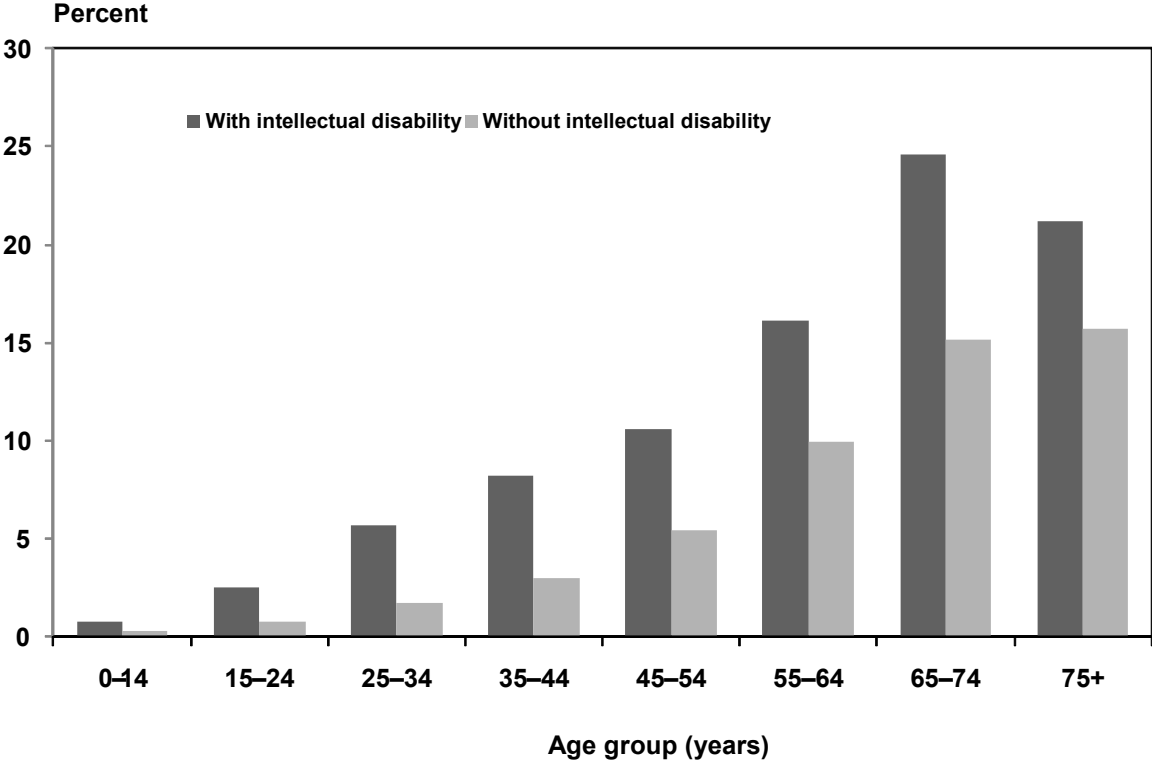
An estimate of the prevalence of diabetes was calculated by counting how many individuals received one or more of the following:

- public hospital treatment for diabetes (either type 1 or type 2 diabetes, but excluding diabetes arising from pregnancy)
- two or more diabetes-related prescribed medicines (eg, insulin, oral hypoglycaemics)
- services at a diabetes clinic
- four or more blood glucose tests (according to laboratory claims data).

A total of 2331 people with intellectual disability were recorded as receiving one or more of these types of diabetes care or treatment. This was 7.3 percent of all the people with intellectual disability in the study population.

Adjusted for age, people with intellectual disability (ASR 7.1 percent) were almost twice as likely to receive diabetes care or treatment as people without intellectual disability (ASR 3.6 percent). For people with intellectual disability, those aged 65–74 were the most likely to receive diabetes care or treatment (24.6 percent), followed by those aged 75 and over (21.2 percent, see Figure 11). Females (ASR 8.0 percent) were more likely than males (ASR 6.5 percent) to receive diabetes care or treatment.

Figure 11: Diabetes care or treatment, people with and without intellectual disability, by age, to June 2008



Sources: National Minimum Dataset, Pharmaceutical Collection, National Non-Admitted Patient Collection, Laboratory Claims

Notes: Data in appendix table C.3. Diabetes care or treatment is defined as receiving one or more of the following: public hospital treatment for diabetes (excluding diabetes arising from pregnancy) between 1 January 1988 and 30 June 2008; two or more diabetes-related prescribed medicines (eg, insulin, oral hypoglycaemics) from 1 July 2001 to 30 June 2008; services at a diabetes clinic between 1 July 2006 and 30 June 2008; four or more blood glucose tests between 1 July 2006 and 30 June 2008.

Looking at ethnicity for people with intellectual disability, Pacific people (with an ASR of 13.5 percent) had the highest age-adjusted rate of diabetes care or treatment, followed by Asian people (ASR 11.7 percent) and Māori (ASR 11.3 percent). The rate for Other/European people (ASR 6.1 percent) was comparatively low.

Chronic kidney disease (renal replacement therapy)

An indication of the prevalence of chronic kidney disease in the study population was obtained by counting how many individuals received renal replacement therapy in a public hospital. Renal replacement therapy includes renal transplant and/or renal dialysis, and is used to treat chronic kidney disease.

Between 1 January 1988 and 30 June 2008, 69 people with intellectual disability received renal replacement therapy in a public hospital. This was 0.2 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 0.2 percent) were twice as likely to receive renal replacement therapy as people without intellectual disability (ASR 0.1 percent). However, this result should be treated with caution as the total number of people with intellectual disability receiving renal replacement therapy was so low (69 people) (see appendix table C.4).

Note that this indicator comprises people with chronic kidney disease and excludes people who have only acute renal therapy.

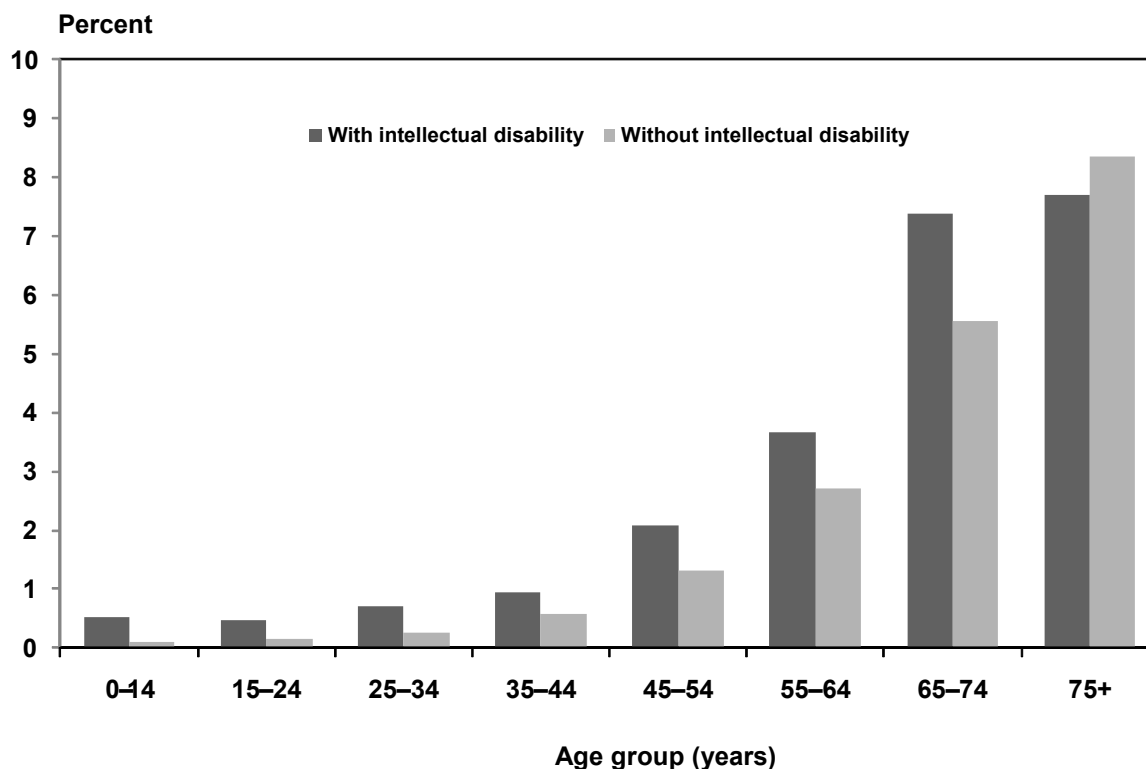
Cancer

An indication of the prevalence of cancer in the study population was obtained by counting the number of individuals receiving some type of publicly funded hospital or non-admitted patient care or treatment for cancer in the two years to 30 June 2008. The types of care or treatment include surgery, chemotherapy, radiotherapy and blood transfusions, as well as cancer assessment and follow-up services.

A total of 583 people with intellectual disability received some form of publicly funded inpatient or non-admitted patient care or treatment for cancer. This was 1.8 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 1.6 percent) were approximately 1.5 times more likely to receive cancer care or treatment during the 2 years than people without intellectual disability (ASR 1.1 percent).

For people with intellectual disability, those aged 75 and over had the highest rate of cancer care or treatment (7.7 percent), followed by people aged 65–74 (7.4 percent, see Figure 12). Males (ASR 1.7 percent) had a similar rate of cancer care or treatment to females (ASR 1.6 percent).

Figure 12: Cancer care or treatment, people with and without intellectual disability, by age, 2 years to 30 June 2008



Sources: National Minimum Dataset, National Non-Admitted Patient Collection

Notes: Data in appendix table C.5. Cancer care or treatment is defined as receiving publicly funded inpatient hospital care or treatment for cancer between 1 July 2006 and 30 June 2008, or non-admitted patient care or treatment for cancer (eg, chemotherapy, radiotherapy, blood transfusions, assessment and follow-up services) between 1 July 2006 and 30 June 2008.

Morbid obesity

An indication of the prevalence of morbid (potentially life-threatening) obesity in the study population was obtained by counting how many individuals received public hospital treatments for morbid obesity. These treatments include procedures such as liposuction, lipectomy, insertion of gastric bubbles, and gastric reduction or bypass surgery.

In the year to 30 June 2008, a total of 270 public hospital (inpatient) discharges were for morbid obesity treatments provided to people with intellectual disability. This is the equivalent of 0.8 public hospital morbid obesity treatments per 100 people with intellectual disability. Adjusted for age, people with intellectual disability (with an ASR of 0.9 per 100 people per year) were over four times more likely to receive morbid obesity treatments than people without intellectual disability (ASR of 0.2 per 100 people per year).

For people in the intellectual disability group, those aged 65–74 years had the highest rate of morbid obesity treatment (3.0 procedures per 100 people), followed by those aged 55–64 (2.3 per 100). Females (with an ASR of 1.3 per 100) had twice the male rate of morbid obesity treatment (ASR 0.6 per 100).

Looking at ethnicity in the intellectual disability group, Pacific people (with an ASR of 3.7 procedures per 100) had the highest rate of morbid obesity treatment, followed by Māori (ASR 1.3 per 100) (see appendix table C.6).

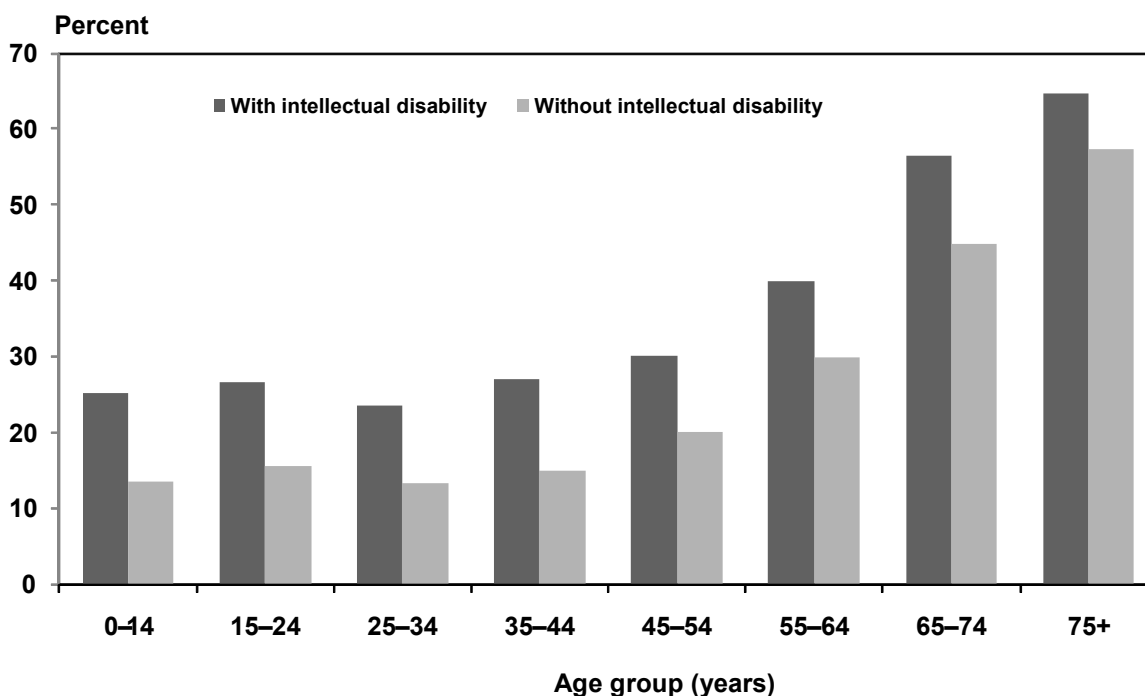
Any chronic health condition

Altogether, 10,031 people with intellectual disability received care or treatment for one or more of the six chronic or serious health conditions covered above (coronary heart disease, chronic respiratory disease, diabetes, chronic kidney disease, cancer, morbid obesity). This was 31.5 percent of all the people with intellectual disability in the study population.

Adjusted for age, people with intellectual disability (with an ASR of 29.5 percent) were approximately 1.5 times more likely to receive treatment for a chronic health condition than people without intellectual disability (ASR 19.1 percent).

For people with intellectual disability, treatment rates for chronic health conditions generally increased with age. People aged 75 and over had the highest rate of treatment (64.7 percent), followed by 65–74-year-olds (56.6 percent, see Figure 13). Females (with an ASR of 30.6 percent) were slightly more likely than males (ASR 28.5 percent) to receive hospital treatment for a chronic health condition.

Figure 13: Received care or treatment for one or more chronic health conditions, people with and without intellectual disability, by age, to 30 June 2008



Sources: National Minimum Dataset, National Non-Admitted Patient Collection, Pharmaceutical Collection, Laboratory Claims

Notes: Data in appendix table C.7. Care or treatment is for one or more of the following: coronary heart disease (CHD), chronic respiratory (lung) disease, diabetes, chronic kidney disease, cancer, morbid obesity. (See previous sections for detailed definitions.)

Considered by ethnic group, Māori with intellectual disability had the highest age-adjusted rates of treatment for chronic health conditions (with an ASR of 35.9 percent), followed by Pacific (ASR 34.8 percent), Asian (ASR 33.7 percent) and Other/European (ASR 27.8 percent) people.

5 Epilepsy and Other Physical Health Conditions

This section presents indicators for three specific health conditions relevant to people with intellectual disability: epilepsy, injury (unintentional and intentional) and oral health problems.

Epilepsy

An indication of the prevalence of epilepsy in the study population was obtained by counting how many people had received epilepsy-related care or treatment. People were counted as receiving epilepsy-related care or treatment if they met at least one of the following criteria:

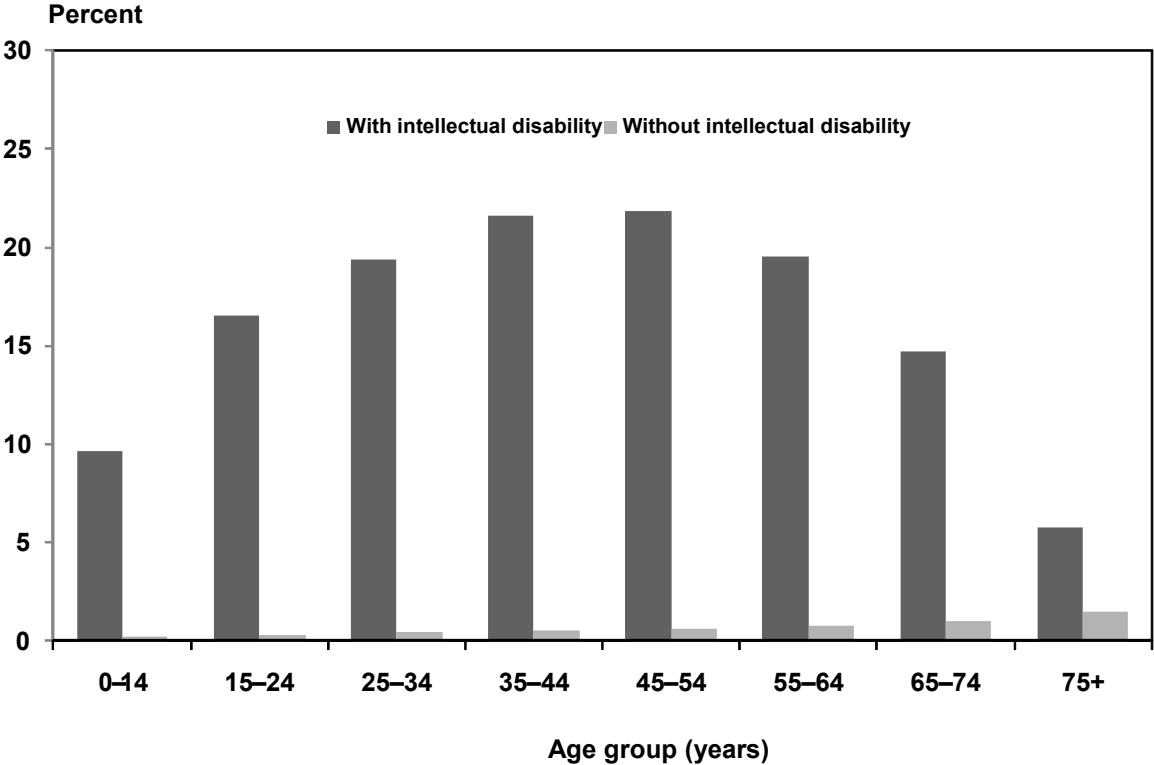
- had two or more inpatient or outpatient attendances that included any diagnosis of epilepsy
- received two or more dispensed items for vigabatrin, ethosuximide, phenytoin sodium, phenobarbitone, phenobarbitone sodium or primidone (solely epilepsy indicated) from a community pharmacy
- had one inpatient or outpatient attendance that included any diagnosis of epilepsy and received one or more dispensed items for clobazam, lamotrigine, gabapentin, topiramate, paraldehyde, sodium valproate, clonazepam, carbamazepine or diazepam (epilepsy indicated among other conditions) from a community pharmacy.²¹

Based on these criteria, 4907 people with intellectual disability were identified as having epilepsy. This was 15.4 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 16.3 percent) were over 30 times more likely to be identified as having epilepsy than people without intellectual disability (ASR 0.5 percent).

For people with intellectual disability, rates of epilepsy were highest in the 45–54 and 35–44 years age groups (21.8 and 21.6 percent, respectively), and lowest in the 0–14 and 75 years and over age groups (9.7 percent and 5.8 percent, respectively, see Figure 14). Females with intellectual disability (with an ASR of 18.0 percent) were slightly more likely than males (ASR 15.7 percent) to be identified as having epilepsy.

²¹ Dispensing of paraldehyde in New Zealand in recent years has become extremely rare.

Figure 14: Epilepsy care or treatment, people with and without intellectual disability, by age, to 30 June 2008



Sources: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection

Note: Data in appendix table C.8. Epilepsy care or treatment is defined as receiving at least one of the following three options: (1) two or more inpatient hospitalisations (between 1 January 1988 and 30 June 2008) that included any diagnosis of epilepsy; (2) between 1 July 2001 and 30 June 2008 received two or more community pharmacy-dispensed items for vigabatrin, ethosuximide, phenytoin sodium, phenobarbitone, phenobarbitone sodium or primidone (solely epilepsy indicated); (3) one inpatient hospitalisation (between 1 January 1988 and 30 June 2008) that included any diagnosis of epilepsy, and between 1 July 2001 and 30 June 2008 received one or more community pharmacy-dispensed items for clobazam, lamotrigine, gabapentin, topiramate, paraldehyde, sodium valproate, clonazepam, carbamazepine or diazepam (epilepsy indicated among other conditions).

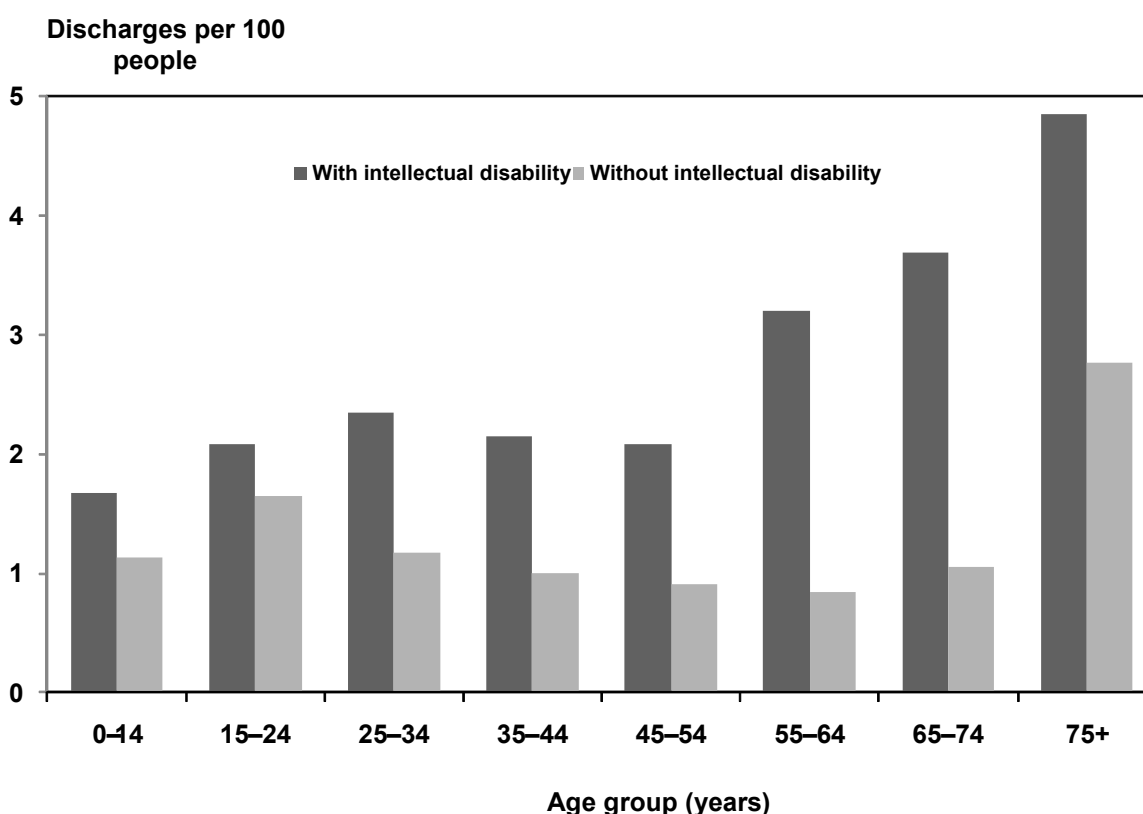
Looking at rates of epilepsy by ethnic group for those with intellectual disability, Māori (with an ASR of 21.1 percent) and Pacific people (ASR 20.7 percent) had higher age-adjusted rates of epilepsy compared to Other/European (ASR 15.0 percent) and Asian (ASR 12.8 percent) people.

Public hospital care for injury

Public hospital care for injury includes medical and surgical treatment for many types of injuries, including vehicle and traffic injuries, sports injuries, falls and poisoning. Unintentional injuries as well as intentional injuries (assault, self-harm, suicide) are included. Complications from medical and surgical care are excluded.

In the year to 30 June 2008, people with intellectual disability were recorded as having 753 public hospital discharges for injury treatment. This is an average of 2.4 injury treatment discharges per 100 people with intellectual disability.

Figure 15: Public hospital care for injury, people with and without intellectual disability, by age, year to 30 June 2008



Source: National Minimum Dataset

Note: Data in appendix table C.9. Public hospital care for injury is defined as medical or surgical treatment for intentional and unintentional injury (excluding the complications of hospital treatment) between 1 July 2007 and 30 June 2008.

Adjusted for age, people with intellectual disability (with an ASR of 2.3 discharges per 100 people) were almost twice as likely to have public hospital injury treatment as people without intellectual disability (ASR 1.2 discharges per 100 people).

For people with intellectual disability, adults aged 75 and over had the highest public hospital injury treatment rate (4.8 discharges per 100 people), followed by 65–74-year-olds (3.7 discharges per 100, see Figure 15). Males and females had very similar rates of public hospital injury treatment (ASRs of 2.3 and 2.2 discharges per 100, respectively).

Looking at ethnicity for people with intellectual disability, Other/European people (ASR 4.0 discharges per 100 people) had the highest age-adjusted rate of public hospital injury treatment, followed by Pacific people (ASR 2.5 discharges per 100), Asian people (ASR 2.2 discharges per 100), and Māori (ASR 1.6 discharges per 100).

Public hospital dental treatment

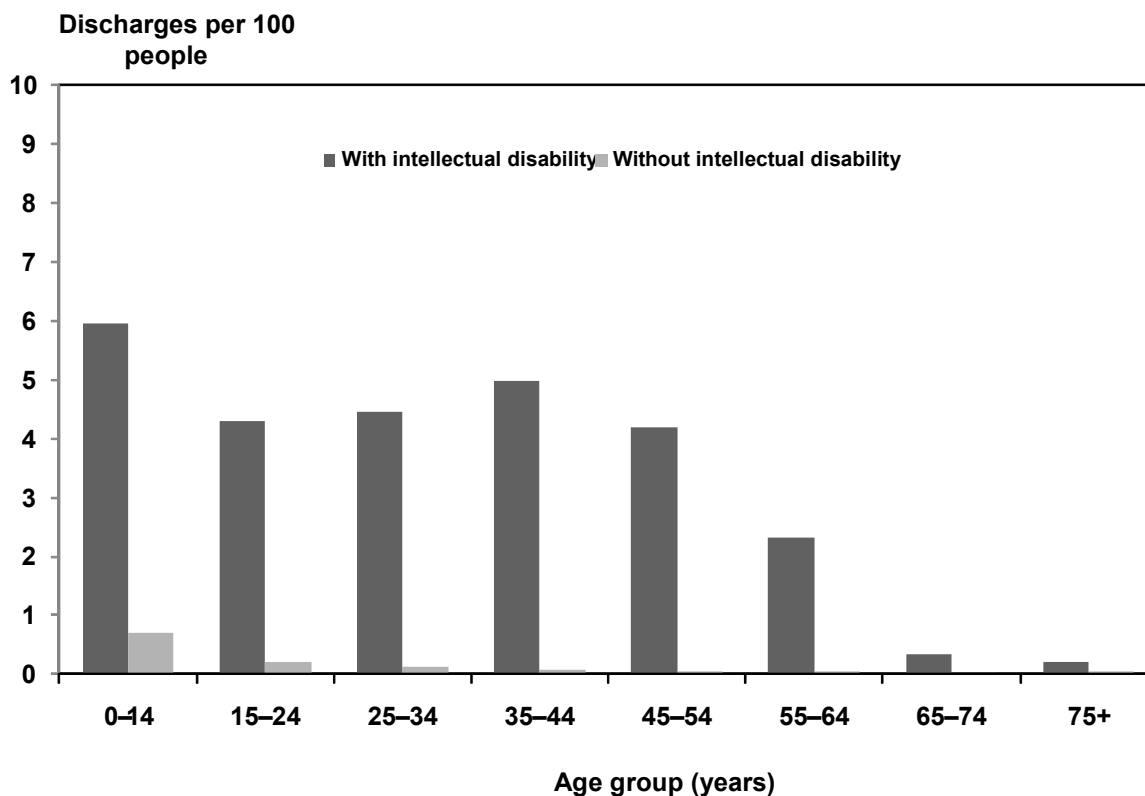
Dental treatment includes dental extractions, dental restorations and oral surgery procedures provided in a public hospital setting. Rates of public hospital dental treatment give an indication of the prevalence of comparatively serious, unusual or difficult-to-treat dental or oral health problems in the general population. As well as specialist dental services public hospitals also provide primary oral health care services for people needing special care, because of an intellectual disability that may prevent them from accessing private community dental care (Ministry of Health 2010). For example, people with intellectual disabilities often have to have dental treatment under a general anaesthetic in a public hospital setting due to behavioural as well as complex dental issues. Some public hospitals provide a limited service for patients who cannot access care from private practices due to their financial status. People who access this service may need to provide a Community Services Card, and may also need to pay part of the charges for their treatment.

