



# Australian Social Trends

USING STATISTICS TO PAINT A PICTURE OF AUSTRALIAN SOCIETY



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# A u s t r a l i a n S o c i a l T r e n d s J u n e 2 0 1 2

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# Introduction

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*Australian Social Trends* draws on a wide range of data, sourced both from ABS and other agencies, to present a picture of Australian society. This publication aims to inform decision-making, research and discussion on social conditions in Australia. It covers social issues of current and ongoing concern, population groups of interest, and changes in these over time.

The selection of articles aims to address current and perennial social concerns and to provide answers to key social questions. Some topics are revisited as new data become available. The aim of this approach is for each report to remain responsive to contemporary concerns, while accumulating a more comprehensive picture of Australian social conditions over time. For this reason, articles often include cross references to other relevant articles in the current issue, and in previous issues. All articles published since 1994 are available from the Australian Social Trends page of the ABS web site: [www.abs.gov.au/socialtrends](http://www.abs.gov.au/socialtrends).

*Australian Social Trends* is structured according to the ABS Wellbeing Framework which identifies areas of social concern, population groups and transactions among people and entities within their social environments (see ABS [Measuring Wellbeing: Frameworks for Australian Social Statistics, 2001](#) – cat. no. 4160.0). The broad areas of social concern are:

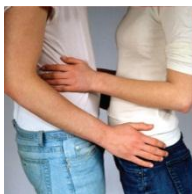
- population
- family and community
- health
- education and training
- work
- economic resources
- housing
- crime and justice
- culture and leisure
- other areas - including environment, religion, and transport and communication.

*Australian Social Trends* is now issued on a quarterly basis, and in the course of a year the articles will cover a wide range of the areas of social concern.

The articles focus strongly on people and social concerns. Each article aims to tell a story, providing a sense of the social and historical context in which a particular topic is embedded, moving from the general to the specific, and using statistics to bring light to the issue. Articles aim to balance 'what' analysis (relating the relevant statistical facts surrounding the issue, e.g. number, characteristics, change over time, sex, age and other differences), with 'why' analysis (providing context and explanation by highlighting relevant social changes and events and the chronologies of these). For example, an article on work may examine current labour force participation, how the labour market has changed over time, how different groups of people are affected by social and economic conditions, and how these factors may be linked to observed employment trends.







# Sexually transmissible infections

The past decade has seen rates of sexually transmissible infections (STIs) increase in Australia. Sexually transmissible infections are predominately contracted through unsafe sexual practices and can show no symptoms. If left untreated, STIs can have serious long-term consequences. While notification rates for several STIs are increasing, the reasons for these increases are not certain. Such increases may be the result of rising infection rates, more people being tested for STIs or a combination of both.

Sexually transmissible infections are either bacterial or viral. While bacterial STIs, such as chlamydia, gonorrhoea and syphilis are usually curable, they can cause significant complications if left untreated, including chronic abdominal pain, infertility, and genital, heart and brain damage. Viral infections, including human immunodeficiency virus (HIV) and herpes simplex virus (HSV), are incurable and may lead to lesions, ulcers, cirrhosis and increase susceptibility to opportunistic infections, such as tuberculosis and meningitis.

The prevalence of each of the major STIs varies according to sex and age. While STIs predominantly affect the young, the rates of infection for older age groups are increasing as well. Indeed, there are select STIs that affect more people aged between 30 and 44 years than those aged between 18 and 29 years.

Several STIs are nationally notifiable diseases. This means state and territory health authorities supply notifications of chlamydia, gonorrhoea and syphilis to the National Notifiable Diseases Surveillance System, and notifications of HIV to the Kirby Institute, all of which serve to collect information relating to diseases of public importance. While genital herpes is not notifiable, it is becoming an infection of increasing significance owing to rising infection rates.

This article considers notification rates of major STIs by age and sex, as well as by state and territory. It also looks at the estimated prevalence of genital herpes and additionally considers the rates of STI notification in the Aboriginal and Torres Strait Islander population.

## Data sources and definitions

For data pertaining to chlamydia, gonorrhoea and syphilis, this article draws on information from the [National Notifiable Diseases Surveillance System](#) (NNDSS), available from the Department of Health and Ageing. The NNDSS coordinates notifications of communicable diseases supplied by state and territory health authorities. The NNDSS presents live notification data and so these data are subject to ongoing changes, either due to additional notifications being received or removal of duplicates or incorrect records. The data presented in this article represent a snapshot of STI trends at one point in time, 2 May 2012.