In the year to 30 June 2008, 1344 public hospital discharges (inpatient including day patient) were for dental treatment for people with intellectual disability. This was an average of 4.2 public hospital dental treatments per 100 people with intellectual disability.

Adjusted for age, people with intellectual disability (with an ASR of 4.2 treatments per 100 people) were over 15 times more likely to receive public hospital dental treatment compared to people without intellectual disability (ASR 0.3 treatments per 100 people).

For people with intellectual disability, children aged 0–14 had the highest rate of dental treatment (5.9 procedures per 100 people), followed by adults aged 35–44 (5.0 per 100, see Figure 16). Females (with an ASR of 4.4 per 100) had a slightly higher rate of dental treatment than males (ASR 4.0 per 100).

Figure 16: Dental treatment public hospital discharges, people with and without intellectual disability, by age, year to 30 June 2008



Source: National Minimum Dataset

Note: Data in appendix table C.10. Public hospital dental treatment includes dental extractions, dental restorations and other oral and dental disorders treated in public hospitals between 1 July 2007 and 30 June 2008.

Looking at ethnic groups, in the intellectual disability group, Asian people (with an ASR of 6.3 procedures per 100) had the highest rate of public hospital dental treatment, followed by Māori (ASR 4.2 procedures per 100), Other/European people (ASR 4.1 procedures per 100) and Pacific people (ASR 3.7 procedures per 100).

6 Mental Disorders

This section presents indicators of the 12-month prevalence of mental disorder in people with and without intellectual disability. These indicators have been calculated using discharge data from publicly funded hospitals, from secondary mental health and addiction services, and from drug dispensing and laboratory test records.

Mood disorder

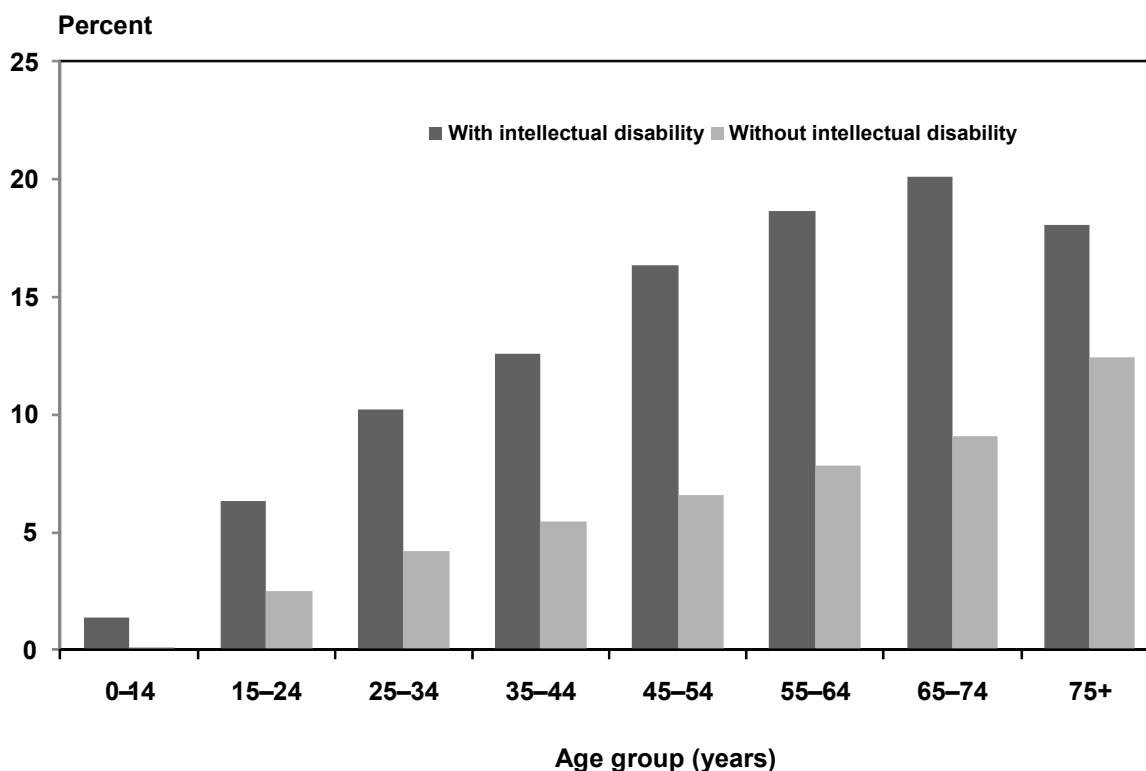
Mood (affective) disorders include mental health conditions such as depression and bipolar disorder. In the 12 months to 30 June 2008, 3048 people with intellectual disability received government-funded care or treatment for a mood disorder.²² This was 9.6 percent of all people with intellectual disability in the study population.

Adjusted for age, people with intellectual disability (with an ASR of 9.7 percent) were more than twice as likely to receive care or treatment for a mood disorder compared to people without intellectual disability (ASR 4.1 percent).

For people with intellectual disability, those aged 65–74 years had the highest rate of care or treatment for a mood disorder (20.1 percent), followed by people aged 55–64 (18.7 percent, see Figure 17). Females (with an ASR of 11.5 percent) were more likely than males (ASR 8.2 percent) to receive care or treatment for a mood disorder.

²² This includes people recorded as having a mood disorder as a secondary diagnosis when hospitalised primarily for another condition.

Figure 17: Mood disorder care or treatment, people with and without intellectual disability, by age, year to 30 June 2008



Sources: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection, Laboratory Claims Collection.

Notes: Data in appendix table C.11. Mood disorder care or treatment is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with a mood disorder diagnosis; secondary mental health and addiction service with a mood disorder; prescription medicines for treating a mood disorder (eg, amitriptyline, lithium carbonate); three or more laboratory tests for lithium.

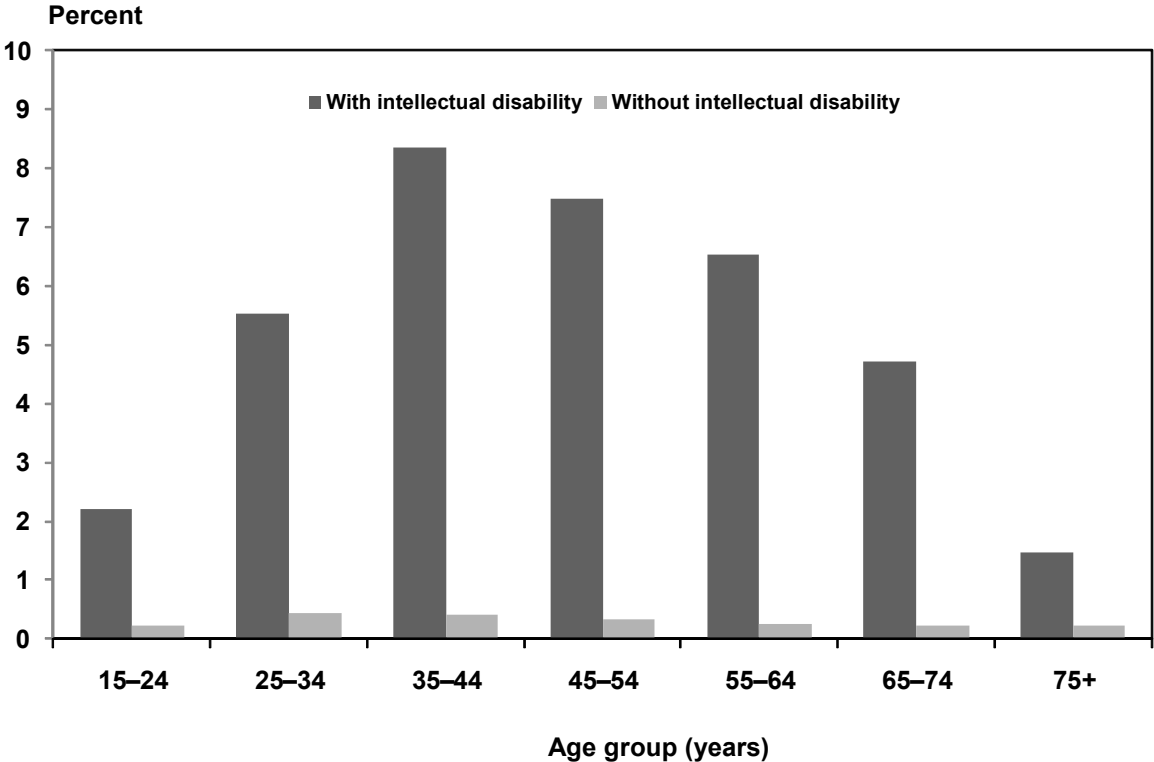
Other/European people with intellectual disability (with an ASR of 10.3 percent) had the highest age-adjusted rate of care or treatment for a mood disorder, followed by Asian (ASR 8.7 percent), Māori (ASR 8.2 percent) and Pacific (ASR 3.9 percent) people (see appendix table C.11).

Psychotic disorder

Psychotic disorders include schizophrenia, paranoid states and other psychoses not related to substance use or physical health conditions. In the 12 months to 30 June 2008, a total of 1164 people with intellectual disability received some form of government-funded care or treatment for a psychotic disorder.²³ This was 3.7 percent of all people with intellectual disability in the study population.

²³ This includes people recorded as having a psychotic disorder as a secondary diagnosis when hospitalised primarily for another condition.

Figure 18: Psychotic disorder care or treatment, adults (15+), with and without intellectual disability, by age, year to 30 June 2008



Sources: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection

Notes: Data in appendix table C.12. Psychotic disorder care or treatment is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with a diagnosis of a psychotic disorder; secondary mental health and addiction service with a psychotic disorder; prescription medicines for treating psychotic disorder (eg, clozapine, haloperidol decanoate).

Adjusted for age, people with intellectual disability were 17 times²⁴ more likely to receive care or treatment for a psychotic disorder than people without intellectual disability (ASRs of 4.1 percent and 0.2 percent, respectively).

Among people with intellectual disability, those aged 35–44 years had the highest prevalence of care or treatment for a psychotic disorder (8.4 percent), followed by those aged 45–54 (7.5 percent, see Figure 18). Males were more likely than females to receive care or treatment for a psychotic disorder (ASRs of 4.7 percent versus 3.4 percent, respectively, see appendix table C.12).

Looking at ethnic groups, Māori with intellectual disability (with an ASR of 7.7 percent) were the ethnic group most likely to receive care or treatment for a psychotic disorder, followed by Pacific (ASR 4.7 percent), Other/European (ASR 3.3 percent) and Asian (ASR 2.4 percent) people with intellectual disability.

²⁴ Using unrounded estimates.

Dementia

Dementia is usually progressive and includes a disturbance in mental functions such as memory, thinking, orientation, comprehension, learning and language. Dementia is often related to Alzheimer's disease, or vascular disease affecting the brain (vascular dementia). It is also associated with other conditions such as Pick's disease, Huntington's disease, Parkinson's disease, Creutzfeld-Jakob disease and HIV.

Dementia can be difficult to diagnose in people with intellectual disability because the symptoms tend to be somewhat different to those exhibited by people without intellectual disability. Also, standard clinical tests for dementia may be difficult to use, especially for people with moderate to severe intellectual disability (Harris 2006; Poindexter et al 2007; Strydom et al 2007).

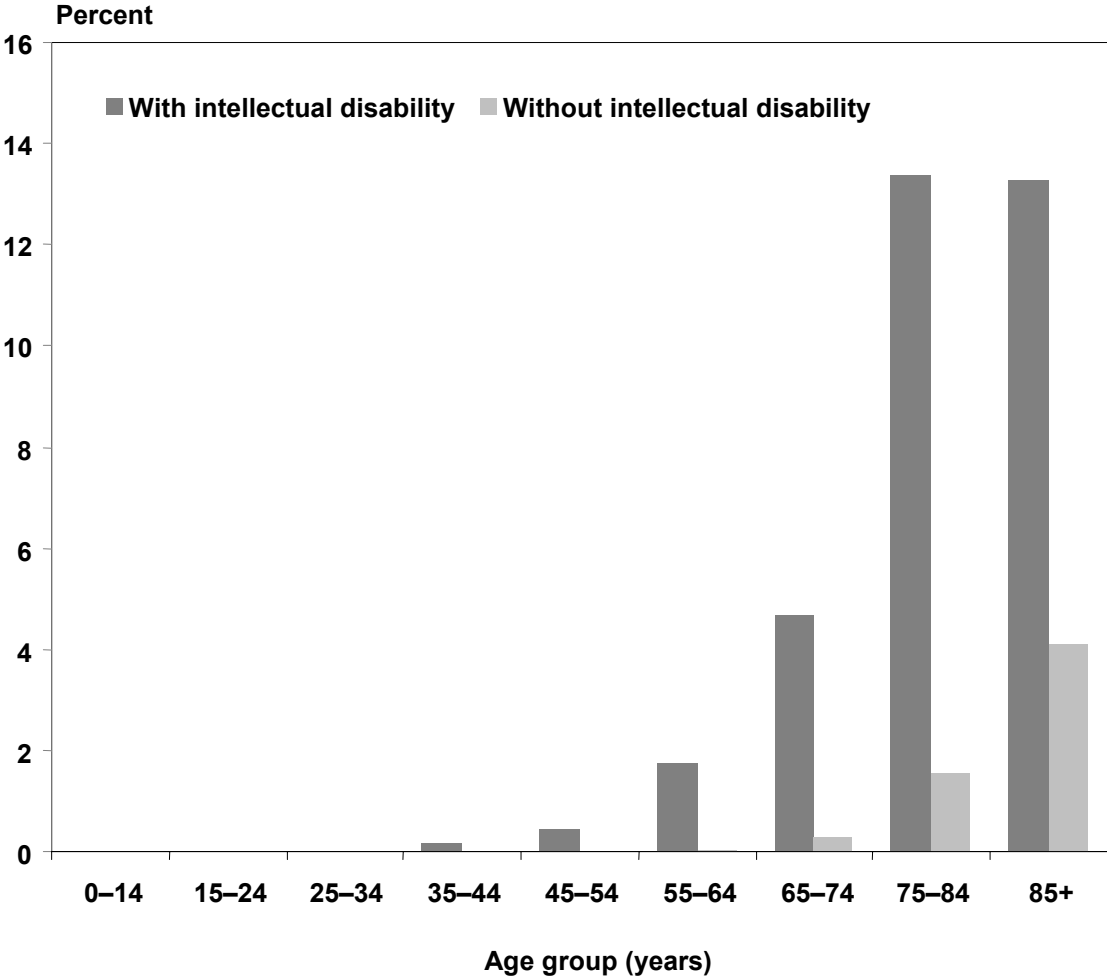
A total of 450 people with intellectual disability in the study population had received some form of government-funded care or treatment for dementia in the 12 months to 30 June 2008.²⁵ This was 1.4 percent of all people with intellectual disability in the study population. Adjusted for age, people with intellectual disability were 10 times more likely to receive care or treatment for dementia than people without intellectual disability (ASRs of 0.9 percent and 0.1 percent, respectively).

Among people with intellectual disability, those aged 75–84 and 85+ years had by far the highest rates of care or treatment for dementia (13.4 percent and 13.3 percent respectively) (see Figure 19).²⁶ In each of the age groups 35–44 years and over, people with intellectual disability had higher rates of dementia than people without intellectual disability. In younger age groups, rates of dementia were extremely low for people both with and without intellectual disability, and were zero in the case of children aged 0–14.

²⁵ This includes people recorded as having dementia as a secondary diagnosis when hospitalised primarily for another condition.

²⁶ The potential difficulty in distinguishing between dementia and intellectual disability may have inflated the rates of intellectual disability in the oldest age groups of the study population (see the Discussion). However, the extent to which this was an issue is unclear.

Figure 19: Dementia care or treatment, people with and without intellectual disability, by age, year to 30 June 2008



Sources: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection

Notes: Data in appendix table C.13. Dementia care or treatment is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with a diagnosis of dementia; secondary mental health and addiction service with dementia; prescription medicine for treating dementia (rivastigmine).

Adjusted for age, males and females with intellectual disability were almost equally likely to receive care or treatment for dementia (ASRs of 0.9 percent and 0.8 percent, respectively; see appendix table C.13).

Looking at ethnic groups, Pacific people with intellectual disability (with an ASR of 1.6 percent) were most likely to receive care or treatment for dementia, followed by Māori (ASR 0.9 percent), Other/European people (ASR 0.8 percent) and Asian people (ASR 0.4 percent) with intellectual disability.

Any type of mental disorder

People in the study population were classified as having a mental disorder if they received government-funded care or treatment for any type of mental disorder (including the types covered above). This included care or treatment for mood disorder, psychotic disorder, dementia, attention deficit hyperactivity disorder (ADHD), anxiety disorder, autism spectrum, eating disorder, gender identity disorder, personality disorder or substance use disorder.

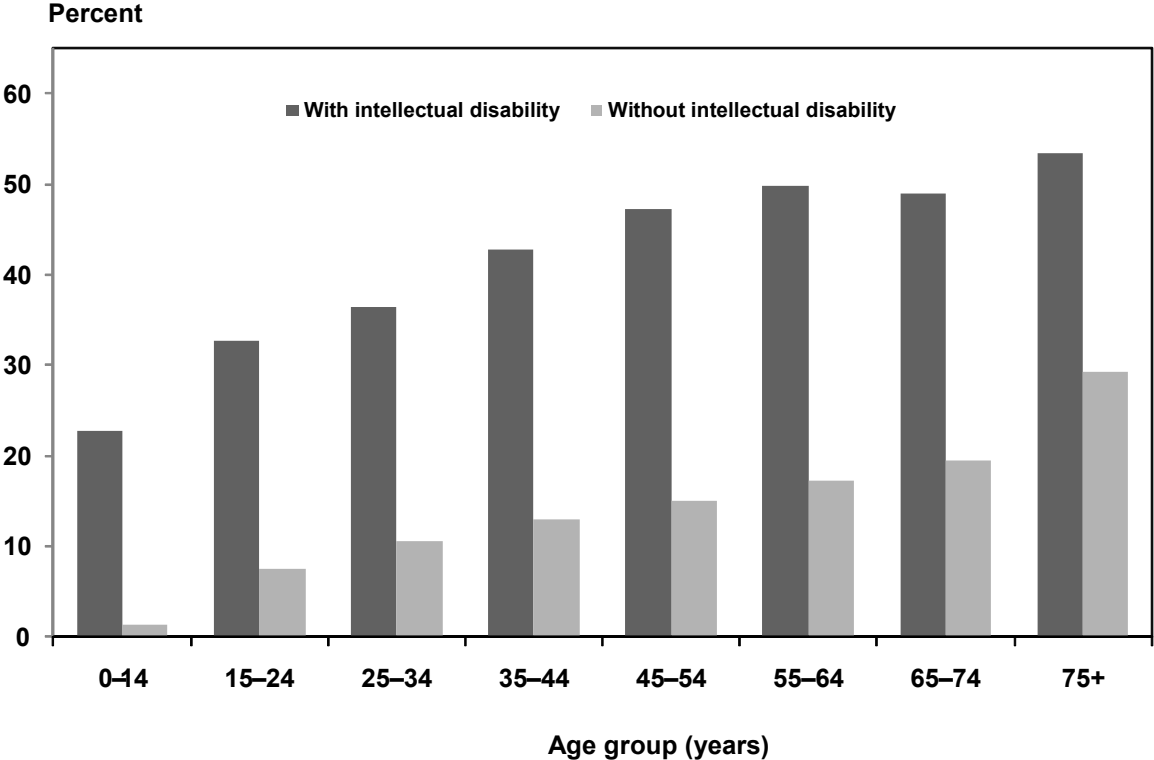
In the 12 months to 30 June 2008, 11,679 people with intellectual disability received care or treatment for a mental disorder.²⁷ This was equivalent to 36.7 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 35.6 percent) were over three times more likely to receive care or treatment for a mental disorder than people without intellectual disability (ASR 10.1 percent).

For people both with and without intellectual disability, generally the prevalence of care or treatment for mental disorder increased with age. People aged 75 years and over with intellectual disability had the highest prevalence (53.5 percent), followed by people aged 55–64 (49.8 percent) and people aged 65–74 (49.0 percent, see Figure 20). Males with intellectual disability (with an ASR of 36.3 percent) were slightly more likely than females (ASR 33.6 percent) to receive care or treatment for a mental disorder.

Looking at ethnicity in the group with intellectual disability, Māori (ASR 36.7 percent) and Other/European people (ASR 36.0 percent) were most likely to get care or treatment for a mental disorder, followed by Asian (ASR 30.7 percent) and Pacific (ASR 26.1 percent) people (see appendix table C.14).

²⁷ This includes people recorded as having any type of mental disorder as a secondary diagnosis when hospitalised primarily for another condition.

Figure 20: Any mental disorder care or treatment, people with and without intellectual disability, by age, year to 30 June 2008



Sources: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection, Laboratory Claims Collection

Note: Data in appendix table C.14. ‘Any mental disorder’ includes the following conditions: ADHD, anxiety disorder, autism spectrum, dementia, eating disorder, gender identity disorder, mood disorder, personality disorder, psychotic disorder, substance use disorder, and ‘other’ mental disorder. Care or treatment for ‘any mental disorder’ is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with one or more diagnoses from those conditions listed; secondary mental health and addiction service for any type of mental disorder; prescription medicines for treating any type of mental disorder; three or more laboratory tests for lithium.

7 Primary Health Care

This section examines how many people with and without intellectual disability were enrolled in and used primary health care services. Primary health care services are the front-line health prevention and treatment services in a community or district. People usually go to these services first when they need medical care or treatment. Examples include general practice clinics and after-hours medical centres.

Enrolled in a primary health organisation

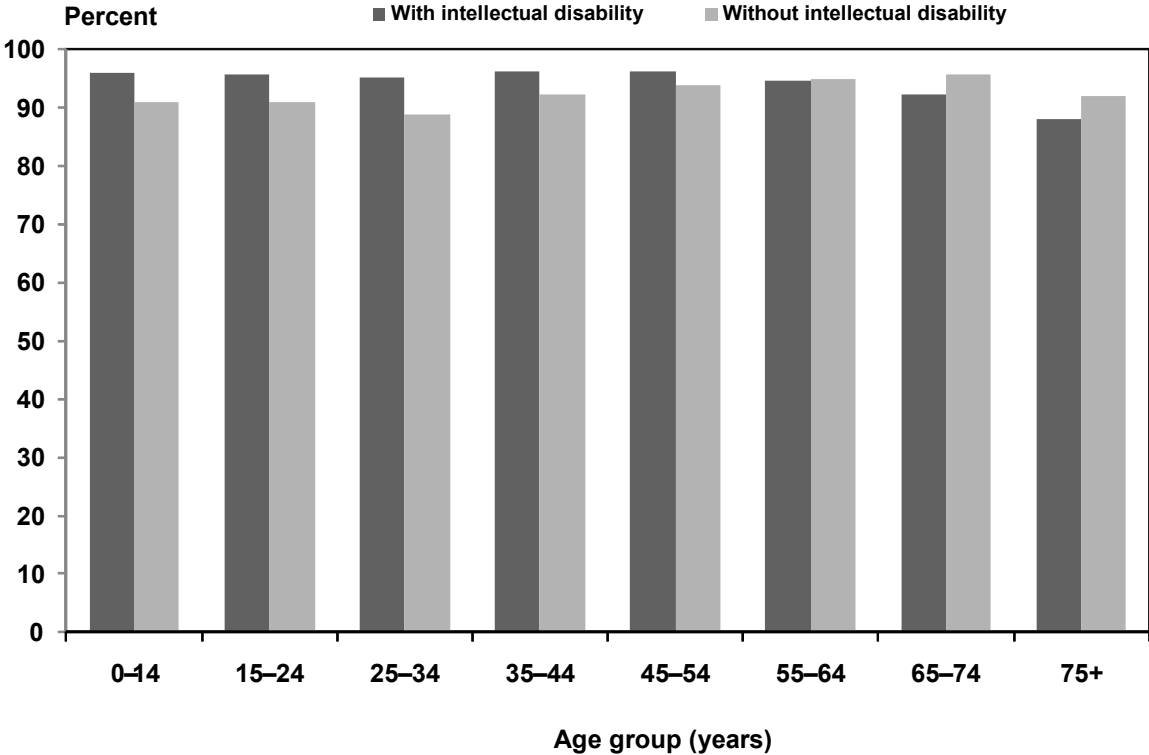
Primary health organisations (PHOs) plan and deliver primary health care services to their local enrolled population. Enrolment in a PHO entitles people to receive government-subsidised general practice services and other care. As at 30 June 2008, 30,261 people with intellectual disability were enrolled in a PHO. This was 95.0 percent of all people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 95.2 percent) were more likely to be enrolled in a PHO than people without intellectual disability (91.8 percent).²⁸

In the group with intellectual disability, people aged 35–44 and 45–54 years had the highest rates of PHO enrolment (both were 96.3 percent), people aged 75 and over had the lowest enrolment rate (88.0 percent, see Figure 21). Females (with an ASR of 95.9 percent) were slightly more likely than males (ASR 94.6 percent) to be enrolled in a PHO.

Other/European people with intellectual disability (ASR 95.6 percent) were more likely to be enrolled in a PHO than Asian (ASR 94.6 percent), Māori (ASR 93.9 percent) and Pacific (ASR 93.5 percent) people with intellectual disability.

²⁸ Note that this figure differs from that previously reported by the Ministry of Health for the same period (94.0% for all New Zealanders) due to the use of a different denominator and that it was not possible to link 1.2% of PHO enrolments to the National Health Index, hence lowering the estimate. We rely on the unlinked registrations being random between the population with intellectual disability and those without so that level may be slightly underestimated but they will be correct relative to each other.

Figure 21: Enrolled in a primary health organisation (PHO), people with and without intellectual disability, by age, as at 30 June 2008



Source: Public Health Organisation Enrolment Collection

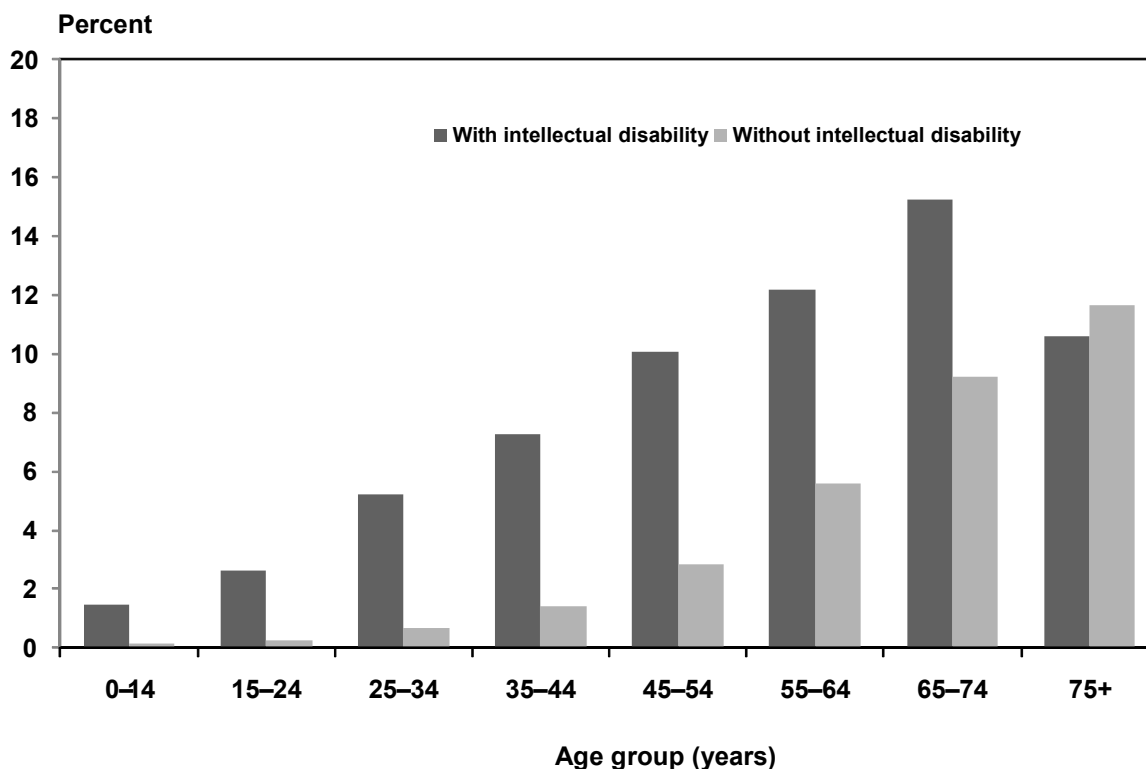
Note: Data in appendix table C.15.

Enrolled for Care Plus primary health services

Care Plus is a coordinated, lower-cost primary health care service for people who use high levels of care or have high needs because of chronic conditions or terminal illness. As at 30 June 2008, 1851 people with intellectual disability were enrolled in Care Plus. This was equivalent to 5.8 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 5.9 percent) were more than twice as likely to be enrolled in Care Plus compared to people without intellectual disability (ASR 2.7 percent).