Care should also be taken when interpreting data sourced from the NNDSS, as such data may only represent a proportion (the 'notified fraction') of the total incidence of infection, as there are those with the infection who have not yet been diagnosed. Moreover, the notified fraction varies by disease, by jurisdiction, and by time.

For data pertaining to HIV, this article draws on information from the Kirby Institute's [HIV, viral hepatitis and sexually transmissible infections in Australia: Annual Surveillance Report 2011](#). The Kirby Institute utilises data from state and territory health authorities. Newly diagnosed HIV infections are a notifiable condition in each state and territory health jurisdiction in Australia. Cases of newly diagnosed HIV infection were notified through state and territory health authorities to the Kirby Institute on the first occasion of diagnosis in Australia. The data presented in this report represent a snapshot of HIV trends at one point in time, 31 March 2011.

Data for Aboriginal and Torres Strait Islander peoples have been taken from the Kirby Institute's [Bloodborne viral and sexually transmitted infections in Aboriginal and Torres Strait Islander people: Surveillance and Evaluation Report 2011](#). In addition to data supplied directly to the Institute in the case of HIV notifications, the Kirby Institute uses NNDSS data, which are subject to the limitations described above. Furthermore, there remain considerable gaps in the reporting of Aboriginal and Torres Strait Islander status at diagnosis of blood borne viruses and STIs in Australia. This has the potential to underestimate the true prevalence of these infections in the Aboriginal and Torres Strait Islander population. The data represent a snapshot of STI trends at one point in time, 31 March 2011. As such, the data may vary slightly from data compiled on 2 May 2012.

Additionally, this article draws on population estimates from [ABS Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0). The estimated resident population (ERP) from June each year is used to produce rates per 100,000 population.

## Further definitions

**Asymptomatic infections** are infections without any symptoms or evidence of disease. Persons with asymptomatic infections are often unaware they have the infection and can unknowingly transmit the infection to others.

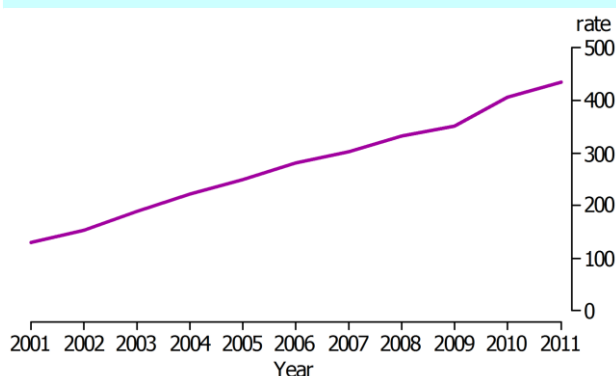
**Opportunistic infections** are infections that do not normally cause disease but can do so when the body's immune system is weakened and unable to protect against infection.

## Bacterial STIs ...chlamydia

Chlamydia is a bacterial infection that can infect the prostate, urethra and testes in men and the cervix, uterus and pelvis in women. Chlamydia is largely asymptomatic; most people are unaware that they have the infection and that they need treatment. If left untreated, chlamydia can cause serious complications. In men, chlamydia may lead to inflammation of the upper genital tract and infertility. In women, untreated chlamydia can result in pelvic inflammatory disease, which can cause ectopic pregnancies, chronic pelvic pain and infertility. Chlamydia also increases the possibility of contracting other infections, such as HIV, as it can initiate an immune response that makes the transmission of HIV more likely.<sup>1</sup> Treatment for chlamydia is usually straightforward and involves a course of antibiotics.

In 2011, chlamydia was the most frequently reported notifiable condition in Australia, with 79,833 new notifications for persons aged 15 years and over, or 435 cases per 100,000 population. This was nearly seven times the rate of the next most frequently reported notifiable STI, gonorrhoea. This rate has more than tripled over the past decade, increasing from 130 notifications per 100,000 in 2001.