Rates of enrolment in Care Plus generally increased with age. For the group with intellectual disability, people aged 65–74 years had the highest rate of Care Plus enrolment (15.2 percent), followed by people aged 55–64 (12.2 percent, see Figure 22). Females (with an ASR of 6.7 percent) were slightly more likely than males (ASR 5.3 percent) to be enrolled in Care Plus.

Figure 22: Enrolled for Care Plus primary health services, people with and without intellectual disability, by age, as at 30 June 2008



Source: Public Health Organisation (PHO) Enrolment Collection

Note: Data in appendix table C.16.

For the group with intellectual disability, Pacific people (with an ASR of 7.8 percent) and Māori (ASR 7.2 percent) had the highest age-adjusted rates of Care Plus enrolment, followed by Asian (ASR 6.0 percent) and Other/European (ASR 5.6 percent) people.

General practice consultations

This section looks at general practice consultations over three timeframes: three months, 12 months and 24 months. General practice consultations include visits to general practice clinics to see a doctor or a nurse, as well as after-hours services and non-PHO primary health services.

Consulted a general practice in previous three months

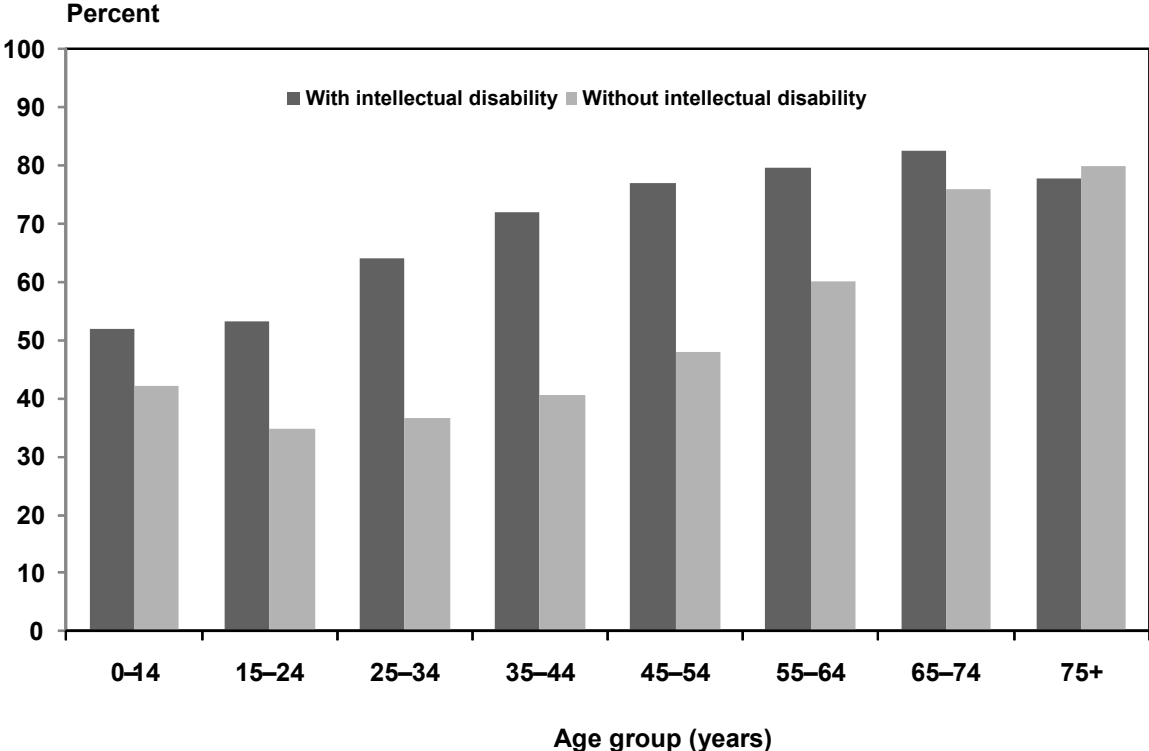
In the three months to 30 June 2008, 20,366 people with intellectual disability consulted a general practice. This was 63.9 percent of all the people with intellectual disability in the study population.

Adjusted for age, people with intellectual disability (with an ASR of 65.2 percent) were 1.5 times more likely to consult a general practice over the 3 months compared to people without intellectual disability (ASR 44.9 percent). In particular, people with intellectual disability in the 15–24, 25–34, 35–44 and 45–54 years age groups all had markedly higher rates of general practice contact in the 3 months compared to their same-age counterparts without intellectual disability (see Figure 23).

For the group with intellectual disability, those aged 65–74 years had the highest rate of general practice consultation for the 3-month period (82.5 percent), followed by those aged 55–64 years (79.7 percent). Females (with an ASR of 69.5 percent) were more likely than males (ASR 62.2 percent) to consult a general practice in the previous 3 months.

In the group with intellectual disability, Other/European people (with an ASR of 66.2 percent) were slightly more likely to consult a general practice in the previous three months compared with Pacific people (ASR 60.6 percent), Māori (ASR 61.8 percent) and Asian people (ASR 61.9 percent).

Figure 23: Consulted general practice in previous three months, people with and without intellectual disability, by age, three months to 30 June 2008



Sources: PHO Enrolment Register, General Medical Subsidy Collection

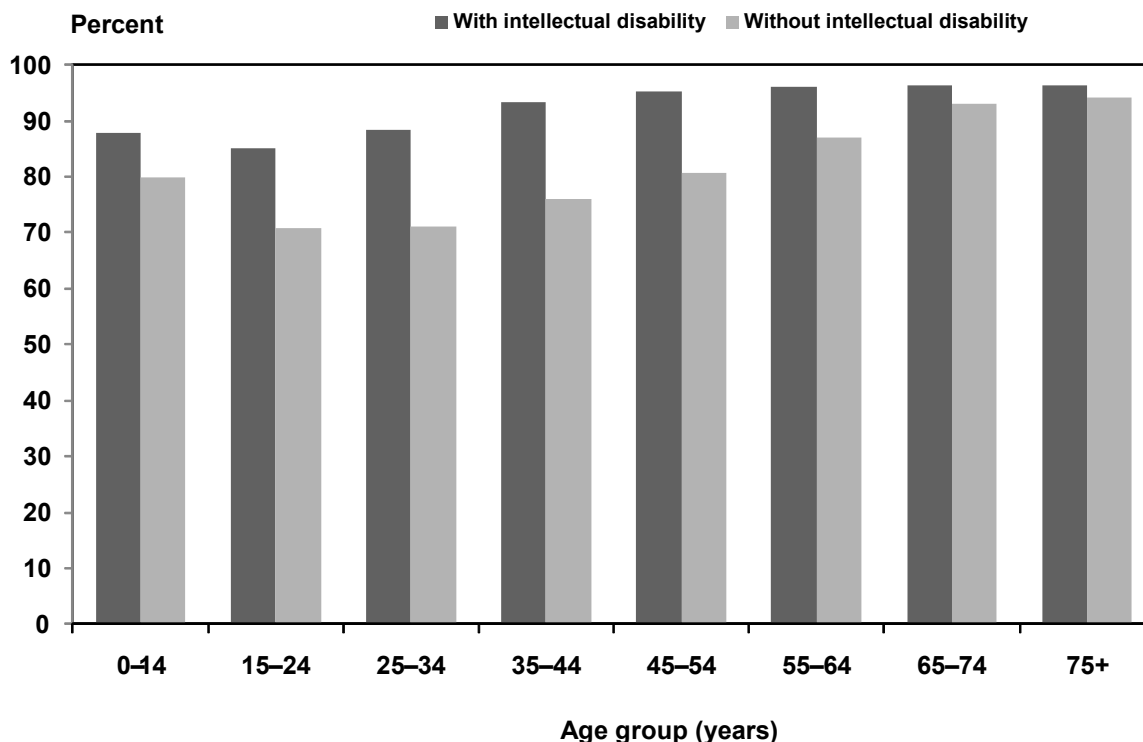
Notes: Data in appendix table C.17. Includes visits to general practice clinics as well as after-hours services and non-PHO primary health services.

Consulted general practice in previous 12 months

In the 12 months to 30 June 2008, 28,837 people with intellectual disability consulted a general practice. This was equivalent to 90.5 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 91.0 percent) were more likely to consult a general practice in the previous 12 months than people without intellectual disability (ASR 78.3 percent).

For both groups, with and without intellectual disability, older people were generally more likely than younger people to consult a general practice in the previous 12 months (see Figure 24). Females with intellectual disability (ASR 93.2 percent) were more likely than males with intellectual disability (ASR 89.4 percent) to have consulted a general practice in the previous 12 months.

Figure 24: Consulted general practice in previous 12 months, people with and without intellectual disability, by age, year to 30 June 2008



Sources: PHO Enrolment Register, General Medical Subsidy Collection

Notes: Data in appendix table C.18. Includes visits to general practice clinics as well as after-hours services and non-PHO primary health services.

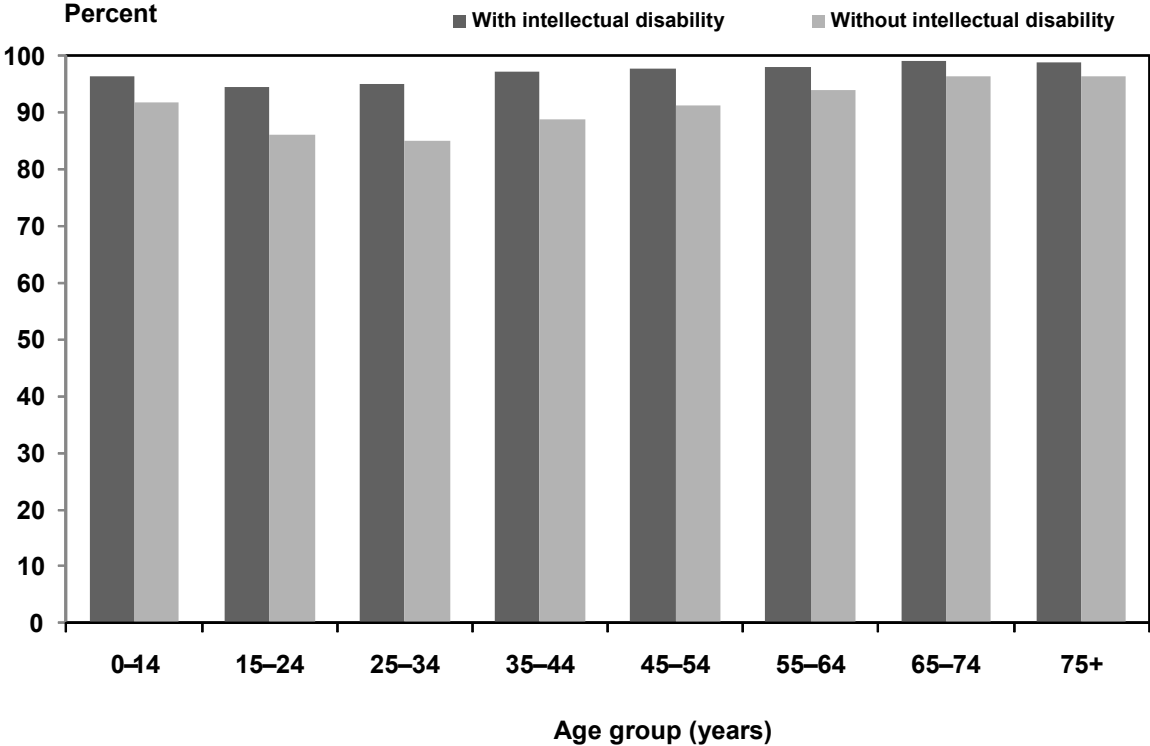
For the group with intellectual disability, Other/European people (with an ASR of 91.4 percent) were slightly more likely to have consulted a general practice in the previous 12 months compared with Pacific people (ASR 88.9 percent), Asian people (ASR 89.1 percent) and Māori (ASR 89.3 percent).

Consulted general practice in previous 24 months

In the 24 months from 1 July 2006 to 30 June 2008, 30,767 people with intellectual disability consulted a general practice. This was equivalent to 96.6 percent of all the people with intellectual disability in the study population. Adjusted for age, people with intellectual disability (with an ASR of 96.7 percent) were more likely to consult a general practice during the previous 24 months than people without intellectual disability (ASR 89.9 percent).

In both groups, with and without intellectual disability, older people were generally more likely than younger people to consult a general practice at least once in the previous 24 months (see Figure 25).

Figure 25: Consulted general practice in previous 24 months, people with and without intellectual disability, by age, two years to 30 June 2008



Sources: PHO Enrolment Register, General Medical Subsidy Collection

Note: Data in appendix table C.19. Includes visits to general practice clinics as well as after-hours services and non-PHO primary health services.

Females with intellectual disability (with an ASR of 97.7 percent) were only slightly more likely than males with intellectual disability (ASR 96.0 percent) to consult a general practice in the previous 24 months. On an age-adjusted basis, Other/European people with intellectual disability (ASR 97.0 percent) were only slightly more likely to consult a general practice in the previous 24 months compared with Pacific people (ASR 95.8 percent), Māori (ASR 95.7 percent) and Asian (ASR 95.5 percent) people with intellectual disability.

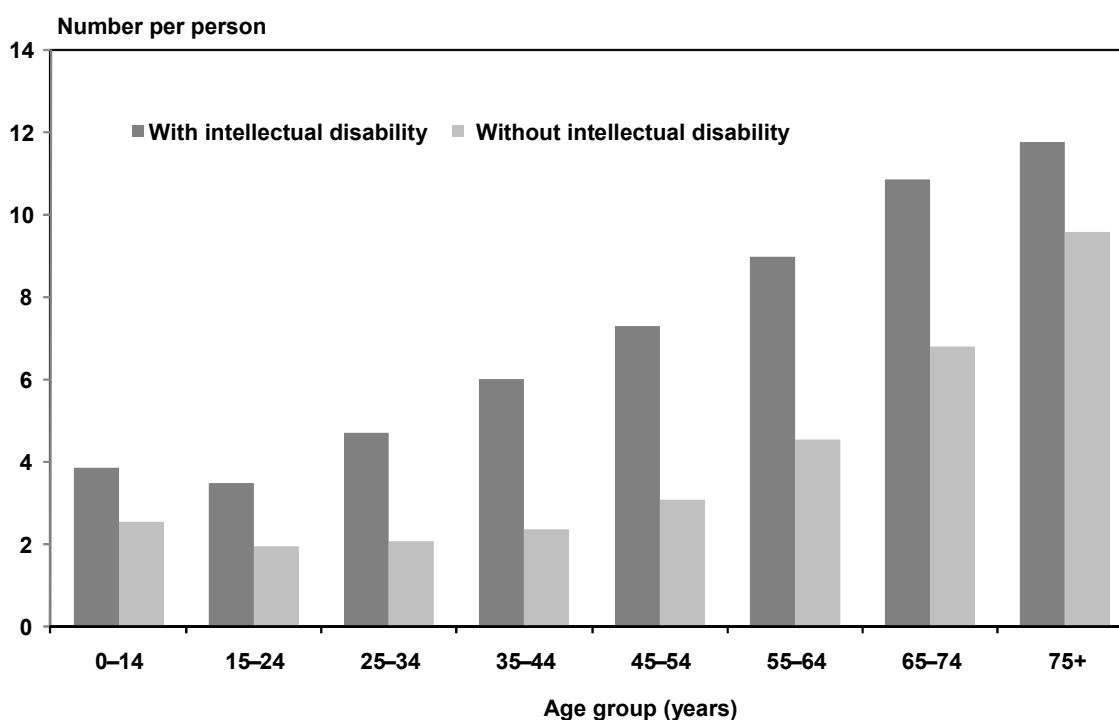
Dispensed pharmaceuticals

During the year to 30 June 2008, people with intellectual disability were each dispensed an average of 5.8 different types of pharmaceutical from community pharmacies.²⁹

Taking into account the different ages of the two groups, people with intellectual disability were dispensed an average of nearly twice as many different types of pharmaceuticals (with an age-standardised average of 5.6) as people without intellectual disability (3.0).

Among adults with and without intellectual disability, the number of pharmaceutical types dispensed increased with age. Children with and without disability aged 0–14 years were dispensed a slightly higher number of pharmaceutical types than young people aged 15–24. In all age groups, people with intellectual disability were dispensed a higher number of different types of pharmaceuticals than people without intellectual disability (see Figure 26).

Figure 26: Average number of different pharmaceutical types per person, people with and without intellectual disability, by age, year to 30 June 2008



Source: Pharmhouse Pharmaceutical Collection

Notes: Data in appendix table C.20. 'Pharmaceutical types' are distinct chemicals.

Community pharmacies dispensed a slightly higher number of different types of pharmaceuticals to females with intellectual disability (with an age-standardised average of 6.4) than to males with intellectual disability (age-standardised average of 5.1).

²⁹ Different types of pharmaceutical means distinct chemicals.

Across the four ethnic groups there were only small differences in the average number of different types of pharmaceutical dispensed to people with intellectual disability, ranging from an age-standardised average of 5.7 for Pacific people to 6.0 for Asian people (see appendix table C.20).

8 Screening Services

Screening services are preventive health checks aimed at detecting the first signs of potentially serious health conditions so that they can be treated early and effectively. This section looks at how many women with and without intellectual disability received breast and cervical screening services for the early detection of cancer.

Breast screening

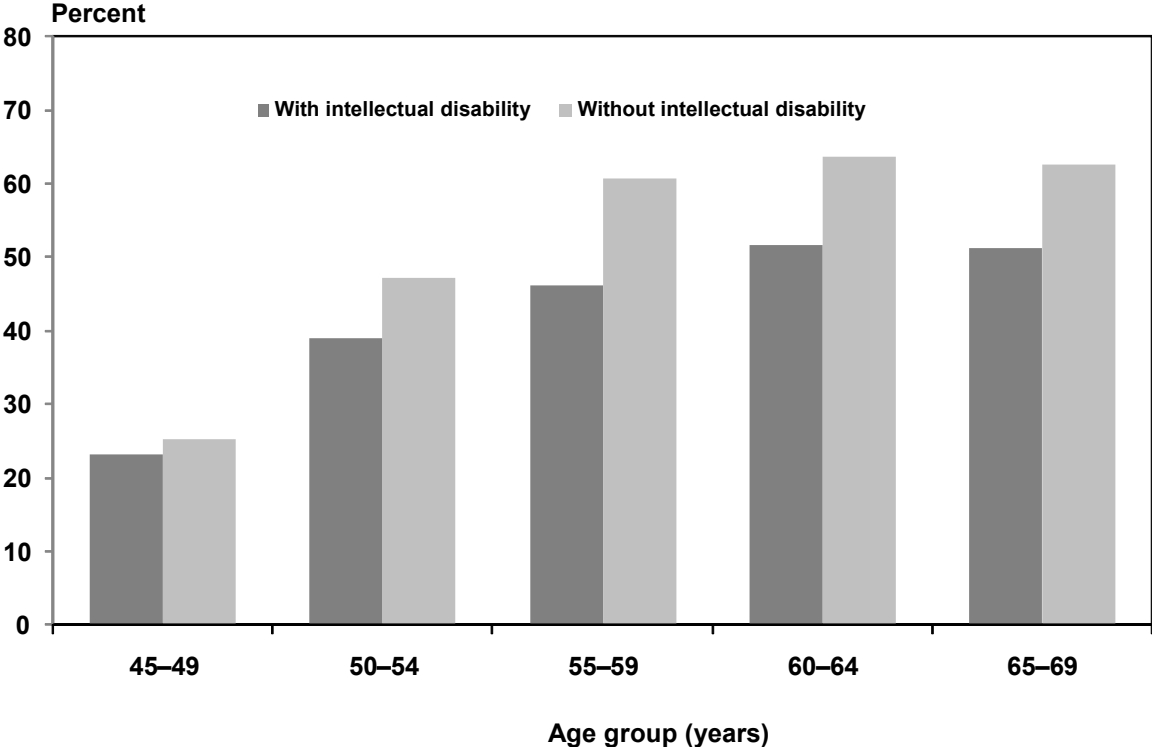
The national breast screening programme (BreastScreen Aotearoa) offers free two-yearly mammograms (X-rays) and follow-up services to all New Zealand women aged 45–69 years (Ministry of Health 2007).³⁰ In the two-year screening round for 1 July 2005–30 June 2007, 1259 women aged 45–69 years with intellectual disability received breast screening as part of the national programme. On an age-adjusted basis, women aged 45–69 years with intellectual disability were less likely (with an ASR of 39.9 percent) to have had breast screening than women aged 45–69 years without intellectual disability (ASR 48.7 percent).

Moreover, in all 5-year age groups across the age range 45–69 years, women with intellectual disability had lower breast screening rates than women without intellectual disability (Figure 27). This difference was especially marked in the age groups from 50–54 and older.

In terms of ethnic group, for women with intellectual disability, Other/European women were the most likely to have breast screening (with an ASR of 41.4 percent). Māori (ASR 34.0 percent) and Pacific (ASR 31.7 percent) women had the next highest rates. Asian women had the lowest rate (ASR 19.7 percent – although this rate is based on only a small number of Asian women).

³⁰ BreastScreen Aotearoa does not collect or hold information that identifies women who have been diagnosed with intellectual disability. The data above has been derived from an original extract obtained from the national BSA database and matched by encrypted NHI to a list of women with a diagnosed intellectual disability.

Figure 27: Received breast screening, women aged 45–69 with and without intellectual disability, by age, two-year screening round for 1 July 2005–30 June 2007



Source: Breast Screening Aotearoa Screening Register

Note: Data in appendix table C.21.

Cervical screening

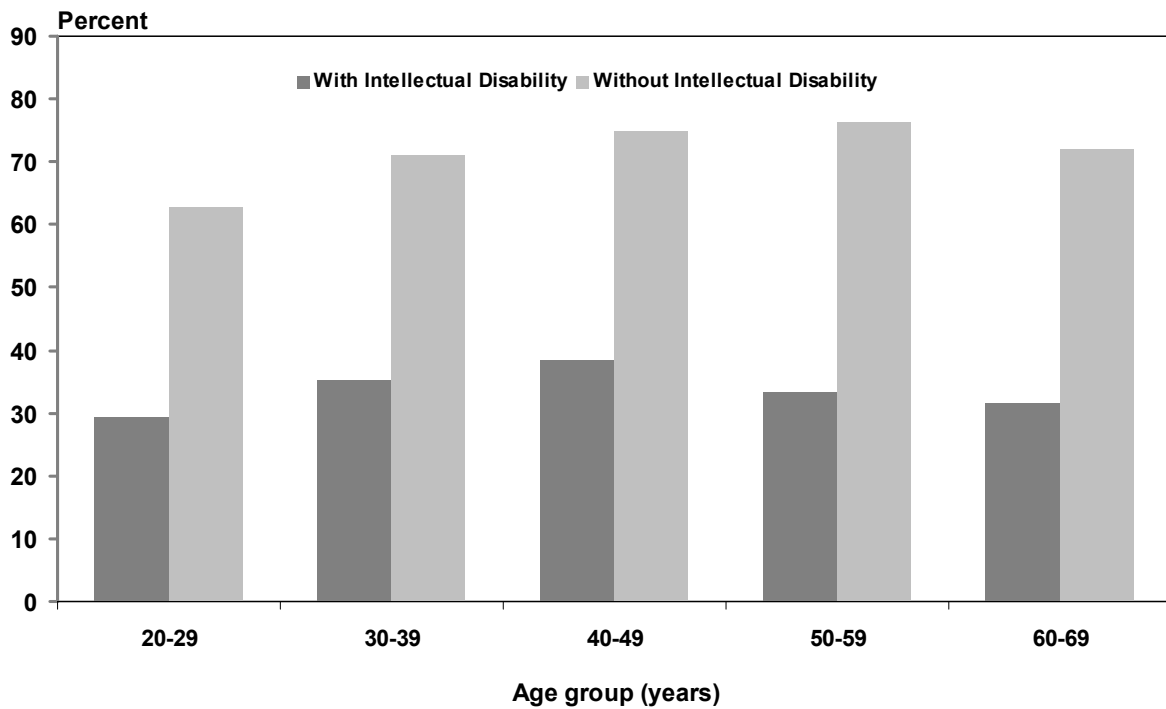
The National Cervical Screening Programme is for women aged 20–69 years who have ever been sexually active. It aims to detect abnormal changes to the cervix before they develop into cancer using cervical smears, and provides follow-up for women with abnormal smear results. Women usually have cervical smears every three years as part of the programme (National Screening Unit 2010).

In the three-year screening round for the financial years 2007/08–2009/10, 2056 women aged 20–69 with intellectual disability and without a hysterectomy received cervical screening as part of the National Cervical Screening Programme. In this period, women aged 20–69 with intellectual disability were less than half as likely (with an ASR of 33.6 percent) to receive cervical screening compared to women aged 20–69 without intellectual disability (ASR 70.6 percent). Moreover, in all age groups across the age range 20–69 years, women with intellectual disability had lower rates of cervical screening than women without intellectual disability (see Figure 28).³¹

³¹ Rates of cervical screening were adjusted for the estimated age-specific prevalence of hysterectomy in women with intellectual disability and women without intellectual disability. Note that rates may differ slightly from those calculated by the NCSP, for technical reasons.

For both women with and women without intellectual disability, cervical screening rates were highest in the 40–49 years age group.³²

Figure 28: Received cervical screening (hysterectomy prevalence adjusted), women aged 20–69 with and without intellectual disability, by age, three-year screening round for 1 July 2007–30 June 2010



Source: National Cervical Screening Programme – Register

Note: Data in appendix table C.22.

³² It was not possible, in the timeframe available for preparing this report, to obtain data on cervical screening services for women in different ethnic groups.

9 Public Hospital Services

Public hospitals are operated by district health boards and provide a range of services, including medical, surgical, maternity, diagnostic and emergency services. People can be treated in public hospitals as inpatients, day patients, outpatients or emergency department patients. Inpatients are formally admitted to hospital and stay overnight. Day patients are admitted to hospital and discharged the same day.

Elective and arranged public hospital discharges

An elective or arranged hospital discharge is an inpatient or day-patient hospitalisation for medical or surgical treatment that is booked or scheduled in advance. This is in contrast to an acute hospital discharge, which is an unplanned or unscheduled medical or surgical hospitalisation.

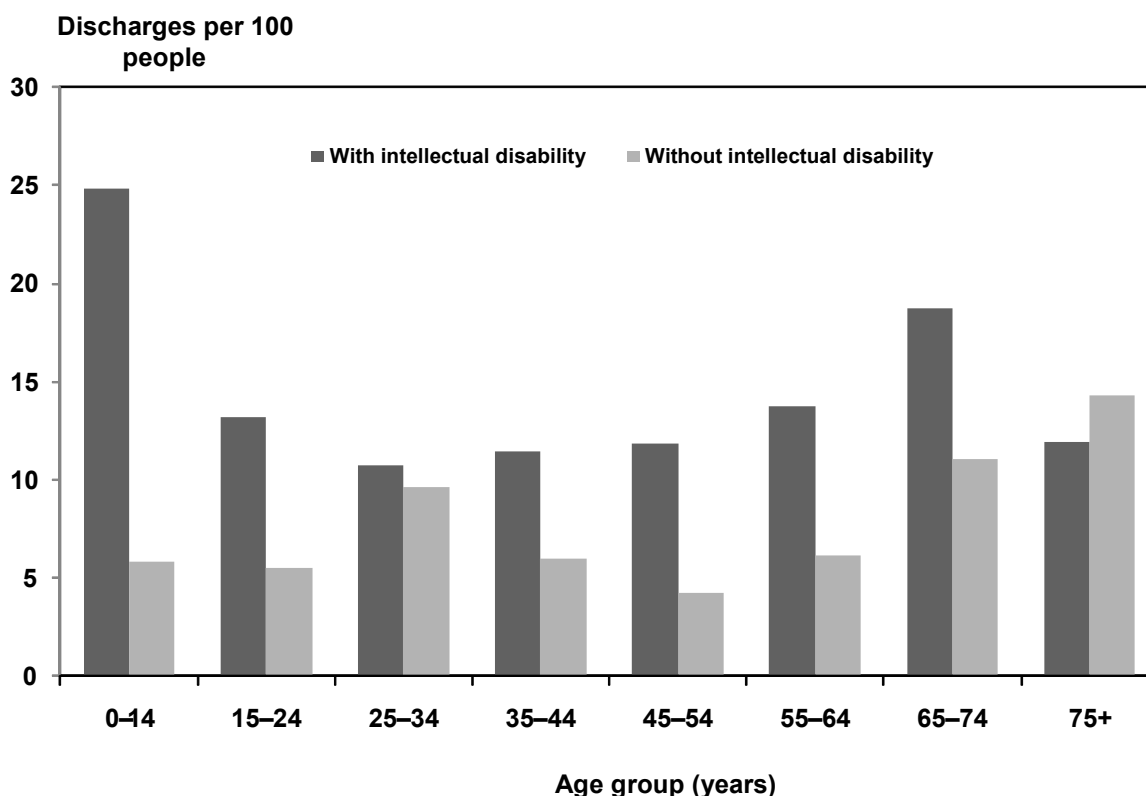
In the year to 30 June 2008, people with intellectual disability were recorded as having 5118 public hospital discharges for elective or arranged treatment. This is an average of 16.1 discharges per 100 people with intellectual disability per year. Adjusted for age, people with intellectual disability (with an ASR of 16.9 discharges per 100 people) were more than twice as likely to be hospitalised for elective or arranged treatment as people without intellectual disability (ASR 6.8 discharges per 100 people).

For the group with intellectual disability, children aged 0–14 had the highest rate of elective or arranged public hospitalisations (24.8 discharges per 100), followed by adults aged 65–74 (18.7 discharges per 100, see Figure 29). Females (with an ASR of 21.0 discharges per 100) were more likely than males (ASR 14.7 discharges per 100) to have elective or arranged hospitalisations.

The rate of elective or arranged public hospitalisations for children with intellectual disability (24.8 discharges per 100) was over four times higher than for children without intellectual disability (5.8 discharges per 100). By contrast, in the 75 years and over age group, people with intellectual disability (12.0 discharges per 100) were less likely to have elective or arranged public hospitalisations than people without intellectual disability (14.3 discharges per 100).

For the group with intellectual disability, Pacific people (with an ASR of 18.6 discharges per 100) had the highest age-adjusted rate of elective or arranged public hospitalisations, followed by Māori (ASR 18.1 discharges per 100), Other/European people (ASR 16.7 discharges per 100) and Asian people (ASR 13.2 discharges per 100).

Figure 29: Elective or arranged public hospital discharges, people with and without intellectual disability, by age, year to 30 June 2008



Source: National Minimum Dataset

Note: Data in appendix table C.23.

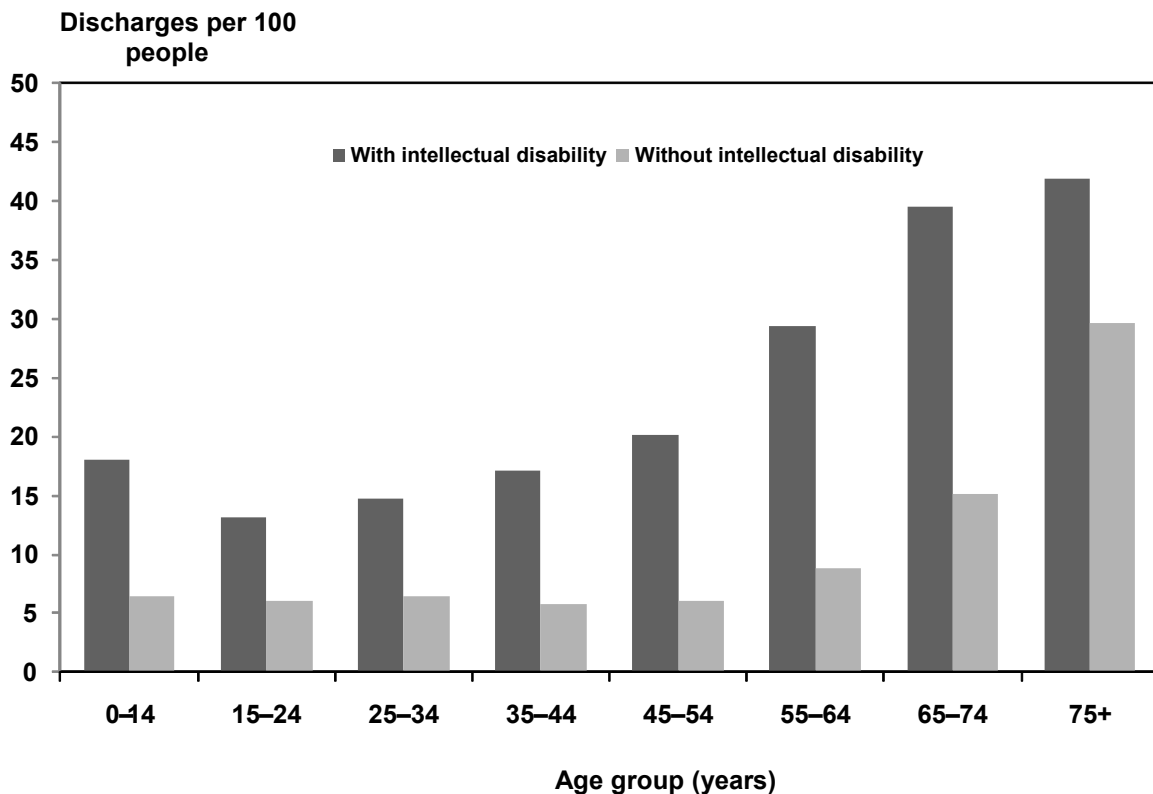
Acute public hospital discharges

An acute hospital discharge is an unplanned or sudden inpatient or day patient hospitalisation for medical or surgical treatment. By contrast, an elective or arranged hospital discharge is a hospitalisation for a treatment that is scheduled in advance (see above).

In the year to 30 June 2008, people with intellectual disability were recorded as having 6532 public hospital discharges for acute treatment. This is an average of 20.5 discharges per 100 people with intellectual disability per year. Adjusted for age, people with intellectual disability (with an ASR of 21.6 discharges per 100 people) were almost three times as likely to have acute public hospitalisations compared to people without intellectual disability (ASR 7.6 discharges per 100 people).

For the group with intellectual disability, adults aged 75 years and over had the highest rate of acute public hospitalisations (41.9 discharges per 100), followed by adults aged 65–74 (39.5 discharges per 100, see Figure 30). Females (with an ASR of 24.5 discharges per 100) were more likely than males (ASR 20.1 discharges per 100) to have acute public hospitalisations.

Figure 30: Acute public hospital discharges, people with and without intellectual disability, by age, year to 30 June 2008



Source: National Minimum Dataset

Note: Data in appendix table C.24.

Looking at ethnic groups, Pacific people (with an ASR of 34.5 discharges per 100) had the highest age-adjusted rate of acute public hospital treatment, followed by Māori (ASR 27.4 per 100), Other/European people (ASR 19.9 per 100) and Asian people (ASR 14.7 per 100).

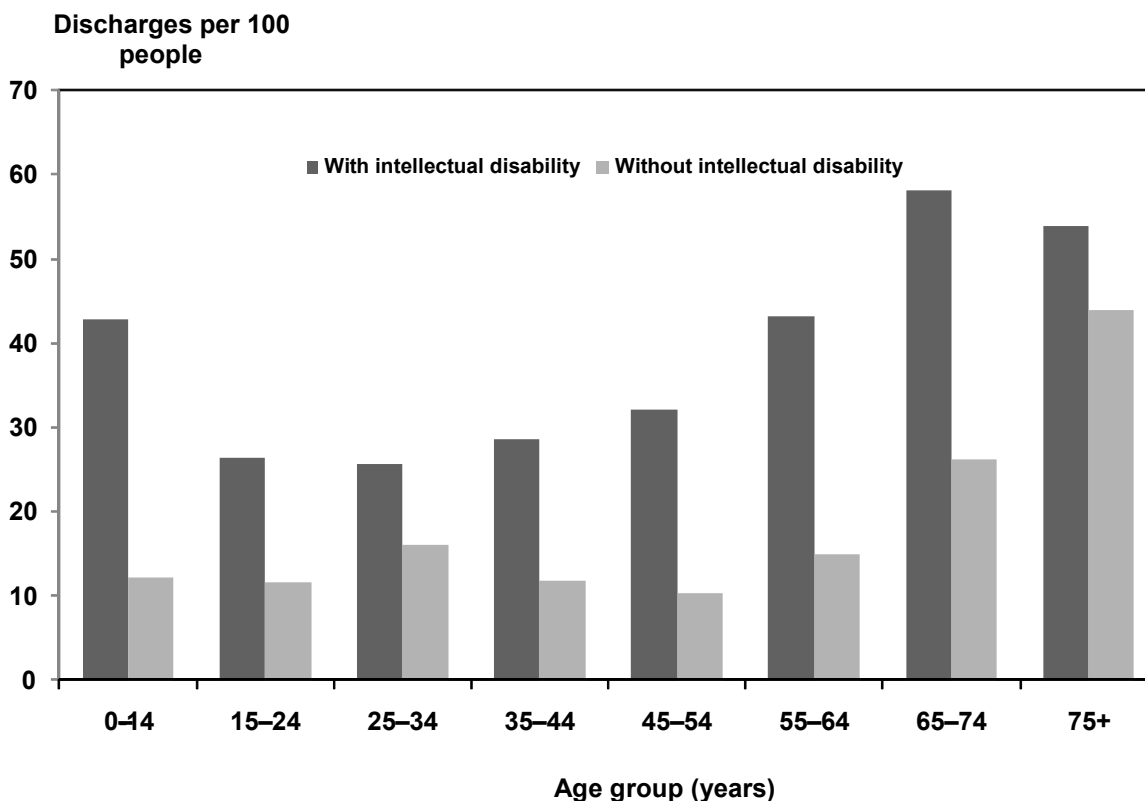
All public hospital discharges (elective, arranged and acute)

In the year to 30 June 2008, people with intellectual disability were recorded as having 11,650 public hospital discharges for elective, arranged and acute treatment. This is the equivalent of 36.6 public hospital discharges for every 100 people with intellectual disability. Adjusted for age, people with intellectual disability (with an ASR of 38.5 discharges per 100 people per year) were over two-and-a-half times more likely to have elective, arranged or acute public hospitalisations than people without intellectual disability (ASR 14.4 discharges per 100 people per year).

For the group with intellectual disability, people aged 65–74 years had the highest rate of public hospitalisations (58.2 discharges per 100), followed by people aged 75 and over (53.8 discharges per 100, see Figure 31). Females (with an ASR of 45.5 discharges per 100) were more likely than males (ASR 34.8 discharges per 100) to be admitted to a public hospital.

Looking at ethnic groups, within the intellectual disability group Pacific people (with an ASR of 53.1 discharges per 100) had the highest age-adjusted rate of public hospital treatment, followed by Māori (ASR 45.4 per 100), Other/European people (ASR 36.6 per 100) and Asian people (ASR 27.9 per 100).

Figure 31: All public hospital discharges, people with and without intellectual disability, by age, year to 30 June 2008



Source: National Minimum Dataset

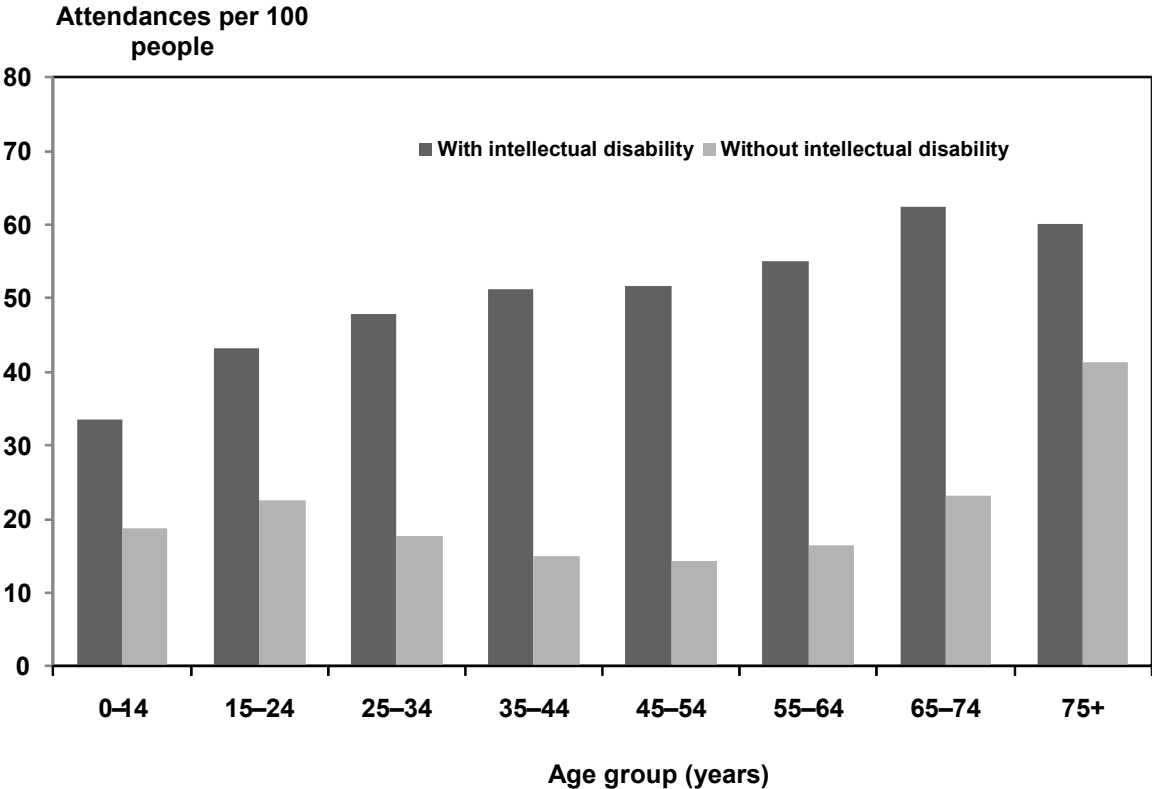
Note: Data in appendix table C.25.

Emergency department visits

Public hospital emergency departments treat people requiring urgent medical care for illness or injury. In the year 1 July 2007–30 June 2008, people with intellectual disability were recorded as having 14,598 public hospital emergency department attendances. This is an average of 45.8 emergency department attendances per 100 people with intellectual disability over the year. Adjusted for age, people with intellectual disability (with an ASR of 48.5 attendances per 100 people) were 2.5 times more likely to go to public hospital emergency departments than people without intellectual disability (ASR 18.9 attendances per 100 people).

For the group with intellectual disability, adults aged 65–74 years had the highest yearly rate of public hospital emergency department use (62.5 attendances per 100 people), followed by people aged 75 and over (60.1 attendances per 100 people, see Figure 32). Females (with an ASR of 52.1 attendances per 100 people) were more likely than males (ASR 46.7 attendances per 100 people) to use public hospital emergency departments.

Figure 32: Public hospital emergency department attendance, people with and without intellectual disability, by age, year to 30 June 2008



Source: National Non-Admitted Patient Collection

Note: Data in appendix table C.26.

In terms of ethnic groups, Pacific people (with an ASR of 62.2 attendances per 100 people) had the highest age-adjusted yearly rate of public hospital emergency department use, followed by Māori (59.6 per 100), Other/European people (45.4 per 100) and Asian people (37.0 per 100).

Avoidable hospitalisations

Avoidable hospitalisations are hospital discharges that could, in theory, have been prevented or avoided if the patient had:

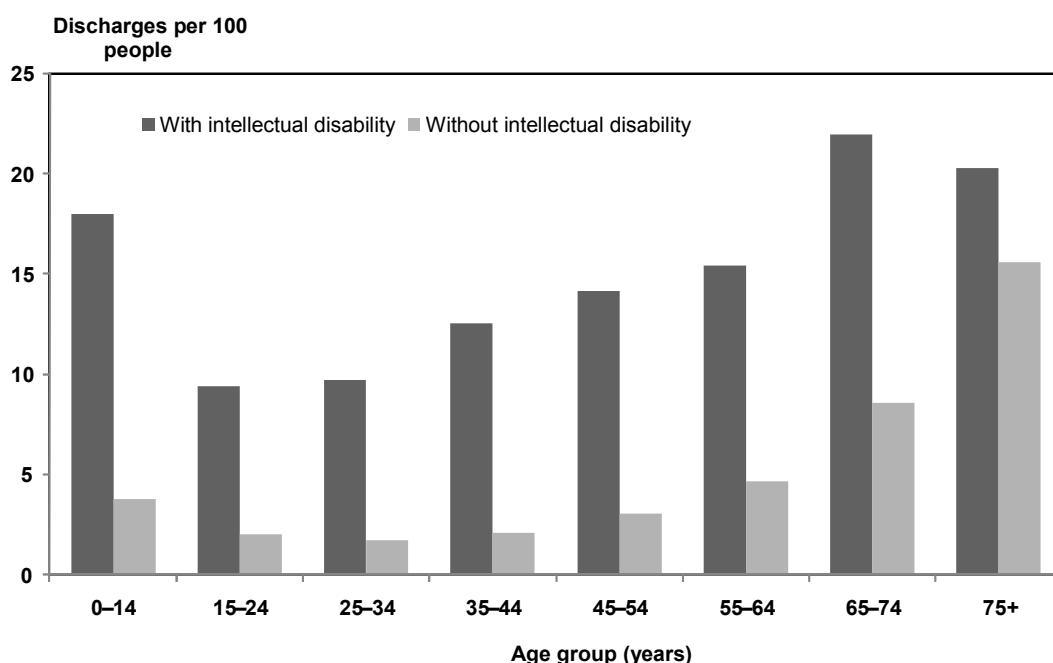
- been treated in a primary health care setting
- undergone a preventive public health measure (such as immunisation)
- avoided a preventable injury.

Examples of the types of health conditions for which hospitalisation is considered avoidable include certain types of infection and cancer, alcohol-related conditions, heart disease, stroke, diabetes, nutrition-related conditions, asthma, ruptured appendix, gangrene, falls, road traffic injuries, sports injuries, poisoning, drowning and suicide (see the Glossary for a full list of conditions).

In the year to 30 June 2008, people with intellectual disability in the study population were recorded as having a total of 4648 avoidable public hospital discharges. This is an average of 14.6 avoidable discharges per 100 people per year. Adjusted for age, people with intellectual disability (with an ASR of 15.5 discharges per 100 people) were more than four times more likely to have avoidable hospital discharges compared to people without intellectual disability (ASR 3.6 discharges per 100 people).

For people with and people without intellectual disability, rates of avoidable public hospital discharges were generally highest among children and older adults. In all age groups, people with intellectual disability had higher rates of avoidable hospital discharges than people without intellectual disability (see Figure 33).

Figure 33: Avoidable hospitalisations (public hospital), people with and without intellectual disability, by age, year to 30 June 2008



Source: National Minimum Dataset

Note: Data in appendix table C.27.

Among the group with intellectual disability, males were slightly more likely (with an ASR of 17.9 discharges per 100 people) than females (ASR 14.5 discharges per 100) to have avoidable hospital discharges.

Looking at ethnic groups, within the intellectual disability group, Pacific people were most likely to have avoidable public hospital discharges (with an ASR of 21.9 discharges per 100 people), followed by Māori (ASR 20.0 discharges per 100), Other/European people (ASR 14.2 discharges per 100) and Asian people (13.5 discharges per 100) (see appendix table C.27).

10 Health Care Costs

This section compares the average annual government expenditure on health care for people with and without intellectual disability. It includes the costs of primary health care, secondary health care, and primary and secondary health care combined (total health care).³³ Costs relating to disability support services funded by the Ministry of Health and DHBs are excluded from the analysis.³⁴

Primary health care costs

The government pays for, or subsidises, a number of primary health care services for all New Zealanders. These primary health care services include primary health organisations (PHOs), laboratory tests, pharmaceuticals, and visits to general practitioners and other primary health care providers for prevention and treatment services.

In the financial year to 30 June 2008, for people with intellectual disability, the age-standardised average cost per person of government-paid primary health care was \$1,070. This was almost three times higher than the average annual cost per person for people without intellectual disability (\$373).

For people with intellectual disability, the average primary health care costs per person increased with age until the 55–64 years age group, and then decreased in the next two age groups of 65–74 and 75 years and over. In all age groups, average primary health care costs were higher for people with intellectual disability than for people without intellectual disability. The gap was largest in the age groups 35–44 and 45–54, where average costs for people with intellectual disability were four times greater than the costs for people without intellectual disability (see Figure 34).

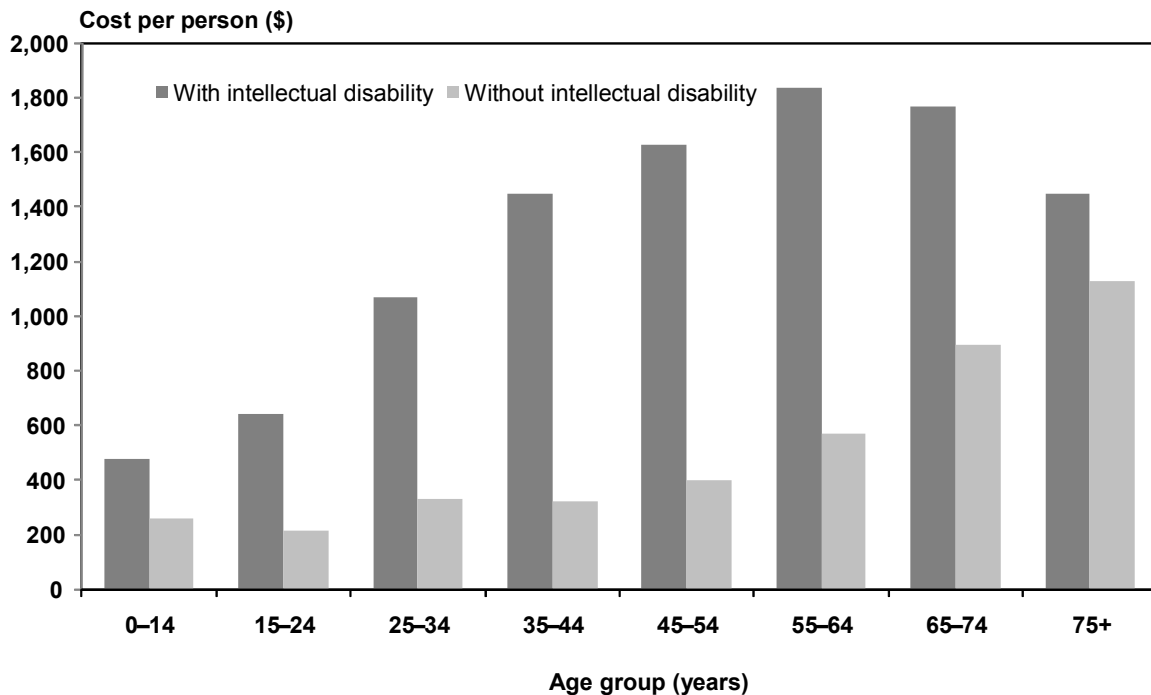
For people with intellectual disability, the age-adjusted costs of primary health care were slightly higher for females (an average of \$1,115 per person) than for males (\$1,041).

Looking at ethnic groups, for people with intellectual disability the age-adjusted costs of primary health care were highest for Māori (with an average of \$1,183 per person), followed by Other/European people (\$1,047), Asian people (\$1,013) and Pacific people (\$955) (see appendix table C.28).

³³ Note that primary care cost differences between the population with intellectual disability and those without will be driven predominantly by the costs of laboratory testing and pharmaceutical dispensing. The only variation allowed for in the payments to primary health organisations for visits to general practitioners and other primary health care providers for prevention and treatment services relates to association between ethnicity and deprivation and the prevalence of intellectual disability. This association will poorly represent the much higher service requirements of the population with intellectual disability and hence underestimate the cost difference.

³⁴ Specifically, the analysis excludes costs related to Ministry of Health and DHB disability support services. These support services for people with a disability include residential care, carer support, respite care, and home support (help with housework and personal care).

Figure 34: Average primary health care costs per person, people with and without intellectual disability, by age, year to 30 June 2008



Sources: Primary Health Organisation Enrolment Register, Laboratory Testing Claims Warehouse, Community Pharmacy Dispensing Warehouse (Pharmhouse), General Medical Subsidy Claims Warehouse

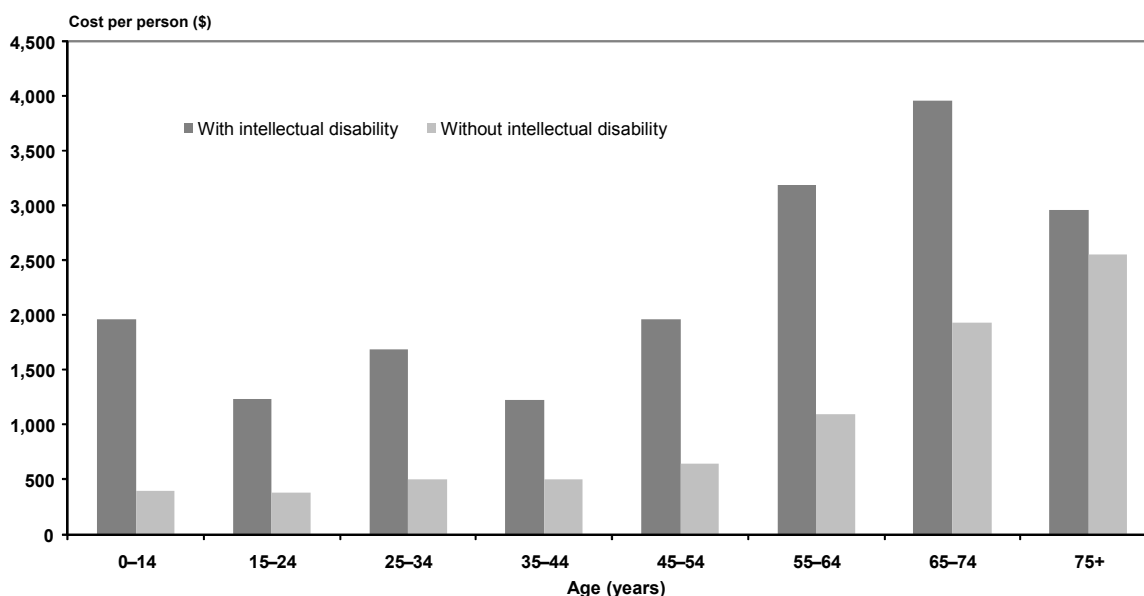
Notes: Data in appendix table C.28. Costs exclude GST.

Secondary health care costs

Secondary health services include medical and surgical care in public hospitals, public hospital outpatient and emergency department visits, and maternity services. For the financial year to 30 June 2008, the age-adjusted average cost per person of government-funded secondary health care for people with intellectual disability was \$1,931. This was nearly three times higher than the average cost per person for people without intellectual disability (\$654).

For people with intellectual disability, the average secondary health care costs per person fluctuated with age, but was highest for the age groups 55–64 and 65–74 years. For all age groups, average secondary health care costs were higher for people with intellectual disability than for people without intellectual disability. The gap was largest among children, where the annual average cost for children with intellectual disability was nearly five times the cost for children without intellectual disability (Figure 35).

Figure 35: Average secondary health care costs per person, people with and without intellectual disability, by age, year to 30 June 2008



Sources: National Minimum Dataset (NMDS), National Non-admitted Patient Collection (NNAPC), Maternal and Newborn Information System (MNIS)

Notes: Data in appendix table C.29. Costs exclude GST. Excludes costs of disability support services funded by the Ministry of Health and DHBs, such as residential care, carer support, respite care, and home support (help with housework and personal care).

For people with intellectual disability, the age-adjusted cost of secondary health care was higher for females (with an average of \$2,147 per person) than for males (\$1,819).

Looking at ethnic groups, for people with intellectual disability the age-adjusted costs of secondary care were highest for Pacific people (with an average of \$3,022 per person), followed by Māori (\$2,803), Other/European people (\$1,718) and Asian people (\$1,318).

Total health care costs

Total annual government-funded health care costs per person are calculated by adding together the costs of primary and secondary health care, but excluding the costs of disability support services funded by the Ministry of Health and DHBs.³⁵ For the financial year to 30 June 2008, the age-adjusted average total cost per person of government-funded health care for people with intellectual disability was \$3,001. This was nearly three times higher than the average total cost for people without intellectual disability (\$1,028).

In both groups, with and without intellectual disability, the average total health care cost per person was highest in the older age groups of 55–64, 65–74 and 75+ years.

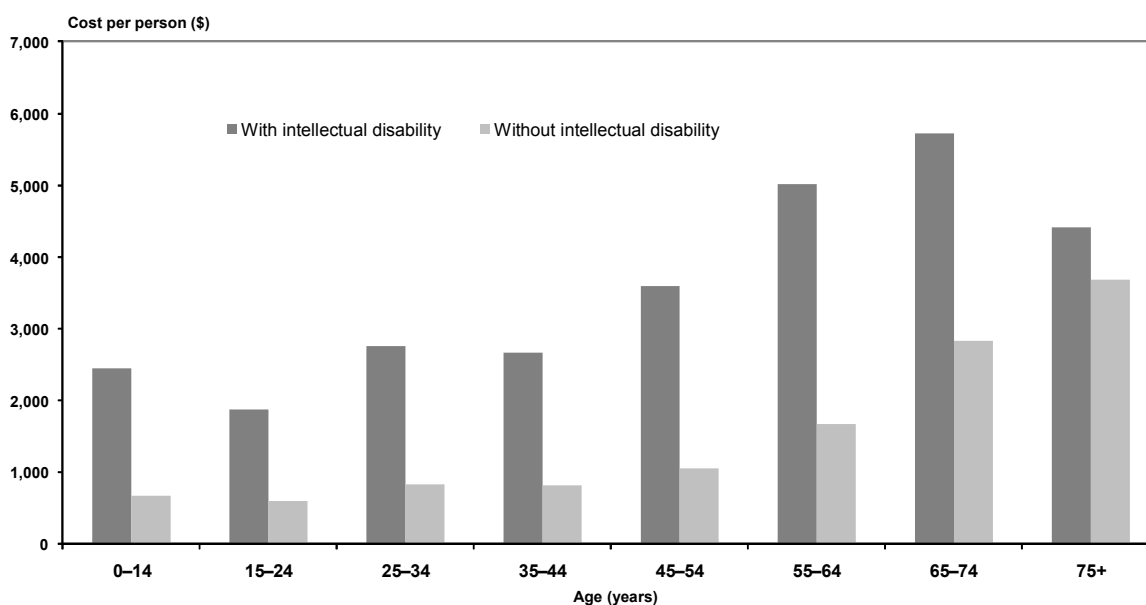
³⁵ These services include residential care, carer support, respite care, and home support (help with housework and personal care).