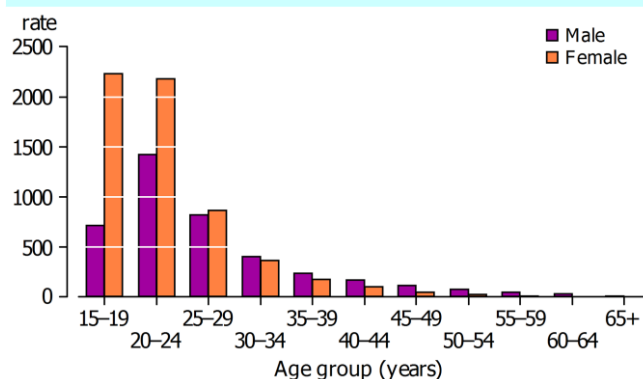
## Chlamydia notifications, Australia – 2001-2011(a)



(a) Per 100,000 population aged 15 years and over.

Source: National Notifiable Diseases Surveillance System; ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

## Chlamydia notifications by age – 2011(a)



(a) Per 100,000 population aged 15 years and over.

Source: National Notifiable Diseases Surveillance System; ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

In 2011, more women than men were diagnosed with chlamydia, with 46,636 women aged 15 years and over diagnosed with the infection, compared with 33,197 men aged 15 years and over. Women aged between 15 and 19 years had the highest rates of diagnosis in 2011, with 2,228 per 100,000 receiving a positive diagnosis, while men aged between 20 and 24 years had the highest rate, with 1,423 per 100,000. Overall, chlamydia diagnosis for men and women aged between 15 and 29 years accounted for 82% of diagnoses for the whole population.

While chlamydia notifications were more prevalent in women than men in the younger age ranges, from the age of 30, the reverse was true.

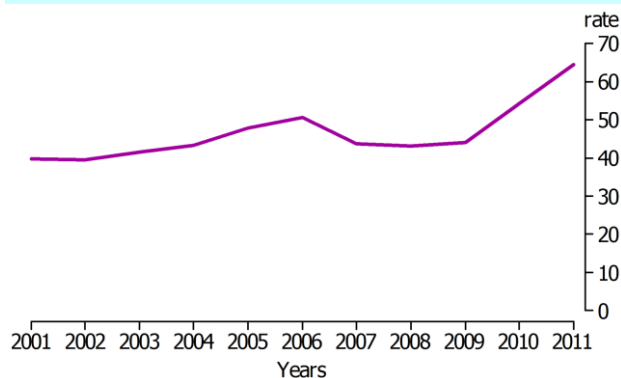
For both women and men, the rates of diagnosis for chlamydia have increased considerably over the past 10 years. Overall, the rate for women aged 15 years and over has more than tripled, from 152 per 100,000 in 2001, to 502 per 100,000 in 2011. The rate for men aged 15 years and over has also more than tripled, from 106 per 100,000 in 2001, to 366 per 100,000 in 2011.

The largest increases were for women and men aged 15–19 years. For women aged 15–19 years, the notification rate increased from 569 per 100,000 in 2001, to 2,228 per 100,000 in 2011. For men, the rate increased nearly five times, from 150 per 100,000 in 2001, to 714 per 100,000 in 2011.

## ...gonorrhoea

Gonorrhoea is a bacterial infection with similar characteristics to chlamydia. Like chlamydia, gonorrhoea infects reproductive organs, can be asymptomatic and increases the chances of contracting other infections. If left untreated, gonorrhoea can also cause infertility in men and women. While antibiotics can cure gonorrhoea, drug-resistant strains are increasing in many parts of the world and successful treatment is becoming more difficult.<sup>2</sup>

## Gonorrhoea notifications, Australia – 2001-2011(a)



(a) Per 100,000 population aged 15 years and over.

Source: National Notifiable Diseases Surveillance System; ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

Notification rates of gonorrhoea have generally increased over the past 10 years. In 2011, the national notification rate for people aged 15 years and over was 65 per 100,000 population, up from 40 per 100,000 in 2001.

In contrast with chlamydia, more men than women were diagnosed with gonorrhoea in 2011: 8,056 men, compared with 3,789 women. Men aged 20–24 years had the highest diagnosis rate, with 213 diagnoses per 100,000, followed by 185 per 100,000 for those aged 25–29 years. For women, the highest rates of diagnosis were in the youngest age groups, with 178 and 128 diagnosed per 100,000 for those aged 15–19 years and 20–24 years respectively. Men and women aged between 15 and 34 years accounted for nearly three quarters (74%) of total gonorrhoea diagnosis.