In all age groups, average total health care costs were higher for people with intellectual disability than for people without intellectual disability. The gap was largest for children aged 0–14 years, where average costs for children with intellectual disability were over three-and-a-half times greater than the costs for children without intellectual disability (see Figure 36).

For people with intellectual disability, the age-adjusted total health care costs were higher for females (with an average of \$3,262 per person) than for males (\$2,860).

Looking at ethnic groups, for people with intellectual disability the age-adjusted costs were highest for Māori (with an average of \$3,985 per person), followed by Pacific people (\$3,977), Other/European people (\$2,765) and Asian people (\$2,331) (see appendix table C.30).

Figure 36: Average total health care costs per person, people with and without intellectual disability, by age, year to 30 June 2008



Sources: Primary Health Organisation Enrolment Register, Laboratory Testing Claims Warehouse, Community Pharmacy Dispensing Warehouse (Pharmhouse), General Medical Subsidy Claims Warehouse, National Minimum Dataset, National Non-Admitted Patient Collection, Maternal and Newborn Infant Claims Collection

Notes: Data in appendix table C.30. Costs exclude GST. Excludes costs of disability support services funded by the Ministry of Health and DHBs, such as residential care, carer support, respite care, and home support (help with housework and personal care).

11 Discussion

The objective of this report has been to describe the health status and health service utilisation patterns of New Zealanders with intellectual disability, and to examine the degree to which these differ from the rest of the population. This has been done by examining health services and health care data from a range of Ministry of Health data sets, including hospitalisation, prescribing and laboratory test data. Overseas studies indicate that people with intellectual disability tend to experience more illness and need more health treatment services than other people. However, until now no extended analysis of health status and health services data had been undertaken to verify if this finding holds true for New Zealanders with intellectual disability.

Limitations of the study

The results of the current study clearly suggest there are significant inequalities between people with and without intellectual disability in terms of their experience of health conditions and their use of health services. However, the study methods have some limitations that need to be considered when interpreting these results.

Measuring health status and the prevalence of health conditions

When considering the data indicating rates of specific health conditions, such as chronic and other health conditions and mental disorders, it should be remembered that this data is derived from records of health service use. They were not based on direct measurements of the prevalence of health conditions, as would be investigated through other research methods such as general surveys of the community. This means the health services use data excludes individuals with health conditions who did not receive any recorded care or treatment for the condition during the time period of the investigation.

In this regard, it should be noted that a wide range of factors can influence whether or not individuals seek or receive care or treatment for a particular health condition. These include not just the seriousness of the condition or how disabling or uncomfortable people find it (people's need for services), but also how motivated or concerned individuals (or their caregivers) are to get care or treatment; the affordability and accessibility of care or treatment services (including early detection or screening services); and decisions taken by front-line health professionals (eg, general practitioners) regarding prescribing and referral to hospital and other secondary health services. For these reasons, indicators of health and disease prevalence based on health service utilisation records must be interpreted with caution.

The life expectancy data is an exception to this, as it is a direct general measure of people's overall health status.

Identifying people with intellectual disability

A further limitation of the study is the method it uses to identify people with intellectual disability in the study population. The method relies on analysing records across a range of health and disability support services and hospital care and treatment data sets. However, these data sets, by their very nature, are more likely to include only people with moderate or severe intellectual disability, who need support services or who have serious health conditions that require hospital treatment. They are less likely to identify people with mild intellectual disability who have relatively good health.

If people with moderate and severe intellectual disability have a poorer health status and greater health service needs than people with mild intellectual disability (which is possible), this would tend to inflate the apparent prevalence of health conditions and use of health services for the group with intellectual disability found by the current study. However, for most of the indicators examined, the level of difference between the two groups with and without disability is very high (often two- or three-fold). Even if the figures for people with intellectual disability were inflated because of a bias towards moderate and severe intellectual disability, it is unlikely that this bias would wholly account for these differences.

It was not possible to identify from the Ministry of Health databases whether people in the study population had intellectual disability since birth or had developed cognitive impairment later in life. Health outcomes, support needs and socioeconomic consequences are likely to vary depending on the age of onset of an identified intellectual disability. It was also not possible to identify particular causes or the severity of intellectual disability for individuals. Cause and severity data was only available for a relatively small proportion of the study population. Again, there are likely to be different effects on people's health and other indicators depending on the different causes and severity of their intellectual disability.

Access to and appropriateness of health services

It is important to recognise that the study data, by itself, cannot be used to reach conclusions regarding the adequacy or appropriateness of the specific care or treatment services covered in this report. Although the study found a relatively high use of many health services by people with intellectual disability, their actual need for these services could not be measured directly.

Health indicators chosen

The study looked at a selection of possible health indicators for people with and without intellectual disability drawn from data available in Ministry of Health databases. These indicators were chosen because they are important general health indicators or are related to conditions that other research has suggested are relatively more common or significant for people with intellectual disability. In theory, some alternative or additional health indicators could have been used. The study also did not look at other possible social indicators such as education, housing, transport and quality of life.

Study results

Rates of intellectual disability for older people

Some of the highest rates of intellectual disability in the study population were in the 80–84 and 85+ age groups (1.0 percent and 1.2 percent, respectively). This is a feature found in other intellectual disability prevalence studies, particularly those studies based on surveys of the general population (eg, AIHW 2008). However, it is worth noting that some prevalence studies do not find high rates of intellectual disability among older people (Harris 2006).

In the current study, the comparatively high rates of intellectual disability found among older people are likely to be due, at least in part, to the fact that the study included people who may have developed cognitive impairment, that has been recorded as intellectual disability, later in life. This is in contrast to some other studies that only classify people as having intellectual disability if the onset of the intellectual disability was before adulthood (eg, before the age of 18). Due to the nature of the data available, we were unable to determine whether the intellectual disability occurred before adulthood, apart from people in the younger age groups who were identified as having intellectual disability at the time of the study.

Another possible contributing factor to the higher rates of intellectual disability among older people may be the difficulties health professionals sometimes encounter distinguishing between intellectual disability and dementia, as both conditions involve cognitive limitations. It is well documented that diagnosing dementia in people with intellectual disability can be relatively difficult (Fletcher et al 2007). Whether people with dementia tend to be misdiagnosed as having intellectual disability instead is much less clear from the literature. What is known is that it is relatively common for people with certain conditions, such as Down syndrome, to have both dementia (eg, associated with Alzheimer's disease) and intellectual disability (see the discussion of dementia below) and that those with intellectual disability or Down Syndrome often have earlier onset of dementia.

In an effort to tease out the effects of intellectual disability in older people, a further analysis was made of the study data after removing age groups aged 65+ years, for a selection of seven of the health indicators examined. This suggested that the gap between age-standardised rates for people with and without intellectual disability was the same as, or higher than, when all age groups were included.

Rates of intellectual disability in males and females

Males in the study population had higher rates of intellectual disability than females, and the difference was greatest among children. This pattern is consistent with research results from elsewhere (AIHW 2008; Bray 2003b; Harris 2006). Reasons for the higher rate of intellectual disability among males may include a higher prevalence of congenital conditions associated with intellectual disability, such as Fragile X syndrome, and the fact that boys with intellectual disability are more likely than girls to have behavioural and developmental problems that brings them to the attention of support services (Bray 2003b; Harris 2006).

Rates of intellectual disability by socioeconomic area (NZDep)

People in the study population living in the more socioeconomically deprived areas of the country (as measured by the New Zealand Deprivation Index) had higher rates of intellectual disability compared with people living in less deprived areas. Again, this finding appears to be consistent with research overseas. Harris (2006:86) notes that 'psychosocial factors such as poor living conditions, overcrowding, and lack of educational opportunity, may correlate with intellectual disability, particularly in the mild range'.

In various countries, exposure of children and adolescents with learning disabilities to low socioeconomic position and poverty has been found to be associated with poorer physical and mental health (Emerson and Baines 2010). More generally, it has been well documented that socioeconomic deprivation is associated with poorer health outcomes, both in New Zealand and overseas (eg, Strategic Review of Health Inequalities in England Post-2010 2010; Ministry of Health 2000; Ministry of Health 2002; National Advisory Committee on Health and Disability 1998).

Life expectancy

New Zealanders with intellectual disability have a substantially lower life expectancy at birth than the population as a whole. Life expectancy for New Zealand males with intellectual disability in the study population was 59.7 years, almost 19 years lower than for all New Zealand males. Life expectancy for New Zealand females with intellectual disability was 59.5 years, almost 23 years lower than for all New Zealand females. This relatively low life expectancy for people with intellectual disability is consistent with previous research. However, some studies have shown that life expectancy for people with disability is improving significantly over time, and that in future the number of older people with intellectual disability will increase substantially (Emerson and Baines 2010; Harris 2006; Krahn et al 2006; Patja et al 2000).

Overseas studies have shown that the severity of intellectual disability affects life expectancy. For example, people with mild disability tend to have a similar life expectancy to the general population, whereas people with severe or profound intellectual disability tend to have much lower life expectancies (Harris 2006; Patja et al 2000). If the assumption is correct that the people with intellectual disability in the study population tend to have more severe levels of intellectual disability than average, then their estimated life expectancies may be lower than would be found in a more general sample of people with intellectual disability.

The lack of difference between the life expectancy of males and females in the study population is partly due to higher mortality rates in females aged 0–14 compared to males in the same age group. The reasons for these higher mortality rates in girls may be at least partly due to a greater degree of statistical unreliability in the group, because of their smaller number compared to boys. High mortality rates at younger age groups has a relatively large effect on life expectancy because there are more years lost than when there are high mortality rates in older age groups.

In addition, there may be other reasons related to different risk factors and causes of intellectual disability in the two genders. Studies elsewhere have shown a smaller difference in life expectancy between males and females with intellectual disability compared to the general populations (eg, Patja et al 2000).

Chronic health conditions

It is clear from the data that chronic health conditions are a common feature of the lives of New Zealanders with intellectual disability. Almost a third of the people with intellectual disability in the study population (31.5 percent) received some form of care or treatment for one or more of six major health conditions (coronary heart disease, chronic respiratory disease, diabetes, chronic kidney disease, cancer, morbid obesity). This rate of care or treatment for chronic health conditions was approximately 1.5 times higher than the rate for the rest of the New Zealand population.

Of the six chronic conditions investigated, by far the most common was chronic respiratory (lung) disease, for which 22.2 percent of people with intellectual disability in the study population received health care or treatment. Moreover, children and younger adults with intellectual disability had substantially higher rates of care or treatment for chronic respiratory disease than their non-intellectually disabled, same-age counterparts. This is an important area for researchers to focus on, particularly for younger people with intellectual disability, and especially in relation to modifiable factors such as people's living environment and lifestyle, as well as the degree of support they get to enable them to follow effective prevention strategies and treatment plans. Overseas studies have shown that respiratory disease may be the most common cause of death for people with learning disabilities (Emerson and Baines 2010). This may be partly due to people with intellectual disability who have asthma being more likely to smoke than other people with asthma (Emerson and Baines 2010).

One in every 14 people with intellectual disability received care or treatment for diabetes, substantially more than the rate for people without intellectual disability, which was one in every 22 people. Again, the incidence and severity of diabetes are affected by environment and lifestyle factors as well as adherence to treatment protocols, so further research could be valuable for identifying possible strategies to reduce the discrepancy between diabetes treatment rates for those with and without intellectual disability.

People with intellectual disability in the study population were twice as likely as people without intellectual disability to receive renal replacement therapy in a public hospital (ASRs of 0.2 and 0.1 percent, respectively). Although these results were based on relatively small numbers of cases for people with intellectual disability, this result is consistent with the higher observed prevalence of diabetes for people with intellectual disability and the renal complications of this condition. It is also consistent with overseas studies that show that some genetic causes of intellectual disability are associated with renal and other urological disorders (O'Hara et al 2010).

One in every fifteen people with intellectual disability received care or treatment for coronary heart disease (CHD), compared with just 1 in every 24 people without intellectual disability. Some studies overseas have also shown a higher prevalence of cardiovascular disease (which includes CHD) among people with intellectual disability, whereas others have shown similar rates to the general population (O'Hara et al 2010). Given CHD can be prevented or effectively controlled in many individuals, there may be merit in developing strategies to address the modifiable risk factors for CHD among people with intellectual disability.

In this regard, the current study also showed that people with intellectual disability are over four times more likely to receive public hospital treatment for morbid obesity than people without intellectual disability (ASRs of 0.9 and 0.2 per 100 people, respectively). This echoes earlier studies showing obesity to be more common among people with intellectual disability than in the general population (Krahn et al 2010; National Advisory Committee on Health and Disability 2004). This may be partly due to lifestyle factors, but also some conditions, such as Prader-Willi syndrome, are associated with both intellectual disability and obesity. Obesity is a recognised risk factor for CHD and diabetes as well as other health conditions, including stroke and certain types of cancer.

Looking at rates of care or treatment for cancer (eg, surgery, chemotherapy, radiotherapy, blood transfusions, assessment or follow-up services), people with intellectual disability were just under 1.5 times more likely to receive these types of cancer care or treatment than people without intellectual disability (ASRs of 1.6 and 1.1 percent, respectively). Overseas studies suggest that the prevalence of cancer is generally similar in people with and without intellectual disability, although certain types of cancer may be more likely in people with intellectual disability. Leukaemia is more common in children with Down syndrome than in other children, while gastrointestinal cancer is more common in people with intellectual disability than in the general population (Emerson and Baines 2010; National Advisory Committee on Health and Disability 2004; O'Hara et al 2010).

Epilepsy and other physical health conditions

The current study indicates that New Zealanders with intellectual disability are over 30 times more likely to receive epilepsy-related treatment and medicines than people without intellectual disability (with ASRs of 16.3 and 0.5 percent, respectively). This is broadly consistent with overseas research that shows the prevalence of epilepsy to be much higher in people with intellectual disability than in the rest of the population (Emerson and Baines 2010; Krahn et al 2006; O'Hara et al 2010). In particular, it is estimated that approximately 21 percent of people with intellectual disability who do not have cerebral palsy will have epilepsy. In addition, approximately 50 percent of people with intellectual disability who *do* have cerebral palsy will have epilepsy. This compares to a prevalence of epilepsy in the general population of around 0.5 to 1 percent (National Advisory Committee on Health and Disability 2004).

New Zealanders with intellectual disability also had over double (2.4 times) the rates of public hospital discharges for injuries compared to people without intellectual disability. This is consistent with the relatively high rates of accidents and injuries among people with learning disabilities in Canada, Australia, the Netherlands and the United States (Emerson and Baines 2010).

Some overseas research also points to people with intellectual disability having approximately double the rate of dental health problems as the general population, including untreated tooth decay and gum disease, whereas other studies have shown similar rates to the general population (National Advisory Committee on Health and Disability 2004; O'Hara et al 2010). New Zealand public hospitals provide primary oral health care (as well as more complex oral health care) services for people needing special care; for example, as a result of having an intellectual disability they require special management, which may prevent them from accessing private community dental care (Ministry of Health 2010). The findings from the current study show that New Zealanders with intellectual disability are over 15 times more likely to receive dental extractions, dental restorations and other dental treatments in a public hospital compared to people without intellectual disability (with ASRs of 4.2 and 0.3 treatments per 100 people, respectively).

Mental disorders

This report indicates that people with intellectual disability have substantially higher rates of care or treatment for mood disorders, psychotic disorders and 'any type of mental disorder' compared to people without intellectual disability. People with intellectual disability were twice as likely as people without intellectual disability to receive care or treatment for a mood disorder in a 12-month period, 17 times more likely to receive care or treatment for a psychotic disorder, and 10 times more likely to receive care or treatment for dementia. Altogether, over 12 months, more than one in every three people with intellectual disability in the study population (36.7 percent) received care or treatment for some type of mental disorder compared to only 1 in every 10 people without intellectual disability.

These findings are generally consistent with overseas prevalence studies indicating that people with intellectual disability are at greater risk of experiencing mental disorders than the population as a whole, especially psychotic disorders (such as schizophrenia) and anxiety disorders (Emerson and Baines 2010; Krahn et al 2006; Krahn et al 2010; O'Hara et al 2010). Some studies estimate that as many as 40–50 percent of people with intellectual disability may have psychiatric and/or behavioural disorders (Bray 2003b). Thirty-six percent of British children with learning disabilities were found to have psychiatric disorders, compared to 8 percent of other children (Emerson and Baines 2010).

There have been suggestions that people with intellectual disability may be more vulnerable to psychosocial stress than people without intellectual disability (Deb et al 2001). Other reports conclude there may be a common pathway to the development of both intellectual disability and schizophrenia (Morgan et al 2008). This highlights the importance of people with intellectual disability and their caregivers having good access to mental health services and treatment, including mental health promotion services aimed at reducing the incidence of episodes of mental disorder.

People with Down syndrome have a high risk of Alzheimer's disease (and related dementia), and this risk is related to age, level of functioning, menopause and specific chromosomal mutations (O'Hara et al 2010). Some overseas studies of people with intellectual disability who do not have Down syndrome have found they have an increased prevalence of dementia (eg, Strydom et al 2007), whereas other studies have found dementia rates among people with intellectual disability similar to the general population (O'Hara et al 2010).

Use of primary health care

The data on primary health care enrolment and use of general practice services suggests that people with intellectual disability are more likely to have health conditions and require more frequent contact with primary health care professionals than people without intellectual disability. In a three-month period, almost two-thirds of people with intellectual disability in the study (63.9 percent) consulted a general practice, compared to only 47.5 percent of people without intellectual disability. Adjusted for age, this means people with intellectual disability were almost 1.5 times more likely to consult a general practice in the three months compared to people without intellectual disability (ASRs of 65.2 percent and 44.9 percent respectively).

The largest differences in three-monthly rates of general practice consultation between people with and without intellectual disability were in the age groups between 15 and 54, suggesting that younger adults with intellectual disability are particularly prone to experience more illness or health conditions than other people their age.

Use of pharmaceuticals

The analysis of community pharmacy dispensing data for the year to 30 June 2008 found that, on average, people with intellectual disability were being dispensed nearly twice as many different types of prescription drugs as people without intellectual disability (ASRs of 5.6 and 3.0 different types of pharmaceuticals, respectively). Although only a general indicator, this dispensing data does lend support to what has been observed in other studies: people with intellectual disability tend to be dispensed two or more different types of drugs simultaneously, which can lead to concerns about possible drug interactions.

This may be a reflection of the higher prevalence of physical and mental health conditions among people with intellectual disability. However, there are suggestions that some people with intellectual disability may be dispensed certain types of prescription drugs (eg, anti-psychotic medications) to control behavioural problems rather than to treat clinically diagnosed health conditions (National Advisory Committee on Health and Disability 2004).

Use of screening services

There are clear indications that women with intellectual disability are less likely to receive breast screening and cervical screening compared to women without intellectual disability. In the two-year national breast screening round run by BreastScreen Aotearoa for women aged 45–69 years, women with intellectual disability had a lower rate of breast screening than women without intellectual disability (ASRs of 39.9 percent and 48.7 percent respectively).

Moreover, in the 3-year National Cervical Screening Programme round for women aged 20–69, women with intellectual disability were less than half as likely as women without intellectual disability to receive cervical screening (ASRs of 33.3 percent and 70.6 percent, respectively). This is despite 95.5 percent of females with intellectual disability being enrolled in primary health organisations (PHOs), and therefore in principle identifiable for participation in breast and cervical screening and other well-women services.

Other studies note evidence of women with intellectual disability having problems accessing breast-screening services and rarely being offered cervical smears (Emerson and Baines 2010; National Advisory Committee on Health and Disability 2004). For the latter, it is sometimes assumed (in some cases incorrectly) that women with intellectual disability are not sexually active and therefore are unlikely to be at risk of getting cervical cancer. However, for most women with intellectual disability who are sexually active, cervical screening can be offered and carried out with suitable education and counselling (O’Hara et al 2010).

Use of public hospitals

Public hospital discharge data indicates that people with intellectual disability access these services more than the rest of the population. After adjusting for age, the present study found that in the year to 30 June 2008, compared to people without intellectual disability, people with intellectual disability were:

- more than twice as likely to receive *elective or arranged* public hospital treatment (with ASRs of 16.9 and 6.8 discharges per 100 people, respectively)
- almost three times more likely to receive *acute* public hospital treatment (ASRs of 21.6 and 7.6 discharges per 100 people, respectively).³⁶

³⁶ Elective hospital treatment is treatment booked or scheduled in advance. Acute hospital treatment is treatment that is unplanned or unscheduled.

As well, in the year to 30 June 2008, people with intellectual disability were two-and-a-half times more likely to go to public hospital emergency departments for care or treatment (ASRs of 48.5 and 18.9 attendances per 100 people with and without intellectual disability, respectively).³⁷

The data specifically examining *avoidable* public hospital discharges (ie, hospitalisations that in theory should not have been required if proper prevention strategies or non-hospital treatment options had been used) indicates that people with intellectual disability were over four times more likely to have avoidable hospital discharges compared to people without intellectual disability (ASRs of 15.5 and 3.6 discharges per 100 people, respectively). This finding suggests that much of the excess numbers of hospitalisations that people with intellectual disability currently experience could be modified through the use of more effective health and support services. Overseas studies have also found that preventable hospitalisations are common among people with intellectual disability (Krahn et al 2010).

Health care costs

Reflecting their greater experience of health conditions and higher use of health services, people with intellectual disability had higher average government-funded health care costs than people without intellectual disability. For the year ending 30 June 2008, the age-adjusted average primary health care cost for people with intellectual disability was \$1,070 per person, almost three times the cost for people without intellectual disability (\$373). During the same period, the age-adjusted average secondary health care costs for people with intellectual disability (\$1,931 per person) were also nearly three times higher than for people without intellectual disability (\$654). When added together, the primary and secondary costs resulted in a nearly three-fold difference in the average total health care costs for people with intellectual disability (\$3,001 per person) compared to people without intellectual disability (\$1,028).³⁸

Summary of results

To summarise, for all indicators examined in this report, people with intellectual disability were more disadvantaged, in terms of their health and life expectancy, compared to people without intellectual disability. The group with intellectual disability experienced higher rates of specific health conditions than the group without intellectual disability. They also used health services more (apart from preventive screening services).

³⁷ Anecdotally, one contributing factor to this may be the tendency for people with intellectual disability living in group homes to be taken directly to hospital emergency departments for treatment rather than to general practice clinics.

³⁸ These cost figures specifically *exclude* costs relating to the provision of disability support services funded by the Ministry of Health and DHBs.

This study does not explore the reasons for these differences. However, some of the differences may be due to a relatively high prevalence of physical health conditions associated with some causes of intellectual disability. For example, a relatively high proportion of people with the genetic condition Down Syndrome have some degree of intellectual disability, and the syndrome is associated with health conditions such as congenital heart disorders and hearing impairment or deafness. Other studies indicate that people with intellectual disability also commonly experience musculoskeletal conditions, fine or gross motor impairments and visual impairments, as well as the psychiatric and behavioural problems noted previously (Bray 2003b).

It should be remembered that intellectual disability in itself is not a health condition that can be treated or cured by medical means. It is a difference or limitation in a person's ability to function. It is also important to note that there may be non-medical factors that lead to people with intellectual disability having poor health status and a high need for health services. These factors may include:

- how people with intellectual disability communicate about, and behave in relation to, their health
- their (and their caregivers') knowledge of health issues
- the availability of appropriate and accessible health and support services
- their home situation (for example, living with their family or in residential care)
- their socioeconomic circumstances, including educational achievement, employment opportunities, poverty, social disadvantage, and a lack of upward social mobility, particularly for people who have had intellectual disability from childhood
- how other people, including service providers and society in general, regard them, treat them and include them in everyday activities.³⁹

³⁹ See Emerson and Baines 2010; Emerson et al 2009; Krahn et al 2006; National Advisory Committee on Health and Disability 2003.

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Glossary

95 percent confidence interval: A confidence interval is a range of values around a measurement that indicates how precise the measurement is. A 95 percent confidence interval indicates that we can be 95 percent certain that the true measurement lies within this range.

Age-adjusted rate: See 'Age-standardised rate'.

Age-specific rate: The proportion of people in a specific age group or age range who share a particular characteristic. In this report, age-specific rates are typically expressed as percentages (rates per 100 people); for example, '43.0 percent of people with intellectual disability aged 75 and over received care or treatment for coronary heart disease'. The age-standardised rate is a summary of individual age-specific rates using an external population called a standard population.

Age standardisation: See 'Age-standardised rate'.

Age-standardised rate: Age standardisation enables research data from two or more population groups with different age profiles to be compared. Age standardisation adjusts for the differing age profiles of the groups by applying age-specific rates to a standard population and producing a single, age-adjusted rate for each group. For this report, age-standardised rates (ASRs) have been calculated using the World Health Organization (WHO) world standard population.

ASR: Age-standardised rate. See above.

Avoidable hospitalisations, avoidable hospital discharges: Hospitalisations deemed to be potentially avoidable because the health conditions involved could have been effectively treated in a primary health care setting, or prevented from occurring through lifestyle changes or the use of preventive health services (eg, screening, immunisation). Health conditions for which hospitalisation is considered avoidable are:

- Alcohol-related conditions
- Angina
- Asthma
- Breast cancer
- Burns and scalds
- Cellulitis
- Cervical cancer
- Chronic obstructive respiratory disease
- Colorectal cancer
- Congestive heart failure
- Dehydration
- Dental conditions
- Diabetes
- Drowning
- ENT infections
- Epilepsy
- Failure to thrive
- Falls from playground equipment
- Gangrene
- Gastroenteritis
- Hepatitis and liver cancer
- HIV/AIDS
- Immunisation-preventable disorders
- Indeterminately-caused injuries
- Ischaemic heart disease
- Kidney/urinary infection
- Lung cancer
- Nutrition disorders
- Obstructed hernia
- Oral cancers
- Other infections
- Peptic ulcer
- Poisoning
- Respiratory infections
- Rheumatic fever/rheumatic heart disease
- Road traffic injury

- Ruptured appendix
- Sexually-transmitted diseases
- Skin cancers
- Sports injuries
- Stroke
- Suicide
- Swimming pool accidents
- Thyroid disease
- Tuberculosis

Capture–recapture analysis: A statistical method for estimating the number of unrecorded individuals in a population group, using two or more incomplete sources/lists of individuals in the group.

C–RC: Capture–recapture analysis. See above.

Disability support services: Support services for people with a disability (eg, residential care, carer support, respite care, home support in the form of help with housework and personal care).

DSM-IV: *Diagnostic and Statistical Manual of Mental Disorders* 4th edition (American Psychiatric Association 1994).

Ethnic group/ethnicity: A self-defined concept that encompasses the sense of belonging to a particular cultural group. In this report, data is provided for four ethnic groups: Māori, Pacific peoples, Asian people and Other/European people. When an individual identified with more than one ethnic group, a standard system of prioritisation was used to allocate the individual to one ethnic group in the order of Māori, Pacific, Asian and Other/European. The total response ethnic classification is now used and promoted by Statistics New Zealand in preference to prioritisation. The relatively infrequent use of multiple ethnic codes in the data collections used in this report means that there will be little difference in the rates reported for a prioritised or total response ethnic classification.

ICD, ICD-9, ICD-10: International Classification of Diseases versions 9 and 10 (see United States National Center for Health Statistics and WHO 1978; World Health Organization 1992).

New Zealand Deprivation Index: The New Zealand Deprivation Index 2006 version (NZDep2006) measures the level of socioeconomic deprivation in small geographic areas of the country (meshblocks). A score of 1 indicates people are living in the least deprived 20 percent ('quintile') of New Zealand's geographic areas, while a score of 5 indicates they are living in the most deprived 20 percent. NZDep2006 is calculated using 2006 Census data on the following social and economic variables: household access to vehicles and telephones, receipt of means-tested benefits, unemployment, household income, sole parenting, educational qualifications, home ownership and home living space (Salmond et al 2007). Readers should note that the index refers to the average socioeconomic circumstances of the whole population of a meshblock, not to individuals. Caution is therefore required when interpreting NZDep2006 data.

NHI: The National Health Index (NHI), a database maintained by the Ministry of Health and used by public hospitals and other health and disability support services to assign a unique alphanumeric identifier to people who use their services.

NZDep: See 'New Zealand Deprivation Index'.

People with intellectual disability: People in the study population identified as having intellectual disability, as defined and recorded in one or more of the following Ministry of Health databases.

- **National Minimum Data Set (NMDS):** *Definition of intellectual disability:* diagnosis of mild, moderate, severe, profound, other or unspecified 'mental retardation' (ICD-9 317–319, ICD-10 F70–F79, DSM-IV 317–319) between 1 January 1988 and 30 June 2008; and/or assessment, treatment, rehabilitation or residential care of persons with intellectual disability (Health Specialty Codes D60–D74) in public hospitals between 1 January 1988 and 30 June 2008.⁴⁰
- **Mental Health Information National Collection (MHINC):** *Definition of intellectual disability:* had a diagnosis of mild, moderate, severe, profound, other or unspecified 'mental retardation' (ICD-9 317–319, ICD-10 F70–F79, DSM-IV 317–319) in a secondary mental health and addiction service (inpatient, outpatient or community) between 1 July 2000 and 30 June 2008; and/or placed under an Intellectual Disability (Compulsory Care and Rehabilitation) Act (IDCCRA) order between 1 July 2000 and 30 June 2008; or treatment by an intellectual disability dual diagnosis team (Team Type 12) between 1 July 2000 and 30 June 2008.
- **Client Claims Processing System (CCPS):** *Definition of intellectual disability:* had a Needs Assessment and Service Coordination (NASC) assessment resulting in receipt of intellectual disability services, such as residential care specifically for people with intellectual disability, between 1 January 1999 and 30 June 2008. The CCPS is used to collect data about people with intellectual disability whose disability support services are funded by the Ministry of Health (rather than district health boards) and who are generally under the age of 65.
- **SOCRATES (NASC information system):** *Definition of intellectual disability:* recorded in the Referral Diagnosis / Health Condition field of the SOCRATES database as having an intellectual disability, as at April 2009. SOCRATES is used to collect data about people with intellectual disability whose disability support services are funded by the Ministry of Health (rather than district health boards) and who are generally under the age of 65.

People without intellectual disability: All people in the study population who were not identified as having intellectual disability. For the definition of 'people with intellectual disability', see above.

Socioeconomic area: See 'New Zealand Deprivation Index'.

Whānau: Extended family (Māori).

⁴⁰ The term 'mental retardation' is being replaced with the term 'intellectual disability' in DSM-IV.

Appendix A: Estimating the true prevalence of intellectual disability using capture–recapture analysis

Introduction

This section presents a statistical estimation of the true prevalence of intellectual disability in the study population. This is based on a ‘capture–recapture’ analysis of the degree of under-reporting of diagnosed intellectual disability in the study population. Statistical modelling of the overlap between the contents of the study’s separate health data sets is used to calculate the number of people with intellectual disability likely not to be represented in any of the data sets.

Details of the statistical techniques used

Five indicator variables from the health data sets were used in the statistical modelling to estimate the degree of under-reporting of diagnosed intellectual disability in the study population: The indicator variables were:

- a public hospital diagnosis of intellectual disability
- a mental health service diagnosis of intellectual disability and/or an Intellectual Disability (Compulsory Care and Rehabilitation) Act (IDCCRA) order
- a Needs Assessment and Service Co-ordination (NASC) assessment determining intellectual disability and Disability Support Service payments for intellectual disability services
- a NASC assessment determining intellectual disability and no Disability Support Service payments for intellectual disability services
- a ‘diagnosis’ of intellectual disability on the NASC SOCRATES information system – as defined either by a medical diagnosis when referred to a NASC, or by a NASC assessment of a person’s ability to carry out certain everyday tasks (a functional definition).

In its simplest form, the capture–recapture calculation to estimate the total number of individuals from two sources or lists is:

$$\hat{N}_p = \frac{n_1 n_2}{m_2}$$

where:

- n_1 is the number of people identified in one source
- n_2 is the number of people identified in the other source
- m_2 is the number of people common to both sources
- N_p is the ‘Petersen estimator’ of the true total number of individuals.

The higher the proportion of individuals caught in both sources, the lower the population estimate.

For this study, the capture–recapture analysis was implemented using the five available lists of diagnosed intellectual disability for the study population. People common to more than one list were identified through their National Health Index (NHI) numbers, which are unique to individuals. These NHI numbers were available for each list.

Combinations of the five indicators in the study population were used to derive estimates of the prevalence of diagnosed and recorded intellectual disability. Then, to estimate the prevalence of diagnosed intellectual disability in these two populations, capture–recapture Poisson regression models were applied (in SAS 9.1 using PROC GENMOD). Model fit was estimated by a stepwise comparison of the competing models using Akaike’s Information Criterion (AIC) and Type 3 chi-square tests on the individual effects.

Assumptions of this method

The capture–recapture estimation method makes a number of assumptions, including:

- the population is closed (individuals are not coming and going from it)
- individuals can be accurately matched across the data sources
- the data sources are independent of one another (this is particularly important when only two data sources are used)
- people not captured by any of the sources are similar to those who are ‘captured’ (for each data source, each person has an equal chance of being captured).

If these assumptions are not true, the estimates of the true numbers of people with the characteristic of interest may be inaccurate (Nanan and White 1997; Tilling 2001; Verlato and Muggeo 2000).

In the current study, where we are estimating the true prevalence of intellectual disability in the New Zealand study population, the first two assumptions are likely to be more or less true. The study population should not be changing very much during the time of measurement. Also, the vast majority of individuals can be accurately matched across the databases using their NHI numbers.

However, the lists used are not independent. For example, the last three sources relate to people who are using NASC services, and therefore the same people are very likely to be counted in two of these three lists. Nevertheless, a total of five sources of information are used in the analysis rather than just two, which should reduce the effect on the estimates of a lack of independence.

The last assumption – that people who are recorded and not recorded are similar – is unlikely to be true. People with mild intellectual disability are less likely to be identified than people with moderate or severe intellectual disability, because people with mild intellectual disability may not need health or disability support services. As a result, they will not be identified as having intellectual disability in any of the sources.

These issues should be borne in mind when considering the estimates presented below.

Estimates of the true prevalence of intellectual disability

As noted in the demographic profile at the beginning of this report, analysing various Ministry of Health databases identified 31,847 people with intellectual disability. This was 0.7 percent of the total study population of 4,293,447.

Using the capture–recapture method, it is estimated that there were actually an additional 14,817 people with intellectual disability in the study population, giving a total of 46,664 people, or a true prevalence of 1.1 percent.⁴¹ This figure is slightly lower than that found by the 2006 New Zealand Disability Survey, where 50,600 New Zealanders living in households and residential facilities were estimated to have intellectual disability (a prevalence of 1.3 percent).

The difference in the estimates between the current study and the Disability Survey may be due partly to the different definitions of intellectual disability used. Whereas a professional diagnosis of intellectual disability was generally used in the current study, a self-reported, slightly wider definition was used in the 2006 Disability Survey as follows:

- *for children* – an intellectual disability or a general developmental delay
- *for adults* – a need for support or help from organisations, previous attendance at a special school, or receipt of special education because of an intellectual disability or ‘handicap’ (Office for Disability Issues and Statistics New Zealand 2010).⁴²

Estimates by age, gender, ethnic group and socioeconomic group

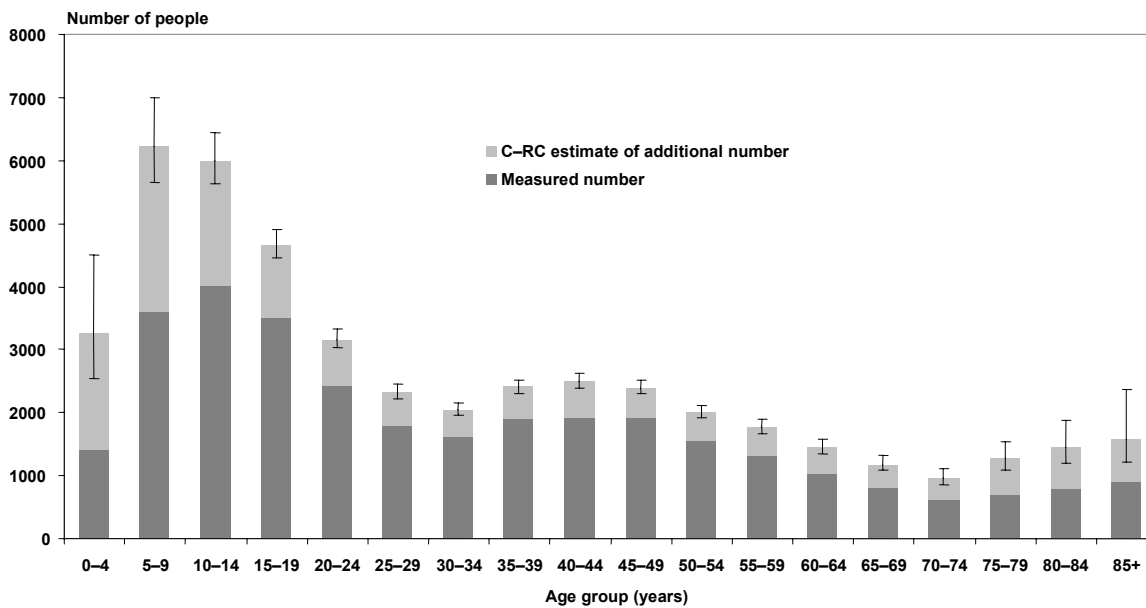
Figures A.1–A.4 show the results of the capture–recapture analysis by age, gender, ethnic group and socioeconomic group (NZDep2006). The measured numbers of people in the study population with intellectual disability, as presented earlier in the demographic profile, are shown in darker grey at the bottom of each bar. The numbers of additional, unrecorded people with intellectual disability in the study population, estimated by the capture–recapture analysis, are shown in paler grey at the top of each bar. The symbols (I) on the top of each bar show 95 percent confidence intervals for the estimates of the true total number of people with intellectual disability.⁴³

⁴¹ The 95 percent confidence interval was 42,683–52,109 people, equivalent to 1.0–1.2 percent of the study population. This means, statistically, we can be 95 percent confident that the true number of people lies in this range due to factors relating to chance alone (random variation).

⁴² Most overseas studies estimate the prevalence of intellectual disability to be between 1 and 3 percent of the general population, depending on definitions and research methods used and the population studied (Fletcher et al 2007).

⁴³ See the footnote above concerning confidence intervals.

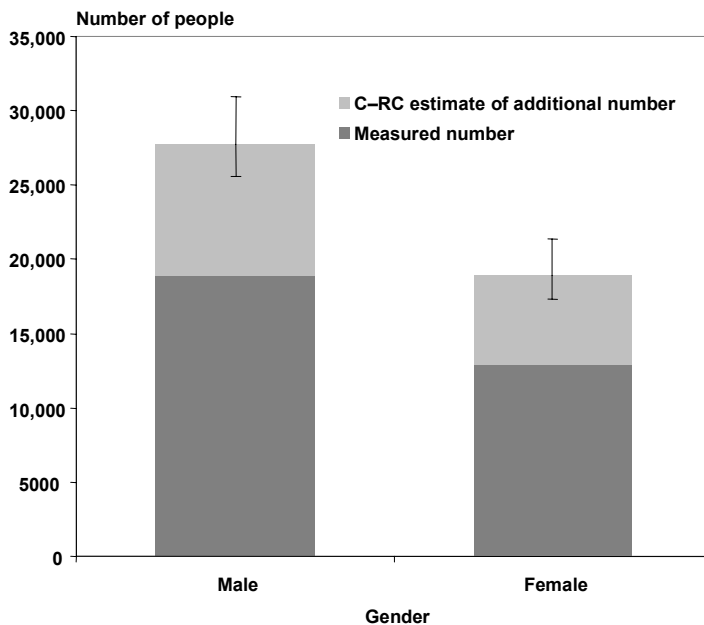
Figure A.1: Estimated true number of people with intellectual disability, by age



Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Notes: Data in appendix table D.1. I = 95% confidence interval.

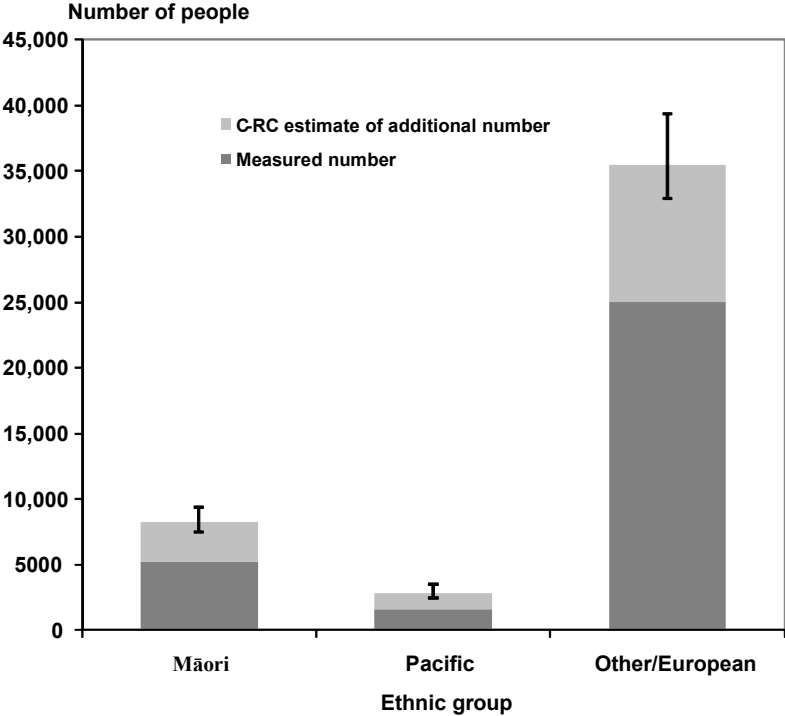
Figure A.2: Estimated true number of people with intellectual disability, by gender



Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Notes: Data in appendix table D.2. I = 95% confidence interval.

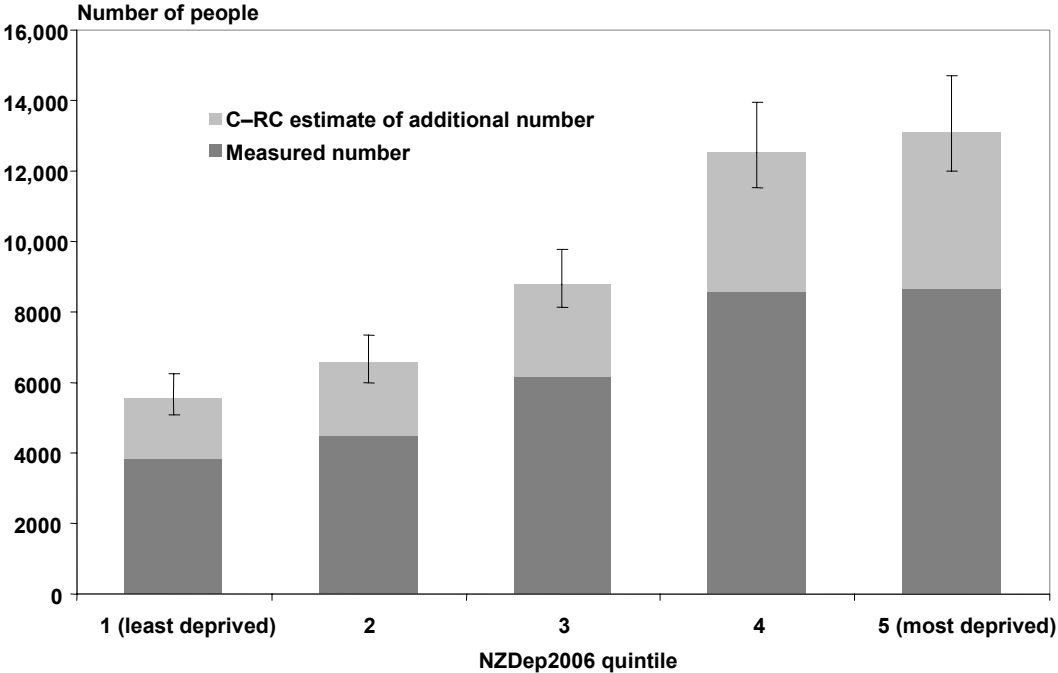
Figure A.3: Estimated true number of people with intellectual disability, by ethnic group



Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Notes: Data in appendix table D.3. The ‘Other/European’ group also includes Asian people. I = 95% confidence interval.

Figure A.4: Estimated true number of people with intellectual disability, by socioeconomic group (NZDep2006 quintiles)



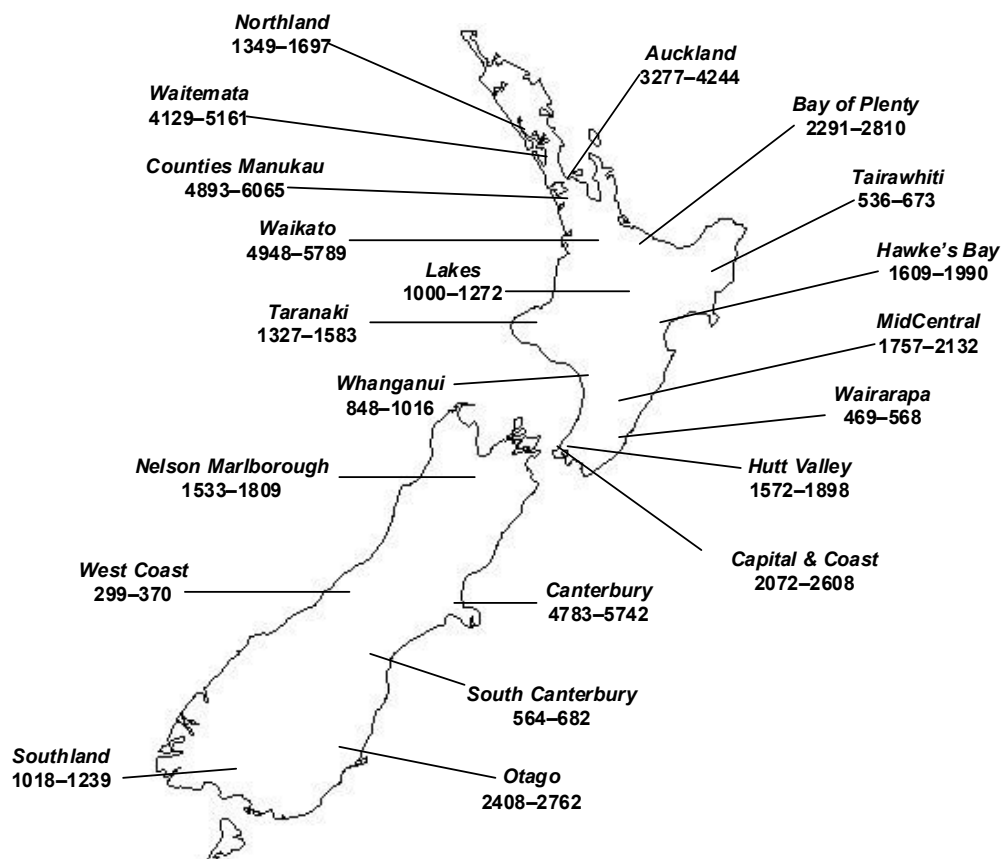
Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008.

Notes: Data in appendix table D.4. Excludes people whose socioeconomic area was not specified. I = 95% confidence interval.

Estimates by DHB

The map below (Figure A.5) shows capture–recapture estimates of the true number of people with intellectual disability in the 21 district health boards that were operating in 2008.⁴⁴

Figure A.5: Estimated true number of people with intellectual disability, by district health board



Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Notes: Data in appendix table D.5. The ranges of numbers shown under the name of each DHB represent 95 percent confidence intervals. Excludes people whose DHB was not specified.

⁴⁴ Otago and Southland DHBs have since amalgamated to become Southern DHB.

Appendix B: Demographic profile data tables

Table B.1: Rates of intellectual disability, by five-year age groups

Age group (years)	No.	Rate (percent)
0–4	1410	0.4
5–9	3613	1.2
10–14	4006	1.3
15–19	3505	1.1
20–24	2440	0.9
25–29	1801	0.7
30–34	1614	0.6
35–39	1899	0.6
40–44	1925	0.6
45–49	1911	0.6
50–54	1552	0.6
55–59	1313	0.5
60–64	1027	0.5
65–69	819	0.5
70–74	619	0.5
75–79	714	0.7
80–84	791	1.0
85+	888	1.2
Total	31,847	0.7

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Rate = per 100 people in each study population age group.

Table B.2: Rates of intellectual disability, by gender and age

Age	Gender			
	Males		Females	
	No.	Rate (percent)	No.	Rate (percent)
0–14	6319	1.3	2710	0.6
15–24	3724	1.2	2221	0.7
25–34	1981	0.8	1434	0.5
35–44	2121	0.7	1703	0.5
45–54	1835	0.6	1628	0.5
55–64	1204	0.5	1136	0.5
65–74	709	0.5	729	0.5
75+	1028	0.9	1365	0.9
Total	18,921	0.9	12,926	0.6
Age-standardised rate	--	0.9	--	0.6

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Rate = per 100 people in each study population age group.

-- = not applicable.

The WHO world standard population was used to calculate age-standardised rates.

Table B.3: Rates of intellectual disability, by ethnic group and age

Age	Ethnic group							
	Maori		Pacific		Asian		Other/European	
	No.	Rate (percent)	No.	Rate (percent)	No.	Rate (percent)	No.	Rate (percent)
0–14	1632	0.9	634	0.7	624	0.9	6139	1.1
15–24	1138	1.1	375	0.8	265	0.7	4167	1.0
25–34	682	0.9	209	0.5	91	0.2	2433	0.7
35–44	692	1.0	180	0.5	60	0.1	2892	0.6
45–54	502	0.9	98	0.4	37	0.1	2826	0.6
55–64	276	0.9	51	0.3	22	0.1	1991	0.5
65–74	148	0.9	51	0.5	19	0.1	1220	0.5
75+	115	1.7	38	0.8	23	0.4	2217	0.9
Total	5185	0.9	1636	0.6	1141	0.4	23,885	0.8
Age-standardised rate	--	1.0	--	0.6	--	0.4	--	0.8

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Rate = per 100 people in each study population age group.

-- = not applicable.

The WHO world standard population was used to calculate age-standardised rates.

Table B.4: Rates of intellectual disability, by socioeconomic area (NZDep quintile) and age

Age	Socioeconomic area (NZDep2006 quintile)											
	1 (least deprived)		2		3		4		5 (most deprived)		Not specified	
	No.	Rate (percent)	No.	Rate (percent)	No.	Rate (percent)	No.	Rate (percent)	No.	Rate (percent)	No.	Rate (percent)
0–14	1473	0.9	1507	1.0	1724	1.0	2020	1.0	2250	0.9	55	0.8
15–24	792	0.8	840	0.8	1100	1.0	1541	1.2	1635	1.1	37	0.9
25–34	358	0.5	430	0.5	629	0.6	953	0.8	1027	0.8	18	0.5
35–44	322	0.3	466	0.4	707	0.6	1075	0.8	1239	0.9	15	0.4
45–54	293	0.2	438	0.4	697	0.6	1023	0.8	999	0.9	13	0.3
55–64	192	0.2	311	0.4	515	0.6	734	0.8	575	0.7	13	0.3
65–74	141	0.3	160	0.3	317	0.5	429	0.6	386	0.7	5	0.2
75+	258	0.7	319	0.7	493	0.8	785	1.2	529	1.1	9	0.5
Total	3829	0.5	4471	0.6	6182	0.7	8560	0.9	8640	0.9	165	0.5
Age-standardised rate		0.6		0.6		0.8		0.9		0.9		0.6

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Rate = per 100 people in each study population age group.

-- = not applicable.

The WHO world standard population was used to calculate age-standardised rates.

Table B.5: Demographic profiles of people with and without intellectual disability, by age, gender, ethnic group and NZDep quintile

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	9029	28.4	917,463	21.5
15–24	5945	18.7	597,530	14.0
25–34	3415	10.7	530,055	12.4
35–44	3824	12.0	624,101	14.6
45–54	3463	10.9	589,512	13.8
55–64	2340	7.3	452,228	10.6
65–74	1438	4.5	290,383	6.8
75+	2393	7.5	260,328	6.1
Total	31,847	100.0	4,261,600	100.0
Gender				
Male	18,921	59.4	2204,713	51.7
Female	12,926	40.6	2056,212	48.2
Unknown	0	0.0	675	0.0
Total	31,847	100.0	4,261,600	100.0
Ethnic group				
Māori	5185	16.3	546,052	12.8
Pacific	1636	5.1	276,788	6.5
Asian	1141	3.6	280,631	6.6
Other/European	23,885	75.0	3,158,129	74.1
Total	31,847	100.0	4,261,600	100.0
NZDep 2006 quintile				
1 (least deprived)	3829	12.0	751,636	17.6
2	4471	14.0	760,766	17.9
3	6182	19.4	836,662	19.6
4	8560	26.9	930,630	21.8
5 (most deprived)	8640	27.1	951,721	22.3
Not specified	165	0.5	30,185	0.7
Total	31,847	100.0	4,261,600	100.0

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: Percent = percent of all people with or without disability.

Table B.6: People with intellectual disability, by DHB

DHB	No.	Total study population	Crude rate (percent)	ASR (percent)
Northland	920	138,873	0.7	0.7
Waitemata	2957	507,637	0.6	0.6
Auckland	2242	438,150	0.5	0.6
Counties Manukau	3560	492,948	0.7	0.7
Waikato	3917	356,530	1.1	1.0
Lakes	666	110,362	0.6	0.6
Bay of Plenty	1680	210,346	0.8	0.8
Tairāwhiti	370	48,489	0.8	0.8
Taranaki	1020	110,567	0.9	1.0
Hawke's Bay	1152	157,794	0.7	0.8
Whanganui	644	66,091	1.0	1.0
MidCentral	1307	160,478	0.8	0.8
Hutt	1183	144,990	0.8	0.8
Capital and Coast	1461	276,605	0.5	0.6
Wairarapa	351	40,870	0.9	0.9
Nelson Marlborough	1208	136,720	0.9	0.9
West Coast	208	32,436	0.6	0.7
Canterbury	3661	486,606	0.8	0.8
South Canterbury	428	56,137	0.8	0.9
Otago	1997	178,767	1.1	1.1
Southland	754	112,257	0.7	0.7
Unknown	161	29,794	0.5	0.6
Total	31,847	4,293,447	0.7	0.7

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: DHB = district health board.

Crude rate = total number of people with intellectual disability per 100 population living in DHB.

ASR = age-standardised rate, calculated using the WHO standard population.

Table B.7: People with intellectual disability, by gender and DHB

DHB	Males		Females		Total	
	No.	Percent	No.	Percent	No.	Percent
Northland	573	62.3	347	37.7	920	100.0
Waitemata	1880	63.6	1077	36.4	2957	100.0
Auckland	1406	62.7	836	37.3	2242	100.0
Counties Manukau	2178	61.2	1382	38.8	3560	100.0
Waikato	2227	56.9	1690	43.1	3917	100.0
Lakes	365	54.8	301	45.2	666	100.0
Bay of Plenty	951	56.6	729	43.4	1680	100.0
Tairāwhiti	212	57.3	158	42.7	370	100.0
Taranaki	577	56.6	443	43.4	1020	100.0
Hawke's Bay	672	58.3	480	41.7	1152	100.0
Whanganui	372	57.8	272	42.2	644	100.0
MidCentral	749	57.3	558	42.7	1307	100.0
Hutt	691	58.4	492	41.6	1183	100.0
Capital and Coast	888	60.8	573	39.2	1461	100.0
Wairarapa	195	55.6	156	44.4	351	100.0
Nelson Marlborough	697	57.7	511	42.3	1208	100.0
West Coast	117	56.3	91	43.8	208	100.0
Canterbury	2220	60.6	1441	39.4	3661	100.0
South Canterbury	257	60.0	171	40.0	428	100.0
Otago	1160	58.1	837	41.9	1997	100.0
Southland	441	58.5	313	41.5	754	100.0
Unknown	93	57.8	68	42.2	161	100.0
Total	18,921	59.4	12,926	40.6	31,847	100.0

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: DHB = district health board.