For both men and women, the rate of diagnosis has increased over the past 10 years, particularly amongst people aged 45 years and over. For men aged 45–49 years, the rate more than doubled between 2001 and 2011, from 25 per 100,000 to 66 per 100,000. Women of the

same age range experienced a similar increase, from 3.4 per 100,000 to 8.6 per 100,000.

## ...syphilis

Syphilis is a highly infectious bacterial disease, which can cause sores on the infected persons genitals, cervix and mouth. It can arise up to 10 years after the original infection, and if left untreated, can cause serious, irreversible damage to the brain, spinal cord and other organs.<sup>3</sup> Syphilis typically consists of three stages: primary, secondary and the late/latent stage. In the primary and secondary stages, syphilis is highly contagious and can be asymptomatic, allowing the spread of the disease as well as its undetected progression to the latent stage. It is in the latent stage that serious complications can arise.

Syphilis is rare in Australia. However, rates are increasing in some communities, including men who have sex with men and people with HIV/AIDS.<sup>3,4</sup> While syphilis responds to penicillin, if not treated it becomes a chronic disease with a variable course and long periods of latency.

## Prevention

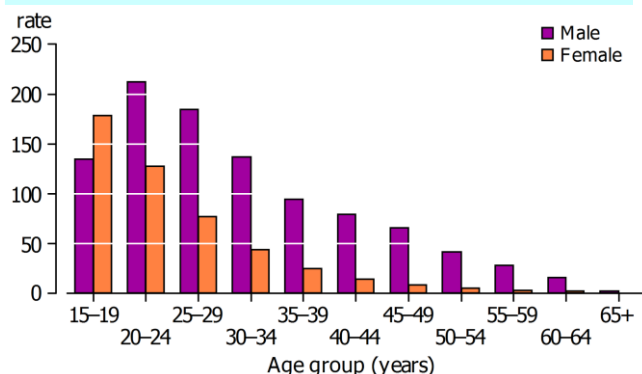
While the best way to avoid STIs is to avoid sex altogether, there are ways to improve safety by always using condoms and having regular STI tests.

Education and prevention programs are also significant. Together with access to prevention methods and testing, education and prevention programs have an important role in abating the spread of STIs.

The 'grim reaper' advertisement of the 1980s is an example of the importance of public health campaigns and is considered one of the most memorable campaigns ever devised. While the advertisement has been widely criticised for stigmatising gay and bisexual men, and people with the virus, and for overstating the threat of the virus to the heterosexual population, the campaign succeeded in ensuring widespread discussion of HIV/AIDS.<sup>5,6</sup> It has been suggested the campaign is responsible for the discourse surrounding needle exchange programs and subsequent safe sex programs targeted towards at risk populations,<sup>6</sup> programs that have helped reduce the rate of HIV transmission.

Current STI education and prevention programs are focussed on groups at risk, rather than the whole population. The Australian Government has sought to reduce the transmission of STIs with the development of several national strategies, such as the National Sexually Transmissible Infections Strategy and the National HIV Strategy. These strategies provide guidelines for education and prevention programs targeted towards people aged 15 to 29 years, Aboriginal and Torres Strait Islander people and men who have sex with men. The strategies aim to increase awareness of STIs and encourage behavioural change amongst target populations so that the transmission and morbidity associated with STIs may be reduced.<sup>7</sup>

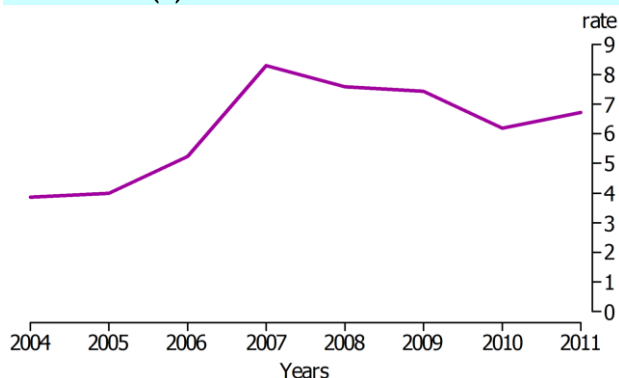
## Gonorrhoea notifications by age – 2011(a)



(a) Per 100,000 population aged 15 years and over.

Source: National Notifiable Diseases Surveillance System; ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

## Syphilis notifications, Australia – 2004-2011(a)



(a) Per 100,000 population aged 15 years and over.

Source: National Notifiable Diseases Surveillance System; ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

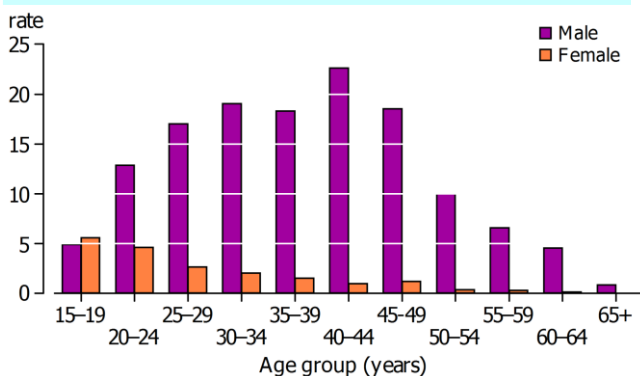
In 2011, there were 1,233 new cases of syphilis which had been diagnosed within two years of contracting the infection. After peaking at 8.3 diagnoses per 100,000 population in 2007, the number of diagnoses declined to 6.2 per 100,000 in 2010.

In 2011, men aged 15 years and over had a rate of diagnosis seven times as high as women aged 15 years and over, with 12 per 100,000 men diagnosed, compared with 1.7 per 100,000 women.

For men, the age group most affected was the 40–44 year age group, with 23 per 100,000 diagnosed. The pattern of diagnosis for men with syphilis was different from other bacterial STIs, as middle aged men were the most likely to be diagnosed with syphilis.

Women aged 15–19 years had a rate of diagnosis of 5.7 per 100,000, followed by 20–24 years, with 4.6 per 100,000. The notification rate for women aged 15–19 years exceeded that of men (5.7 women per 100,000, compared with 5.0 men per 100,000) and was the only age group to do so.

## Syphilis notifications by age – 2011(a)



(a) Per 100,000 population aged 15 years and over.

Source: National Notifiable Diseases Surveillance System; ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

Between 2004 and 2011, the rate of syphilis diagnosis increased for men in every age group. The most dramatic increases were for those aged 45–49 years (200%) and 55–59 years (206%). For women, the rate of diagnosis for each age group either declined or remained steady, with only three age groups showing increases: the 15–19 years age group increased by 60%, 35–39 years increased by 84% and 45–49 years increased by 129%.

## Viral STIs

### ...HIV

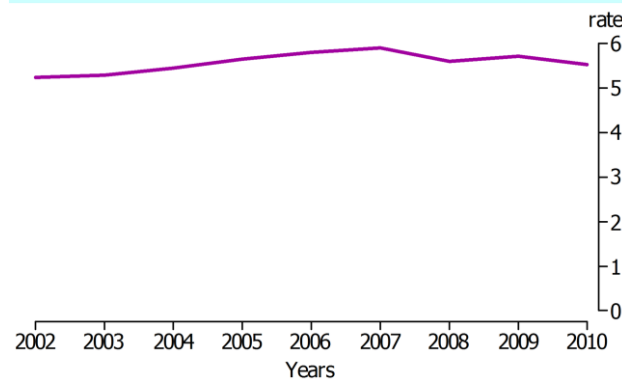
Human immunodeficiency virus (HIV) is a chronic retrovirus that affects the immune system. The virus suppresses the immune system and enables the onset of life-threatening infections. If left untreated, infection with HIV leads to the development of acquired immunodeficiency syndrome (AIDS), a syndrome of opportunistic infections and diseases that develops as immunosuppression deepens.<sup>8</sup> HIV is spread through unprotected sex, from mother to baby during pregnancy, childbirth and breastfeeding, and sharing needles.<sup>8</sup> Some people with HIV have no symptoms until the disease progresses to AIDS.<sup>9</sup>

Anti-retroviral drug treatment is the main type of treatment. It is not a cure, but can slow the progression of HIV to AIDS by keeping the level of HIV virus low and stopping any weakening of the immune system.<sup>8</sup>

In 2010, there were 1,031 new cases of HIV among men and women aged 13 years and over, or 5.5 notifications per 100,000 population.