Table B.8: People with intellectual disability, by ethnic group and DHB

DHB	Māori		Pacific people		Asian		Other/European		Total	
	No.	Percent of people with intellectual disability	No.	Percent of people with intellectual disability	No.	Percent of people with intellectual disability	No.	Percent of people with intellectual disability	No.	Percent of people with intellectual disability
Northland	303	32.9	14	1.5	7	0.8	596	64.8	920	100.0
Waitemata	325	11.0	212	7.2	206	7.0	2214	74.9	2957	100.0
Auckland	277	12.4	331	14.8	284	12.7	1350	60.2	2242	100.0
Counties Manukau	744	20.9	699	19.6	278	7.8	1839	51.7	3560	100.0
Waikato	836	21.3	57	1.5	66	1.7	2958	75.5	3917	100.0
Lakes	253	38.0	13	2.0	6	0.9	394	59.2	666	100.0
Bay of Plenty	434	25.8	13	0.8	13	0.8	1220	72.6	1680	100.0
Tairāwhiti	195	52.7	< 5	--	< 5	--	171	46.2	370	100.0
Taranaki	171	16.8	< 5	--	< 5	--	843	82.6	1020	100.0
Hawke's Bay	260	22.6	27	2.3	7	0.6	858	74.5	1152	100.0
Whanganui	133	20.7	8	1.2	7	1.1	496	77.0	644	100.0
MidCentral	170	13.0	13	1.0	11	0.8	1113	85.2	1307	100.0
Hutt	155	13.1	58	4.9	42	3.6	928	78.4	1183	100.0
Capital and Coast	210	14.4	93	6.4	90	6.2	1068	73.1	1461	100.0
Wairarapa	52	14.8	< 5	--	< 5	--	295	84.0	351	100.0
Nelson Marlborough	99	8.2	8	0.7	8	0.7	1093	90.5	1208	100.0
West Coast	18	8.7	< 5	--	< 5	--	188	90.4	208	100.0
Canterbury	254	6.9	43	1.2	74	2.0	3290	89.9	3661	100.0
South Canterbury	23	5.4	< 5	--	< 5	--	399	93.2	428	100.0
Otago	105	5.3	17	0.9	26	1.3	1849	92.6	1997	100.0
Southland	91	12.1	10	1.3	< 5	--	650	86.2	754	100.0
Unknown	77	47.8	8	5.0	< 5	--	73	45.3	161	100.0
Total	5185	16.3	1636	5.1	1141	3.6	23,885	75.0	31,847	100.0

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: DHB = district health board.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table B.9: People with intellectual disability, by NZDep2006 quintile and DHB

DHB	1 (least deprived)		2		3		4		5 (most deprived)		Unknown		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Northland	54	5.9	55	6.0	118	12.8	276	30.0	417	45.3	0	0.0	920	100.0
Waitemata	570	19.3	654	22.1	660	22.3	873	29.5	200	6.8	0	0.0	2957	100.0
Auckland	307	13.7	467	20.8	450	20.1	443	19.8	575	25.6	0	0.0	2242	100.0
Counties Manukau	532	14.9	214	6.0	514	14.4	410	11.5	1890	53.1	0	0.0	3560	100.0
Waikato	277	7.1	337	8.6	808	20.6	1223	31.2	1272	32.5	0	0.0	3917	100.0
Lakes	84	12.6	59	8.9	103	15.5	131	19.7	288	43.2	< 5	--	666	100.0
Bay of Plenty	35	2.1	306	18.2	275	16.4	587	34.9	475	28.3	< 5	--	1680	100.0
Tairāwhiti	11	3.0	30	8.1	50	13.5	11	3.0	268	72.4	0	0.0	370	100.0
Taranaki	75	7.4	67	6.6	258	25.3	465	45.6	155	15.2	0	0.0	1020	100.0
Hawke's Bay	82	7.1	176	15.3	187	16.2	304	26.4	403	35.0	0	0.0	1152	100.0
Whanganui	49	7.6	77	12.0	36	5.6	235	36.5	247	38.4	0	0.0	644	100.0
MidCentral	117	9.0	147	11.2	258	19.7	395	30.2	390	29.8	0	0.0	1307	100.0
Hutt	125	10.6	95	8.0	231	19.5	422	35.7	310	26.2	0	0.0	1183	100.0
Capital and Coast	345	23.6	181	12.4	508	34.8	61	4.2	366	25.1	0	0.0	1461	100.0
Wairarapa	16	4.6	28	8.0	25	7.1	210	59.8	72	20.5	0	0.0	351	100.0
Nelson Marlborough	89	7.4	258	21.4	354	29.3	394	32.6	113	9.4	0	0.0	1208	100.0
West Coast	7	3.4	8	3.8	50	24.0	69	33.2	74	35.6	0	0.0	208	100.0
Canterbury	634	17.3	893	24.4	608	16.6	844	23.1	682	18.6	0	0.0	3661	100.0
South Canterbury	37	8.6	78	18.2	110	25.7	182	42.5	21	4.9	0	0.0	428	100.0
Otago	263	13.2	225	11.3	419	21.0	861	43.1	228	11.4	< 5	--	1997	100.0
Southland	120	15.9	116	15.4	160	21.2	164	21.8	194	25.7	0	0.0	754	100.0
Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	161	100.0	161	100.0
Total	3829	12.0	4471	14.0	6182	19.4	8560	26.9	8640	27.1	165	0.5	31847	100.0

Source: Ministry of Health study population, 1 July 2007–30 June 2008

Note: DHB = district health board.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table B.10: Life expectancy at birth, by gender, 2006–08 / 2007–09

Gender	With intellectual disability 2006–08		New Zealand population 2007–09
	Life expectancy at birth (years)	95 percent confidence interval (years)	Life expectancy at birth (years)
Males	59.7	58.1–61.2	78.4
Females	59.5	56.9–62.1	82.4

Source: Statistics New Zealand (for NZ population), and calculated (for people with intellectual disability)

Note: Life expectancy for people with intellectual disability is for the three financial years 1 July 2006–30 June 2009.

Life expectancy for the total New Zealand population is provisional and is for the three calendar years 2007–2009.

Life expectancies for people with intellectual disability were calculated using the abridged Chiang II life table method (Chiang 1978, 1984).

95 percent confidence interval = statistically it is 95 percent certain that the actual life expectancy lies within this range (is not due to chance alone).

Appendix C: Health and health service utilisation data tables

Table C.1: Coronary heart disease care or treatment, by age, gender and ethnic group, to June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	63	0.7	1004	0.1
15–24	29	0.5	646	0.1
25–34	33	1.0	1060	0.2
35–44	86	2.2	4126	0.7
45–54	180	5.2	13,780	2.3
55–64	326	13.9	30,100	6.7
65–74	429	29.8	45,452	15.7
75+	1028	43.0	80,228	30.8
Total	2,174	6.8	176,396	4.1
Age-standardised rate		5.3	2.7	
Gender				
Male	1078	5.7	95,309	4.6
Female	1096	8.5	81,085	3.7
Not specified	0	0.0	< 5	--
Total	2,174	6.8	176,396	4.1
Age-standardised rate				
	Male	5.5		3.3
	Female	5.2		2.2
Ethnic group				
Māori	264	5.1	14,653	2.7
Pacific	74	4.5	5933	2.1
Asian	37	3.2	6000	2.1
Other/European	1799	7.5	149,810	4.7
Total	2,174	6.8	176,396	4.1
Age-standardised rate				
	Māori	7.3		4.3
	Pacific	7.1		3.1
	Asian	7.5		2.5
	Other/European	4.9		2.6

Source: National Minimum Dataset, Pharmaceutical Collection

Note: Coronary heart disease care or treatment defined as receiving public hospital treatment for coronary heart disease between 1 January 1988 and 30 June 2008, and/or multiple prescriptions for anti-angina medicine from 1 July 2001 to 30 June 2008.

WHO world standard population used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.2: Respiratory disease care or treatment, by age, gender and ethnic group, to June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	2136	23.7	121,470	13.2
15–24	1426	24.0	88,452	14.8
25–34	619	18.1	61,378	11.6
35–44	732	19.1	72,975	11.7
45–54	658	19.0	78,641	13.3
55–64	495	21.2	76,183	16.8
65–74	362	25.2	67,781	23.3
75+	632	26.4	72,089	27.7
Total	7060	22.2	638,969	15.0
Age-standardised rate		21.1	14.3	
Gender				
Male	4136	21.9	285,094	13.9
Female	2924	22.6	353,854	16.0
Not specified	0	0.0	21	3.1
Total	7060	22.2	638,969	15.0
Age-standardised rate				
	Male	20.2	13.5	
	Female	21.9	15.0	
Ethnic group				
Māori	1357	26.2	92,979	17.0
Pacific	365	22.3	32,946	11.9
Asian	265	23.2	34,322	12.2
Other/European	5073	21.2	478,722	15.2
Total	7060	22.2	638,969	15.0
Age-standardised rate				
	Māori	25.7	18.0	
	Pacific	21.0	12.5	
	Asian	21.0	12.6	
	Other/European	20.1	14.1	

Source: National Minimum Dataset, Pharmaceutical Collection

Note: Chronic respiratory disease care or treatment is defined as receiving public hospital care for chronic respiratory disease (eg, asthma, chronic bronchitis, bronchiectasis, emphysema) between 1 January 1988 and 30 June 2008, and/or receiving selected prescription medicines (eg, beclomethasone dipropionate, fenoterol hydrobromide) used to treat chronic respiratory conditions between 1 July 2001 to 30 June 2008.

The WHO world standard population used to calculate age-standardised rates.

Table C.3: Diabetes care or treatment, by age, gender and ethnic group, to June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	72	0.8	2999	0.3
15–24	149	2.5	4687	0.8
25–34	193	5.7	9344	1.8
35–44	313	8.2	18,865	3.0
45–54	366	10.6	32,175	5.5
55–64	377	16.1	44,894	9.9
65–74	354	24.6	43,994	15.2
75+	507	21.2	40,939	15.7
Total	2331	7.3	197,897	4.6
Age-standardised rate		7.1	3.6	
Gender				
Male	1118	5.9	96,844	4.7
Female	1213	9.4	101,045	4.6
Not specified	0	0.0	8	1.2
Total	2331	7.3	197,897	4.6
Age-standardised rate				
	Male	6.5	3.7	
	Female	8.0	3.5	
Ethnic group				
Māori	463	8.9	26,634	4.9
Pacific	154	9.4	21,249	7.7
Asian	55	4.8	17,659	6.3
Other/European	1659	6.9	132,355	4.2
Total	2331	7.3	197,897	4.6
	Māori	11.3	6.9	
	Pacific	13.5	10.0	
	Asian	11.7	6.5	
	Other/European	6.1	2.8	

Source: National Minimum Dataset, Pharmaceutical Collection, National Non-Admitted Patient Collection, Laboratory Claims

Note: Diabetes care or treatment is defined as receiving one or more of the following: public hospital treatment for diabetes (excluding diabetes arising from pregnancy) between 1 January 1988 and 30 June 2008, two or more diabetes-related prescribed medicines (eg, insulin, oral hypoglycaemics) between 1 July 2001 to 30 June 2008; services at a diabetes clinic between 1 July 2006 and 30 June 2008; four or more blood glucose tests between 1 July 2006 and 30 June 2008.

The WHO world standard population used to calculate age-standardised rates.

Table C.4: Renal replacement therapy, by age, gender and ethnic group, to June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	7	0.1	79	0.0
15–24	12	0.2	111	0.0
25–34	13	0.4	207	0.0
35–44	< 5	--	388	0.1
45–54	12	0.3	625	0.1
55–64	13	0.6	882	0.2
65–74	9	0.6	681	0.2
75+	< 5	--	346	0.1
Total	69	0.2	3319	0.1
Age-standardised rate		0.2	0.1	
Gender				
Male	41	0.2	1952	0.1
Female	28	0.2	1367	0.1
Not specified	0	0.0	0	0.0
Total	69	0.2	3319	0.1
Age-standardised rate				
	Male	0.3	0.1	
	Female	0.2	0.1	
Ethnic group				
Māori	20	0.4	925	0.2
Pacific	9	0.6	544	0.2
Asian	0	0.0	198	0.1
Other/European	40	0.2	1652	0.1
Total	69	0.2	3319	0.1
Age-standardised rate				
	Māori	0.5	0.2	
	Pacific	0.9	0.3	
	Asian	0.0	0.1	
	Other/European	0.2	0.0	

Source: National Minimum Dataset

Note: Renal replacement therapy is defined as receiving procedures such as renal transplant and renal dialysis in a public hospital between 1 January 1988 and 30 June 2008.

The WHO world standard population used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.5: Cancer care or treatment, by age, gender and ethnic group, two years to 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	47	0.5	1043	0.1
15–24	28	0.5	876	0.1
25–34	24	0.7	1339	0.3
35–44	36	0.9	3660	0.6
45–54	72	2.1	7747	1.3
55–64	86	3.7	12,325	2.7
65–74	106	7.4	16,169	5.6
75+	184	7.7	21,751	8.4
Total	583	1.8	64,910	1.5
Age-standardised rate		1.6		1.1
Gender				
Male	317	1.7	32,457	1.6
Female	266	2.1	32,452	1.5
Not specified	0	0.0	< 5	--
Total	583	1.8	64,910	1.5
Age-standardised rate				
	Male	1.7		1.2
	Female	1.6		1.1
Ethnic group				
Māori	51	1.0	4645	0.9
Pacific	17	1.0	1807	0.7
Asian	8	0.7	1823	0.6
Other/European	507	2.1	56,635	1.8
Total	583	1.8	64,910	1.5
Age-standardised rate				
	Māori	1.2		1.2
	Pacific	1.7		0.9
	Asian	1.3		0.7
	Other/European	1.7		1.1

Source: National Minimum Dataset, National Non-Admitted Patient Collection

Note: Cancer care or treatment is defined as receiving publicly funded inpatient hospital care or treatment for cancer between 1 July 2006 and 30 June 2008, or non-admitted patient care or treatment for cancer (eg, chemotherapy, radiotherapy, blood transfusions, assessment and follow-up services) between 1 July 2006 and 30 June 2008.

The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.6: Morbid obesity care or treatment, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	21	0.2	187	0.0
15–24	34	0.6	296	0.0
25–34	27	0.8	782	0.1
35–44	36	0.9	1412	0.2
45–54	47	1.4	2165	0.4
55–64	53	2.3	2945	0.7
65–74	43	3.0	2157	0.7
75+	9	0.4	930	0.4
Total	270	0.8	10,874	0.3
Age-standardised rate		0.9		0.2
Gender				
Male	103	0.5	4922	0.2
Female	167	1.3	5952	0.3
Total	270	0.8	10,874	0.3
Age-standardised rate				
Male		0.6		0.2
Female		1.3		0.2
Ethnic group				
Māori	59	1.1	3294	0.6
Pacific	45	2.8	2299	0.8
Asian	< 5	--	272	0.1
Other/European	165	0.7	5009	0.2
Total	270	0.8	10,874	0.3
Age-standardised rate				
Māori		1.3		0.8
Pacific		3.7		1.0
Asian		0.1		0.1
Other/European		0.7		0.1

Source: National Minimum Dataset

Note: Morbid obesity care or treatment is defined as receiving procedures such as liposuction, lipectomy, insertion of gastric bubbles, gastric reduction or gastric bypass surgery in a public hospital between 1 July 2007 and 30 June 2008.

The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.7: Care or treatment for any of six chronic diseases, by age, gender and ethnic group, to 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	2269	25.1	125,038	13.6
15–24	1584	26.6	93,210	15.6
25–34	806	23.6	70,880	13.4
35–44	1034	27.0	93,909	15.0
45–54	1040	30.0	118,212	20.1
55–64	936	40.0	135,043	29.9
65–74	814	56.6	130,037	44.8
75+	1548	64.7	149,275	57.3
Total	10,031	31.5	915,604	21.5
Age-standardised rate		29.5		19.1
Gender				
Male	5625	29.7	429,988	20.9
Female	4406	34.1	485,584	22.0
Not specified	0	0.0	32	4.7
Total	10,031	31.5	915,604	21.5
Age-standardised rate				
Male		28.5		18.8
Female		30.6		19.3
Ethnic group				
Māori	1779	34.3	119,739	21.9
Pacific	523	32.0	53,610	19.4
Asian	323	28.3	52,164	18.6
Other/European	7406	31.0	690,091	21.9
Total	10,031	31.5	915,604	21.5
Age-standardised rate				
Māori		35.9		24.9
Pacific		34.8		22.1
Asian		33.7		19.2
Other/European		27.8		18.3

Source: National Minimum Dataset, National Non-admitted Patient Collection, Pharmaceutical Collection, Laboratory Claims

Note: Care or treatment is for one or more of the following: coronary heart disease (CHD), chronic respiratory (lung) disease, diabetes, chronic kidney disease, cancer, morbid obesity (see previous tables for detailed definitions).

The WHO world standard population was used to calculate age-standardised rates.

Table C.8: Epilepsy care or treatment, by age, gender and ethnic group, to June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	874	9.7	2046	0.2
15–24	984	16.6	2041	0.3
25–34	661	19.4	2584	0.5
35–44	825	21.6	3652	0.6
45–54	756	21.8	3672	0.6
55–64	458	19.6	3560	0.8
65–74	211	14.7	3024	1.0
75+	138	5.8	3857	1.5
Total	4907	15.4	24,436	0.6
Age-standardised rate		16.3		0.5
Gender				
Male	2699	14.3	12,492	0.6
Female	2208	17.1	11,944	0.5
Total	4907	15.4	24,436	0.6
Age-standardised rate				
Male		15.7		0.5
Female		18.0		0.5
Ethnic group				
Māori	1067	20.6	3824	0.7
Pacific	313	19.1	1144	0.4
Asian	117	10.3	639	0.2
Other/European	3410	14.3	18,829	0.6
Total	4907	15.4	24,436	0.6
Age-standardised rate				
Māori		21.1		0.8
Pacific		20.7		0.5
Asian		12.8		0.2
Other/European		15.0		0.5

Source: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection

Note: Epilepsy care or treatment is defined as receiving at least one of the following three options: (1) two or more inpatient hospitalisations (between 1 January 1988 and 30 June 2008) that included any diagnosis of epilepsy; (2) between 1 July 2001 and 30 June 2008, received two or more community pharmacy-dispensed items for vigabatrin, ethosuximide, phenytoin sodium, phenobarbitone, phenobarbitone sodium or primidone (solely epilepsy indicated); (3) one inpatient hospitalisation (between 1 January 1988 and 30 June 2008) that included any diagnosis of epilepsy and between 1 July 2001 and 30 June 2008 received one or more community pharmacy-dispensed items for clobazam, lamotrigine, gabapentin, topiramate, paraldehyde, sodium valproate, clonazepam, carbamazepine or diazepam (epilepsy indicated amongst others).

The WHO world standard population was used to calculate age-standardised rates.

Table C.9: Public hospital care for injury, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Discharges per 100 people	No.	Discharges per 100 people
Age				
0–14	151	1.7	10,340	1.1
15–24	124	2.1	9824	1.6
25–34	80	2.3	6216	1.2
35–44	82	2.1	6267	1.0
45–54	72	2.1	5319	0.9
55–64	75	3.2	3822	0.8
65–74	53	3.7	3067	1.1
75+	116	4.8	7204	2.8
Total	753	2.4	52,059	1.2
Age-standardised rate		2.3	1.2	
Gender				
Male	425	2.2	31,166	1.5
Female	328	2.5	20,892	0.9
Not specified	0	0.0	1	0.1
Total	753	2.4	52,059	1.2
Age-standardised rate				
Male		2.3		1.6
Female		2.2		0.9
Ethnic group				
Māori	115	2.2	9773	1.8
Pacific	55	3.4	3972	1.4
Asian	13	1.1	2055	0.7
Other/European	570	2.4	36,259	1.1
Total	753	2.4	52,059	1.2
Age-standardised rate				
Māori		1.6		0.8
Pacific		2.5		1.8
Asian		2.2		1.1
Other/European		4.0		1.4

Source: National Minimum Dataset (NMDS)

Note: Public hospital care for injury is defined as medical or surgical treatment for intentional or unintentional injury (excluding the complications of hospital treatment) between 1 July 2007 and 30 June 2008.

The WHO world standard population was used to calculate age-standardised rates.

Table C.10: Dental treatment public hospital discharges, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Discharges per 100 people	No.	Discharges per 100 people
Age				
0–14	537	5.9	6423	0.7
15–24	256	4.3	1177	0.2
25–34	152	4.5	676	0.1
35–44	190	5.0	492	0.1
45–54	145	4.2	363	0.1
55–64	54	2.3	182	0.0
65–74	5	0.3	106	0.0
75+	5	0.2	108	0.0
Total	1344	4.2	9527	0.2
Age-standardised rate		4.2		0.3
Gender				
Male	805	4.3	5146	0.3
Female	539	4.2	4381	0.2
Total	1344	4.2	9527	0.2
Age-standardised rate				
Male		4.0		0.3
Female		4.4		0.2
Ethnic group				
Māori	251	4.8	2845	0.5
Pacific	77	4.7	1053	0.4
Asian	77	6.7	555	0.2
Other/European	939	3.9	5074	0.2
Total	1344	4.2	9527	0.2
Age-standardised rate				
Māori		4.2		0.4
Pacific		3.7		0.3
Asian		6.3		0.2
Other/European		4.1		0.2

Source: National Minimum Dataset

Note: Dental treatment public hospital discharges include dental extractions, dental restorations and other oral/dental disorders treated in public hospitals between 1 July 2007 and 30 June 2008.

The WHO world standard population was used to calculate age-standardised rates.

Table C.11: Mood disorder care or treatment, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	122	1.4	1063	0.1
15–24	374	6.3	14,955	2.5
25–34	348	10.2	22,224	4.2
35–44	481	12.6	34,317	5.5
45–54	565	16.3	38,919	6.6
55–64	437	18.7	35,471	7.8
65–74	289	20.1	26,351	9.1
75+	432	18.1	32,399	12.4
Total	3048	9.6	205,699	4.8
Age-standardised rate		9.7		4.1
Gender				
Male	1405	7.4	69,403	3.4
Female	1643	12.7	136,289	6.2
Not specified	0	0.0	7	1.0
Total	3048	9.6	205,699	4.8
Age-standardised rate				
Male		8.2		2.9
Female		11.5		5.2
Ethnic group				
Māori	369	7.1	14,735	2.7
Pacific	45	2.8	3320	1.2
Asian	38	3.3	6161	2.2
Other/European	2596	10.9	181,483	5.7
Total	3048	9.6	205,699	4.8
Age-standardised rate				
Māori		8.2		3.3
Pacific		3.9		1.5
Asian		8.7		2.2
Other/European		10.3		4.6

Source: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection, Laboratory Claims Collection

Note: Mood disorder care or treatment is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with a mood disorder diagnosis; secondary mental health and addiction service with a mood disorder; prescription medicines for treating a mood disorder (eg, amitriptyline, lithium carbonate); three or more laboratory tests for lithium. The WHO world standard population was used to calculate age-standardised rates.

Table C.12: Psychotic disorder care or treatment, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	8	0.1	40	0.0
15–24	132	2.2	1389	0.2
25–34	189	5.5	2326	0.4
35–44	320	8.4	2555	0.4
45–54	259	7.5	2076	0.4
55–64	153	6.5	1142	0.3
65–74	68	4.7	699	0.2
75+	35	1.5	632	0.2
Total	1164	3.7	10,859	0.3
Age-standardised rate		4.1		0.2
Gender				
Male	725	3.8	6433	0.3
Female	439	3.4	4426	0.2
Total	1164	3.7	10,859	0.3
Age-standardised rate				
Male		4.7		0.3
Female		3.4		0.2
Ethnic group				
Māori	359	6.9	2972	0.5
Pacific	61	3.7	682	0.2
Asian	10	0.9	393	0.1
Other/European	734	3.1	6812	0.2
Total	1164	3.7	10,859	0.3
Age-standardised rate				
Māori		7.7		0.6
Pacific		4.7		0.3
Asian		2.4		0.1
Other/European		3.3		0.2

Source: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection

Note: Psychotic disorder care or treatment is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with a diagnosis of a psychotic disorder; secondary mental health and addiction service with a psychotic disorder; prescription medicines for treating psychotic disorder (eg, clozapine, haloperidol decanoate).

The WHO world standard population was used to calculate age-standardised rates.

Table C.13: Dementia care or treatment, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	0	0.0	0	0.0
15–24	< 5	--	25	0.0
25–34	0	0.0	19	0.0
35–44	6	0.2	19	0.0
45–54	15	0.4	51	0.0
55–64	41	1.8	151	0.0
65–74	67	4.7	802	0.3
75–84	201	13.4	2934	1.6
85+	118	13.3	3042	4.1
Total	450	1.4	7043	0.2
Age-standardised rate		0.9		0.1
Sex				
Male	222	1.2	2848	0.1
Female	228	1.8	4195	0.2
Total	450	1.4	7043	0.2
Age-standardised rate				
Male		0.9		0.1
Female		0.8		0.1
Ethnic group				
Māori	34	0.7	381	0.1
Pacific	18	1.1	215	0.1
Asian	< 5	--	134	0.0
Other/European	394	1.6	6313	0.2
Total	450	1.4	7043	0.2
Age-standardised rate				
Māori		0.9		0.2
Pacific		1.6		0.1
Asian		0.4		0.1
Other/European		0.8		0.1

Source: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection

Note: Dementia care or treatment is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with a diagnosis of dementia; secondary mental health and addiction service with dementia; prescription medicine for treating dementia (rivastigmine).

The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.14: Any mental disorder treatment, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	2058	22.8	12,948	1.4
15–24	1949	32.8	44,968	7.5
25–34	1246	36.5	56,131	10.6
35–44	1636	42.8	81,540	13.1
45–54	1640	47.4	88,888	15.1
55–64	1166	49.8	78,483	17.4
65–74	704	49.0	56,930	19.6
75+	1280	53.5	76,074	29.2
Total	11,679	36.7	495,962	11.6
Age-standardised rate		35.6	10.1	
Gender				
Male	6878	36.4	187,373	9.1
Female	4801	37.1	308,574	14.0
Not specified	0	0.0	15	2.2
Total	11,679	36.7	495,962	11.6
Age-standardised rate				
	Male	36.3		8.3
	Female	33.6		11.8
Ethnic group				
Māori	1854	35.8	44,424	8.1
Pacific	377	23.0	10,496	3.8
Asian	245	21.5	14,767	5.3
Other/European	9203	38.5	426,275	13.5
Total	11,679	36.7	495,962	11.6
Age-standardised rate				
	Māori	36.7		9.5
	Pacific	26.1		4.4
	Asian	30.7		5.3
	Other/European	36.0		11.0

Source: National Minimum Dataset, Mental Health Information National Collection, Pharmaceutical Collection, Laboratory Claims Collection

Note: 'Any mental disorder' includes the following conditions: ADHD, anxiety disorder, autism spectrum, dementia, eating disorder, gender identity disorder, mood disorder, personality disorder, psychotic disorder, substance use disorder and 'other' mental disorder.

Care or treatment for 'any mental disorder' is defined as receiving one or more of the following between 1 July 2007 and 30 June 2008: public inpatient hospitalisation with one or more diagnoses from those conditions listed; secondary mental health and addiction service for any type of mental disorder; prescription medicines for treating any type of mental disorder.

The WHO world standard population was used to calculate age-standardised rates.

Table C.15: Enrolled in a primary health organisation (PHO), by age, gender and ethnic group, as at June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	8654	95.8	835,216	91.0
15–24	5697	95.8	543,290	90.9
25–34	3246	95.1	471,252	88.9
35–44	3683	96.3	575,425	92.2
45–54	3334	96.3	553,618	93.9
55–64	2213	94.6	429,765	95.0
65–74	1328	92.4	277,885	95.7
75+	2106	88.0	239,320	91.9
Total	30,261	95.0	3,925,771	92.1
Age-standardised rate		95.2		91.8
Gender				
Male	17,923	94.7	1,874,957	91.2
Female	12,338	95.5	2,050,542	93.0
Not specified	0	0.0	272	40.3
Total	30,261	95.0	3,925,771	92.1
Age-standardised rate				
Male		94.6		90.8
Female		95.9		92.7
Ethnic group				
Māori	4880	94.1	496,767	91.0
Pacific	1542	94.3	250,291	90.4
Asian	1089	95.4	250,120	89.1
Other/European	22,750	95.2	2,928,593	92.7
Total	30,261	95.0	3,925,771	92.1
Age-standardised rate				
Māori		93.9		91.3
Pacific		93.5		90.7
Asian		94.6		89.1
Other/European		95.6		92.3

Source: Public Health Organisation Enrolment Collection

Note: Primary health organisations (PHOs) are responsible for planning and delivering primary health care services to their local, enrolled population.

The WHO world standard population was used to calculate age-standardised rates.

Table C.16: Enrolled for Care Plus primary health services, by age, gender and ethnic group, as at June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	132	1.5	1338	0.1
15–24	157	2.6	1539	0.3
25–34	179	5.2	3512	0.7
35–44	278	7.3	8836	1.4
45–54	348	10.0	16,869	2.9
55–64	285	12.2	25,360	5.6
65–74	219	15.2	26,771	9.2
75+	253	10.6	30,326	11.6
Total	1851	5.8	114,551	2.7
Age-standardised rate		5.9		2.0
Gender				
Male	894	4.7	51,225	2.5
Female	957	7.4	63,318	2.9
Not specified	0	0.0	8	1.2
Total	1,851	5.8	114,551	2.7
Age-standardised rate				
Male		5.3		1.9
Female		6.7		2.1
Ethnic group				
Māori	314	6.1	14,854	2.7
Pacific	97	5.9	10,698	3.9
Asian	31	2.7	5972	2.1
Other/European	1409	5.9	83,027	2.6
Total	1851	5.8	114,551	2.7
Age-standardised rate				
Māori		7.2		3.9
Pacific		7.8		5.1
Asian		6.0		2.2
Other/European		5.6		1.7

Source: Public Health Organisation Enrolment Collection

Note: Care Plus is a coordinated, lower-cost primary health care service for people who use high levels of care or have high needs because of chronic conditions or terminal illness.