In 2010, men in the 30–39 year age group had the highest rate of new HIV diagnosis (18 per 100,000). While this age group has historically had the highest rate of HIV diagnosis, the rate of diagnosis has started to fall, from 22 per 100,000 in 2002 to 18 per 100,000 in 2010.

## HIV notifications, Australia – 2002-2010(a)

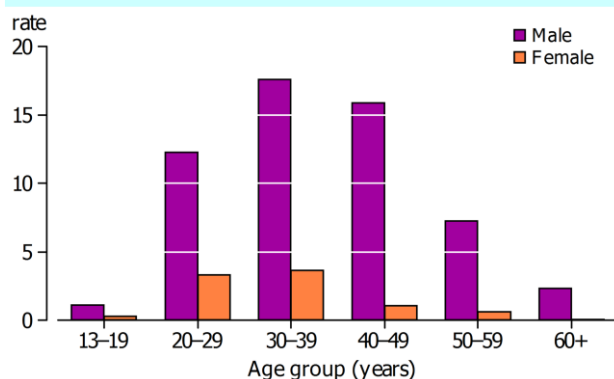


(a) Per 100,000 population aged 13 years and over.

Source: The Kirby Institute, [HIV, viral hepatitis and sexually transmissible infections in Australia, Annual Surveillance Report 2011](#); ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)



## HIV notifications by age – 2010(a)



(a) Per 100,000 population aged 13 years and over.

Source: The Kirby Institute, *HIV, viral hepatitis and sexually transmissible infections in Australia. Annual Surveillance Report 2011*; ABS *Australian Demographic Statistics, September 2011* (cat. no. 3101.0)

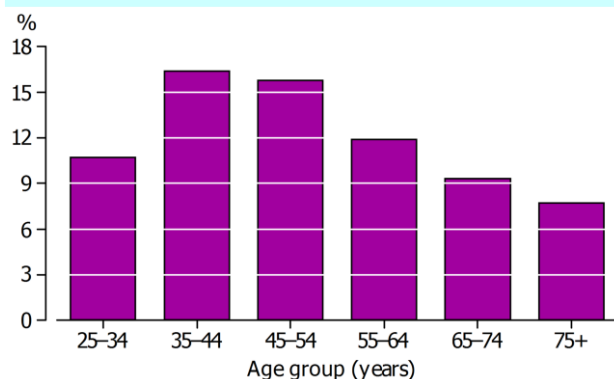
Women of the same age group also had the highest rate of diagnosis, but this rate was nearly one fifth the rate for men, 3.7 per 100,000 compared with 18 per 100,000. However, the rate of diagnosis has actually increased for women aged 30–39 years, from 2.7 per 100,000 in 2002 to 3.7 per 100,000 in 2010.

## ...genital herpes

Herpes simplex virus (HSV) is the virus responsible for genital herpes and cold sores. There are two types, HSV-1 and HSV-2. While both HSV-1 and HSV-2 can cause genital herpes, HSV-2 is the primary cause. Infection with HSV-2 is common; approximately 1 in 8 Australians aged 25 years and over have the virus (1 in 6 women and 1 in 12 men)<sup>10</sup> and it is considered one of the most common STIs.<sup>11</sup>

Genital herpes is spread through skin to skin contact with an infected person and can be asymptomatic.<sup>12</sup> Once infected, the virus remains in the body for life and recurrent infections or outbreaks may occur from time to time. This period of outbreak is viral shedding,

## Genital herpes, estimated prevalence(a) by age, Australia – 1999-2000



(a) Genital herpes is not a notifiable infection. As such, the prevalence presented above is an estimation of the prevalence in Australia.

Source: Cunningham, A. L. et al. (2006)

## Causes of death

Between 1997 and 2009, infection with HIV, syphilis and gonorrhoea was the underlying cause of death for 1,549 Australians.

Infection with HIV accounted for 1,519 deaths in this period (1,401 men and 118 women). Men and women aged 36–40 years were most likely to have been affected, with HIV registered as the underlying cause of death for 267 men and 28 women in this age group.