The WHO world standard population was used to calculate age-standardised rates.

Table C.17: Consulted general practice in previous three months, by age, gender and ethnic group, for three months ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	4677	51.8	386,334	42.1
15–24	3170	53.3	207,990	34.8
25–34	2184	64.0	194,634	36.7
35–44	2751	71.9	254,094	40.7
45–54	2669	77.1	282,135	47.9
55–64	1866	79.7	271,553	60.0
65–74	1187	82.5	220,587	76.0
75+	1862	77.8	207,890	79.9
Total	20,366	63.9	2,025,217	47.5
Age-standardised rate		65.2	44.9	
Gender				
Male	11,288	59.7	892,746	43.4
Female	9078	70.2	1,132,369	51.4
Not specified	0	0.0	102	15.1
Total	20,366	63.9	2,025,217	47.5
Age-standardised rate				
	Male	62.2	40.8	
	Female	69.5	48.6	
Ethnic group				
Māori	3041	58.6	239,875	43.9
Pacific	939	57.4	121,873	44.0
Asian	625	54.8	116,030	41.3
Other/European	15,761	66.0	1,547,439	49.0
Total	20,366	63.9	2,025,217	47.5
Age-standardised rate				
	Māori	61.8	45.8	
	Pacific	60.6	45.1	
	Asian	61.9	41.3	
	Other/European	66.2	45.0	

Source: PHO Enrolment Register, General Medical Subsidy (after-hours and non-PHO contacts) collection

Note: Includes visits to general practice clinics as well as after-hours services and non-PHO primary health services. The WHO world standard population was used to calculate age-standardised rates.

Table C.18: Consulted general practice in previous 12 months, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	7943	88.0	733,210	79.9
15–24	5066	85.2	422,986	70.8
25–34	3023	88.5	376,865	71.1
35–44	3565	93.2	474,570	76.0
45–54	3298	95.2	475,316	80.6
55–64	2249	96.1	393,429	87.0
65–74	1386	96.4	270,506	93.2
75+	2307	96.4	245,387	94.3
Total	28,837	90.5	3,392,269	79.6
Age-standardised rate		91.0		78.3
Gender				
Male	16,774	88.7	1,556,428	75.7
Female	12,063	93.3	1,835,645	83.3
Not specified	0	0.0	196	29.0
Total	28,837	90.5	3,392,269	79.6
Age-standardised rate				
Male		89.4		74.1
Female		93.2		82.1
Ethnic group				
Māori	4565	88.0	423,564	77.6
Pacific	1446	88.4	212,214	76.7
Asian	1016	89.0	209,016	74.5
Other/European	21,810	91.3	2,547,475	80.7
Total	28,837	90.5	3,392,269	79.6
Age-standardised rate				
Māori		89.3		78.3
Pacific		88.9		76.9
Asian		89.1		74.3
Other/European		91.4		78.8

Source: PHO Enrolment Register, General Medical Subsidy (after-hours and non-PHO contacts) collection

Note: Includes visits to general practice clinics as well as after-hours services and non-PHO primary health services. The WHO world standard population was used to calculate age-standardised rates.

Table C.19: Consulted general practice in previous 24 months, by age, gender and ethnic group, two years ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Percent	No.	Percent
Age				
0–14	8706	96.4	842,468	91.8
15–24	5622	94.6	514,699	86.1
25–34	3247	95.1	450,301	85.0
35–44	3718	97.2	554,502	88.8
45–54	3387	97.8	538,073	91.3
55–64	2296	98.1	424,681	93.9
65–74	1424	99.0	279,969	96.4
75+	2367	98.9	251,232	96.5
Total	30,767	96.6	3,855,925	90.5
Age-standardised rate		96.7		89.9
Gender				
Male	18,146	95.9	1,817,337	88.4
Female	12,621	97.6	2,038,333	92.5
Not specified	0	0.0	255	37.8
Total	30,767	96.6	3,855,925	90.5
Age-standardised rate				
Male		96.0		87.6
Female		97.7		92.0
Ethnic group				
Māori	4947	95.4	489,151	89.6
Pacific	1567	95.8	244,724	88.4
Asian	1100	96.4	245,310	87.4
Other/European	23,153	96.9	2,876,740	91.1
Total	30,767	96.6	3,855,925	90.5
Age-standardised rate				
Māori		95.7		89.8
Pacific		95.8		88.4
Asian		95.5		87.3
Other/European		97.0		90.3

Source: PHO Enrolment Register, General Medical Subsidy (after-hours and non-PHO contacts) collection

Note: Includes visits to general practice clinics as well as after-hours services and non-PHO primary health services. The WHO world standard population was used to calculate age-standardised rates.

Table C.20: Average number of different pharmaceutical types per person, by age, gender and ethnic group, year ending 30 June 2008

	With intellectual disability	Without intellectual disability
Demographic variables	Number per person	Number per person
Age		
0–14	3.9	2.5
15–24	3.5	2.0
25–34	4.7	2.1
35–44	6.0	2.4
45–54	7.3	3.1
55–64	9.0	4.6
65–74	10.9	6.8
75+	11.8	9.6
Total	5.8	3.4
Age-standardised number	5.6	3.0
Gender		
Male	5.0	2.9
Female	7.0	3.8
Not specified		0.7
Total	5.8	3.4
Age-standardised number		
Male	5.1	2.6
Female	6.4	3.4
Ethnic group		
Māori	5.3	3.2
Pacific	5.2	3.4
Asian	5.0	3.2
Other/European	6.0	3.4
Total	5.8	3.4
Age-standardised number		
Māori	5.8	3.5
Pacific	5.7	3.6
Asian	6.0	3.3
Other/European	5.6	2.9

Source: Pharmhouse Pharmaceutical Collection

Note: Pharmaceutical types are distinct chemicals.

The WHO world standard population was used to calculate age-standardised rates.

Table C.21: Received breast screening, by age and ethnic group, two-year screening round for 1 July 2005–30 June 2007

Demographic variables	Females with intellectual disability aged 45–69		Females without intellectual disability aged 45–69	
	No.	Percent	No.	Percent
Age				
45–49	206	23.3	41,541	25.3
50–54	290	39.1	66,088	47.2
55–59	300	46.2	74,852	60.7
60–64	252	51.7	67,970	63.7
65–69	211	51.3	52,955	62.7
Total	1259	39.7	303,406	49.0
Age-standardised rate		39.9		48.7
Ethnic group				
Māori	145	32.7	20,338	36.5
Pacific	26	30.2	7826	29.6
Asian	8	20.0	14,743	37.5
Other/European	1080	41.4	260,499	52.4
Total	1259	39.7	303,406	49.0
Age-standardised rate				
Māori		34.0		38.8
Pacific		31.7		30.4
Asian		19.7		39.0
Other/European		41.4		51.4

Source: Breast Screening Aotearoa Screening Register

Note: The WHO world standard population was used to calculate age-standardised rates.

Table C.22: Received cervical screening, by age, three-year screening round for 1 July 2007 to 30 June 2010

Demographic variables	Females with intellectual disability aged 20–69		Females without intellectual disability aged 20–69	
	No.	Percent	No.	Percent
Age				
20–29	473	29.4	177,433	62.7
30–39	506	35.3	216,254	71.0
40–49	545	38.3	223,399	75.0
50–59	345	33.2	157,092	76.4
60–69	187	31.87	87,695	71.9
Total	2056	33.7	861,873	71.1
Age-standardised rate		33.6		70.6

Source: National Cervical Screening Programme Register

Note: Ethnicity data for cervical screening was not available for this report.

The WHO world standard population was used to calculate age-standardised rates.

Table C.23: Elective or arranged public hospital discharges, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Discharges per 100 people	No.	Discharges per 100 people
Age				
0–14	2239	24.8	53,607	5.8
15–24	785	13.2	33,242	5.6
25–34	368	10.8	50,950	9.6
35–44	438	11.5	37,565	6.0
45–54	411	11.9	25,341	4.3
55–64	322	13.8	27,963	6.2
65–74	269	18.7	32,131	11.1
75+	286	12.0	37,260	14.3
Total	5118	16.1	298,059	7.0
Age-standardised rate		16.9	6.8	
Gender				
Male	2758	14.6	107,839	5.2
Female	2360	18.3	190,218	8.6
Not specified	0	0.0	< 5	--
Total	5118	16.1	298,059	7.0
Age-standardised rate				
	Male	14.7		4.7
	Female	21.0		8.7
Ethnic group				
Māori	919	17.7	47,970	8.8
Pacific	328	20.0	21,660	7.8
Asian	189	16.6	17,376	6.2
Other/European	3682	15.4	211,053	6.7
Total	5118	16.1	298,059	7.0
Age-standardised rate				
	Māori	18.1		9.3
	Pacific	18.6		8.1
	Asian	13.2		6.1
	Other/European	16.7		6.3

Source: National Minimum Dataset

Note: The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.24: Acute public hospital discharges, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Discharges per 100 people	No.	Discharges per 100 people
Age				
0–14	1634	18.1	58,852	6.4
15–24	781	13.1	35,796	6.0
25–34	506	14.8	34,423	6.5
35–44	656	17.2	36,176	5.8
45–54	698	20.2	35,420	6.0
55–64	687	29.4	39,925	8.8
65–74	568	39.5	44,046	15.2
75+	1002	41.9	77,097	29.6
Total	6532	20.5	361,735	8.5
Age-standardised rate		21.6		7.6
Gender				
Male	3494	18.5	172,517	8.4
Female	3038	23.5	189,217	8.6
Not specified	0	0.0	<5	--
Total	6532	20.5	361,735	8.5
Age-standardised rate				
Male		20.1		7.5
Female		24.5		7.6
Ethnic group				
Māori	1216	23.5	62,992	11.5
Pacific	475	29.0	29,774	10.8
Asian	132	11.6	16,634	5.9
Other/European	4709	19.7	252,335	8.0
Total	6532	20.5	361,735	8.5
Age-standardised rate				
Māori		27.4		13.0
Pacific		34.5		11.8
Asian		14.7		6.1
Other/European		19.9		6.6

Source: National Minimum Dataset

Note: The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.25: All public hospital discharges, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Discharges per 100 people	No.	Discharges per 100 people
Age				
0–14	3873	42.9	112,459	12.3
15–24	1566	26.3	69,038	11.6
25–34	874	25.6	85,373	16.1
35–44	1094	28.6	73,741	11.8
45–54	1109	32.0	60,761	10.3
55–64	1009	43.1	67,888	15.0
65–74	837	58.2	76,177	26.2
75+	1288	53.8	114,357	43.9
Total	11,650	36.6	659,794	15.5
Age-standardised rate		38.5	14.4	
Gender				
Male	6252	33.0	280,356	13.6
Female	5398	41.8	379,435	17.2
Not specified	0	0.0	< 5	--
Total	11,650	36.6	659,794	15.5
Age-standardised rate				
	Male	34.8		12.2
	Female	45.5		16.3
Ethnic group				
Māori	2135	41.2	110,962	20.3
Pacific	803	49.1	51,434	18.6
Asian	321	28.1	34,010	12.1
Other/European	8391	35.1	463,388	14.7
Total	11,650	36.6	659,794	15.5
Age-standardised rate				
	Māori	45.4		22.4
	Pacific	53.1		19.9
	Asian	27.9		12.1
	Other/European	36.6		12.8

Source: National Minimum Dataset

Note: The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.26: Public hospital emergency department attendance, by age, gender and ethnic group, year ending June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Attendances per 100 people	No.	Attendances per 100 people
Age				
0–14	3023	33.5	172,203	18.8
15–24	2569	43.2	134,807	22.6
25–34	1634	47.8	94,284	17.8
35–44	1958	51.2	92,812	14.9
45–54	1789	51.7	84,330	14.3
55–64	1289	55.1	74,354	16.4
65–74	899	62.5	67,329	23.2
75+	1437	60.1	107,488	41.3
Total	14,598	45.8	827,607	19.4
Age-standardised rate		48.5	18.9	
Gender				
Male	8113	42.9	429,908	20.9
Female	6485	50.2	397,691	18.0
Not specified	0	0.0	8	1.2
Total	14,598	45.8	827,607	19.4
Age-standardised rate				
	Male	46.7		20.5
	Female	52.1		17.4
Ethnic group				
Māori	2825	54.5	163,781	30.0
Pacific	907	55.4	62,424	22.6
Asian	314	27.5	35,044	12.5
Other/European	10,552	44.2	566,358	17.9
Total	14,598	45.8	827,607	19.4
Age-standardised rate				
	Māori	59.6		31.4
	Pacific	62.2		23.0
	Asian	37.0		12.7
	Other/European	45.4		17.0

Source: National Non-Admitted Patient Collection

Note: The WHO world standard population was used to calculate age-standardised rates.

Table C.27: Avoidable hospitalisations (public hospital), by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability		Without intellectual disability	
	No.	Discharges per 100 people	No.	Discharges per 100 people
Age				
0–14	1625	18.0	35,041	3.8
15–24	559	9.4	12,158	2.0
25–34	332	9.7	9414	1.8
35–44	479	12.5	13,336	2.1
45–54	491	14.2	18,005	3.0
55–64	361	15.4	21,405	4.7
65–74	316	22.0	25,060	8.6
75+	485	20.3	40,940	15.6
Total	4648	14.6	175,359	4.1
Age-standardised rate		15.5	3.6	
Gender				
Male	2592	13.7	90,437	4.1
Female	2056	15.9	84,921	4.1
Not specified	0	0.0	< 5	--
Total	4648	14.6	175,359	4.1
Age-standardised rate				
	Male	17.9		3.3
	Female	14.5		3.8
Ethnic group				
Māori	924	17.8	31,154	5.7
Pacific	344	21.0	14,261	5.2
Asian	154	13.5	7041	2.5
Other/European	3226	13.5	122,903	3.9
Total	4648	14.6	175,359	4.1
Age-standardised rate				
	Māori	20.0		6.5
	Pacific	21.9		5.5
	Asian	13.5		2.6
	Other/European	14.2		3.1

Source: National Minimum Dataset

Note: The WHO world standard population was used to calculate age-standardised rates.

< 5 = figure is too small to report (1 to 4).

-- = figure not available.

Table C.28: Average primary health care cost per person, by age, gender and ethnic group, year ending 30 June 2008

	With intellectual disability	Without intellectual disability
Demographic variables	Cost per person	Cost per person
Age		
0–14	\$476	\$259
15–24	\$640	\$217
25–34	\$1,070	\$333
35–44	\$1,449	\$321
45–54	\$1,627	\$400
55–64	\$1,837	\$569
65–74	\$1,767	\$895
75+	\$1,448	\$1,129
Total	\$1,044	\$420
Age-standardised cost	\$1,070	\$373
Gender		
Male	\$949	\$359
Female	\$1,182	\$477
Total	\$1,044	\$420
Age-standardised cost		
Male	\$1,041	\$314
Female	\$1,115	\$426
Ethnic group		
Māori	\$1,071	\$401
Pacific	\$818	\$376
Asian	\$690	\$343
Other/European	\$1,070	\$434
Total	\$1,044	\$420
Age-standardised cost		
Māori	\$1,183	\$456
Pacific	\$955	\$411
Asian	\$1,013	\$349
Other/European	\$1,047	\$360

Source: Primary Health Organisation Enrolment Register, Laboratory Testing Claims Warehouse, Community Pharmacy Dispensing Warehouse (Pharmhouse), General Medical Subsidy Claims Warehouse

Note: Costs exclude GST.

The WHO world standard population was used to calculate age-standardised rates.

Table C.29: Average secondary health care cost per person, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With intellectual disability	Without intellectual disability
	Cost per person	Cost per person
Age		
0–14	\$1,962	\$400
15–24	\$1,237	\$377
25–34	\$1,687	\$496
35–44	\$1,222	\$498
45–54	\$1,957	\$641
55–64	\$3,185	\$1,094
65–74	\$3,960	\$1,928
75+	\$2,960	\$2,554
Total	\$1,963	\$766
Age-standardised cost	\$1,931	\$654
Gender		
Male	\$1,781	\$779
Female	\$2,229	\$754
Total	\$1,963	\$766
Age-standardised cost		
Male	\$1,819	\$660
Female	\$2,147	\$649
Ethnic group		
Māori	\$2,593	\$1,066
Pacific	\$2,776	\$1,003
Asian	\$1,808	\$715
Other/European	\$1,173	\$515
Total	\$1,963	\$766
Age-standardised cost		
Māori	\$2,803	\$1,322
Pacific	\$3,022	\$1,191
Asian	\$1,318	\$533
Other/European	\$1,718	\$557

Source: National Minimum Dataset, National Non-Admitted Patient Collection, Maternal and Newborn Infant Claims Collection

Note: Costs exclude GST.

Costs also exclude those relating to disability support and health of older people services.

The WHO world standard population was used to calculate age-standardised rates.

Table C.30: Average total health care cost per person, by age, gender and ethnic group, year ending 30 June 2008

Demographic variables	With	Without
	intellectual disability	intellectual disability
	Cost per person	Cost per person
Age		
0–14	\$2,437	\$659
15–24	\$1,877	\$594
25–34	\$2,757	\$829
35–44	\$2,671	\$819
45–54	\$3,584	\$1,041
55–64	\$5,022	\$1,664
65–74	\$5,728	\$2,822
75+	\$4,408	\$3,683
Total	\$3,006	\$1,186
Age-standardised cost	\$3,001	\$1,028
Gender		
Male	\$2,730	\$1,137
Female	\$3,411	\$1,232
Total	\$3,006	\$1,186
Age-standardised cost		
Male	\$2,860	\$975
Female	\$3,262	\$1,075
Ethnic group		
Māori	\$3,663	\$1,466
Pacific	\$3,594	\$1,378
Asian	\$2,498	\$1,059
Other/European	\$2,244	\$950
Total	\$3,006	\$1,186
Age-standardised cost		
Māori	\$3,985	\$1,778
Pacific	\$3,977	\$1,602
Asian	\$2,331	\$882
Other/European	\$2,765	\$917

Source: National Minimum Dataset, National Non-Admitted Patient Collection, Maternal and Newborn Infant Claims Collection

Note: Costs exclude GST.

Costs also exclude those relating to disability support and health of older people services.

The WHO world standard population was used to calculate age-standardised rates.

Appendix D: Capture–recapture analysis tables

Table D.1: Capture–recapture estimated true prevalence of intellectual disability, by five-year age group

Age group (years)	Measured in study population		Estimated by capture–recapture analysis			
			Numbers		Rates (percent)	
	No.	Rate (percent)	No.	95% confidence interval	Rate (percent)	95% confidence interval
0–4	1410	0.4	3273	2536–4495	1.0	0.8–1.4
5–9	3613	1.2	6236	5654–6988	2.1	1.9–2.3
10–14	4006	1.3	5993	5623–6451	1.9	1.8–2.1
15–19	3505	1.1	4661	4453–4916	1.5	1.4–1.5
20–24	2440	0.9	3159	3024–3327	1.1	1.1–1.2
25–29	1801	0.7	2326	2222–2458	0.9	0.8–0.9
30–34	1614	0.6	2039	1955–2145	0.8	0.7–0.8
35–39	1899	0.6	2403	2308–2523	0.8	0.7–0.8
40–44	1925	0.6	2499	2393–2630	0.8	0.8–0.8
45–49	1911	0.6	2399	2306–2515	0.8	0.7–0.8
50–54	1552	0.6	2005	1913–2120	0.7	0.7–0.8
55–59	1313	0.5	1768	1670–1897	0.7	0.7–0.8
60–64	1027	0.5	1447	1348–1580	0.7	0.6–0.8
65–69	819	0.5	1181	1083–1318	0.7	0.7–0.8
70–74	619	0.5	960	855–1114	0.8	0.7–0.9
75–79	714	0.7	1275	1096–1544	1.2	1.0–1.4
80–84	791	1.0	1450	1189–1886	1.8	1.5–2.3
85+	888	1.2	1589	1222–2367	2.1	1.6–3.2
Total	31,847	0.7	46,664	42,847–52,274	1.1	1.0–1.2

Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Note: Rates are crude rates.

Table D.2: Capture–recapture estimated true prevalence of intellectual disability, by gender

Gender	Measured in study population		Estimated by capture–recapture analysis			
			Numbers		Rates (percent)	
	No.	Rate (percent)	No.	95% confidence interval	Rate (percent)	95% confidence interval
Males	18,921	0.9	27,757	25,557–30,921	1.3	1.3–1.3
Females	12,926	0.6	18,907	17,291–21,353	0.9	0.9–0.9
Total	31,847	0.7	46,664	42,848–52,274	1.1	1.1–1.1

Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Note: Rates are crude rates.

Table D.3: Capture–recapture estimated true prevalence of intellectual disability, by ethnic group

Ethnic group	Measured in study population		Estimated by capture–recapture analysis			
	No.	Rate (percent)	Numbers		Rates (percent)	
			No.	95% confidence interval	Rate (percent)	95% confidence interval
Māori	5185	0.9	8290	7501–9417	1.5	1.4–1.7
Pacific people	1636	0.6	2868	2460–3526	1.0	0.9–1.3
Other/European	25,026	0.7	35,505	32,887–39,331	1.0	0.9–1.1
Total	31,847	0.7	46,664	42,848–52,274	1.1	1.0–1.2

Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Note: The Other/European ethnic group includes Asians.

Rates are crude rates.

Table D.4: Capture–recapture estimated true prevalence of intellectual disability, by socioeconomic group (NZDep2006)

NZDep2006 quintile	Measured in study population		Estimated by capture–recapture analysis			
	No.	Rate (percent)	Numbers		Rates (percent)	
			No.	95% confidence interval	Rate (percent)	95% confidence interval
1 (least deprived)	3829	0.5	5566	5090–6269	0.7	0.7–0.8
2	4471	0.6	6544	5989–7363	0.9	0.8–1.0
3	6182	0.7	8793	8117–9788	1.0	1.0–1.2
4	8560	0.9	12,503	11,506–13,976	1.3	1.2–1.5
5 (most deprived)	8640	0.9	13,093	11,980–14,713	1.4	1.2–1.5
Not specified	165	0.5	165	--	--	--
Total	31,847	0.7	46,664	42,848–52,274	1.1	1.0–1.2

Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Note: Rates are crude rates.

Table D.5: Capture–recapture estimated true prevalence of intellectual disability, by district health board

DHBs	Measured in study population		Estimated by capture–recapture analysis			
	No.	Rate (percent)	Numbers		Rates (percent)	
			No.	95% confidence interval	Rate (percent)	95% confidence interval
Northland	920	0.7	1491	1349–1697	1.1	1.0–1.2
Waitemata	2957	0.6	4546	4129–5161	0.9	0.8–1.0
Auckland	2242	0.5	3661	3277–4244	0.8	0.7–1.0
Counties Manukau	3560	0.7	5367	4893–6065	1.1	1.0–1.2
Waikato	3917	1.1	5292	4948–5789	1.5	1.4–1.6
Lakes	665	0.6	1112	1000–1272	1.0	0.9–1.2
Bay of Plenty	1678	0.8	2501	2291–2810	1.2	1.1–1.3
Tairāwhiti	370	0.8	592	536–673	1.2	1.1–1.4
Taranaki	1020	0.9	1431	1327–1583	1.3	1.2–1.4
Hawke's Bay	1152	0.7	1764	1609–1990	1.1	1.0–1.3
Whanganui	644	1.0	916	848–1016	1.4	1.3–1.5
MidCentral	1307	0.8	1909	1757–2132	1.2	1.1–1.3
Hutt	1183	0.8	1705	1572–1898	1.2	1.1–1.3
Capital and Coast	1461	0.5	2289	2072–2608	0.8	0.7–0.9
Wairarapa	351	0.9	509	469–568	1.2	1.1–1.4
Nelson Marlborough	1208	0.9	1645	1533–1809	1.2	1.1–1.3
West Coast	208	0.6	328	299–370	1.0	0.9–1.1
Canterbury	3661	0.8	5171	4783–5742	1.1	1.0–1.2
South Canterbury	428	0.8	612	564–682	1.1	1.0–1.2
Otago	1996	1.1	2551	2408–2762	1.4	1.3–1.5
Southland	754	0.7	1108	1018–1239	1.0	0.9–1.1
Unknown	165	0.6	165	--	--	--
Total	31,847	0.7	46,664	42,848–52,274	1.1	1.1–1.1

Source: Ministry of Health study population capture–recapture estimates, 1 July 2007–30 June 2008

Note: DHB = district health board.

Rates are crude rates.

Appendix E: 95 percent confidence intervals for key indicators

Table E.1: 95 percent confidence intervals for key indicators

		People with intellectual disability		Total New Zealand population	
INDICATOR	Description	Life expectancy	95% CI	Life expectancy	95% CI
Life expectancy (at birth)	Female	59.5	56.9–62.1	82.4	–
	Male	59.7	58.1–68.2	78.4	–

		People with intellectual disability		People without intellectual disability	
INDICATOR	Description	Age-standardised rate (WHO)	95% CI	Age-standardised rate (WHO)	95% CI
Coronary heart disease care or treatment (%)	All	5.3%	5.1%–5.6%	2.7%	2.7%–2.7%
Chronic respiratory disease care or treatment (%)	All	21.1%	20.6%–21.7%	14.3%	14.3%–14.3%
Diabetes care or treatment (%)	All	7.1%	6.8%–7.5%	3.6%	3.6%–3.6%
Received renal replacement therapy (%)	All	0.2%	0.2%–0.3%	0.1%	0.1%–0.1%
Cancer care or treatment (%)	All	1.6%	1.5%–1.8%	1.1%	1.1%–1.1%
Received public hospital treatment for morbid obesity (%)	All	0.9%	0.8%–1.0%	0.2%	0.2%–0.2%
Received care or treatment for one or more chronic health condition (%)	All	29.5%	28.9%–30.1%	19.1%	19.0%–19.2%
Epilepsy care or treatment (%)	All	16.3%	15.9%–16.8%	0.5%	0.5%–0.5%
Public hospital care for injury (discharges / 100 people)	All 1-year	2.3	2.1–2.5	1.2	1.2–1.2
Dental treatment public hospital discharges (discharges / 100 people)	All 1-year	4.2	3.9–4.4	0.3	0.3–0.3
Mood disorder care or treatment (%)	All	9.7%	9.3%–10.1%	4.1%	4.1%–4.1%
Psychotic disorder care or treatment (%)	All	4.1%	3.9%–4.3%	0.2%	0.2%–0.3%
Dementia care or treatment (%)	All	0.9%	0.8%–1.0%	0.1%	0.1%–0.1%
Any mental disorder care or treatment (%)	All	35.6%	34.9%–36.3%	10.1%	10.1%–10.1%
Enrolled in a primary health organisation (%)	All	95.2%	94.1%–96.3%	91.8%	91.7%–91.9%

INDICATOR	Description	People with intellectual disability		People without intellectual disability	
		Age-standardised rate (WHO)	95% CI	Age-standardised rate (WHO)	95% CI
Enrolled for Care Plus primary health services (%)	All	5.9%	5.7%–6.2%	2.0%	2.0%–2.0%
Consulted general practice in previous 3 months (%)	All	65.2%	64.3%–66.2%	44.9%	44.8%–45.0%
Consulted general practice in previous 12 months (%)	All	91.0%	89.9%–92.1%	78.3%	78.2%–78.4%
Consulted general practice in previous 24 months (%)	All	96.7%	95.5%–97.8%	89.9%	89.8%–90.0%
Average annual number of pharmaceutical types (per person)	All 1-year	5.6	5.6–5.6	3.0	3.0–3.0
Received breast screening (%)	Women aged 45–69 years in 2-year round	39.9%	39.4%–40.4%	48.7%	48.7%–48.7%
Received cervical screening (%)	Women aged 20–69 years in 3-year round	33.6%	32.9%–34.4%	70.6%	70.5%–70.7%
Elective or arranged public hospital discharges (discharges / 100 people)	All 1-year	16.9	16.4–17.5	6.8	6.8–6.8
Acute public hospital discharges (discharges / 100 people)	All 1-year	21.6	21.0–22.2	7.6	7.6–7.6
All public hospital discharges rate (discharges / 100 people)	All 1-year	38.5	37.8–39.3	14.4	14.4–14.4
Public hospital emergency department attendances (attendances / 100 people)	All 3-years	48.5	47.7–49.4	18.9	18.9–18.9
Avoidable hospitalisations (public hospital) (discharges / 100 people)	All 1-year	15.5	15.1–16.0	3.6	3.5–3.6
Average primary health care costs (\$ per capita)	All 1-year	\$1,070	\$1,070–\$1,070	\$373	\$373–\$373
Average secondary health care costs (\$ per capita)	All 1-year	\$1,931	\$1,931–\$1,932	\$654	\$654–\$655
Average total health care costs (\$ per capita)	All 1-year	\$3,001	\$3,001–\$3,002	\$1,028	\$1,028–\$1,029