Syphilis, both early stage and late stage, was the underlying cause of 24 deaths between 1997 and 2009 (15 men and 9 women), while gonorrhoea was the underlying cause of 6 deaths.

Source: ABS 2010 Causes of Death data

when the virus is active and people are considered contagious.<sup>12</sup> There is no treatment that can cure genital herpes, but antiviral medication can shorten and even suppress outbreaks.

The number of notifications per annum of genital herpes is not known because it is not a notifiable infection. However, to estimate prevalence, an Australia-wide population based study was conducted using data collected between 1999 and 2000.<sup>10</sup> The study found that prevalence was highest in the 35–44 year age range and women had a significantly higher prevalence than men (16% compared with 8% respectively).<sup>10</sup> It has been suggested that the prevalence of HSV-2 has been associated with increasing duration of sexual activity, increasing number of lifetime sexual partners and increasing number of past infections with other STIs.<sup>13</sup> It is also thought that transmission of HSV-2 occurs more readily from male to female than female to male, hence the greater prevalence of HSV-2 among women.<sup>13</sup>

## States and territories

In 2011, the Northern Territory, Queensland, Western Australia and Victoria had the highest notification rates for several STIs.

For most states and territories, the notification rates for chlamydia, gonorrhoea and syphilis have increased over the past decade. Moreover, the notification rates for the Northern Territory have been much higher than the rates for Australia. In 2011, the rate for chlamydia was three times as high as the Australian rate, while the rate for gonorrhoea was 16 times as high as the Australian rate. Since collecting notifications for syphilis in 2004, the rates for the Northern Territory have been much higher than all other states and territories, reaching a peak of 71 per 100,000 in 2006, compared with 4.3 per 100,000 for Australia. Although the notification rates for syphilis are highest in the Northern Territory, the rates have been declining since 2006, falling by 80% to 13.9 per 100,000 in 2011.

## STI notification rate by state and territory – 2011(a)(b)

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Chlamydia	280.5	341.3	407.1	309.3	496.9	347.5	1 161.2	344.9	357.3
Gonorrhoea	39.4	33.4	64.7	26.6	77.5	3.7	863.0	35.0	53.6
Syphilis	5.7	5.8	6.3	3.0	5.6	0.6	13.9	2.5	5.5
HIV(c)	4.9	5.1	5.4	2.5	4.4	2.0	2.6	3.3	4.7

(a) Per 100,000 population.

(b) Includes notification rates for all ages and 'unknown'.

(c) Data are for 2010.

Source: National Notifiable Diseases Surveillance System; the Kirby Institute, [HIV, viral hepatitis and sexually transmissible infections in Australia. Annual Surveillance Report 2011](#); ABS [Australian Demographic Statistics, September 2011](#) (cat. no. 3101.0)

In 2010, rates for newly diagnosed HIV were highest in Queensland, followed by Victoria and New South Wales (5.4, 5.1 and 4.9 per 100,000 population respectively). Until 2008, New South Wales had the highest rate of newly diagnosed HIV. However, with the exception of a few years, New South Wales and the Northern Territory are the only locations where a long term decline in HIV diagnosis is evident, from 6.2 and 4.0 per 100,000 in 2002, to 4.9 and 2.6 per 100,000 in 2010 respectively.

### Aboriginal and Torres Strait Islander people

In 2010, 9% of chlamydia notifications were among Aboriginal and Torres Strait Islander people,<sup>14</sup> despite this population representing just 2.5% of the total population (as of 2006). The notification rate for the Aboriginal and Torres Strait Islander population was nearly four times that of the non-Indigenous notification rate: 1,257 per 100,000, compared with 340 per 100,000 respectively.<sup>14</sup> Similar to the non-Indigenous population, around 80% of chlamydia diagnoses were among those aged 15 to 29 years.<sup>14</sup>

Rates of gonorrhoea diagnosis among Aboriginal and Torres Strait Islander people were even more prevalent. In 2010, more than a third (36%, or 3,604) of all gonorrhoea diagnoses were among Aboriginal and Torres Strait Islander people.<sup>14</sup> The rate of diagnosis was more than 26 times that for the non-Indigenous population: 804 per 100,000, compared with 30 per 100,000 respectively.<sup>14</sup>

In the same year, 12% of syphilis notifications were among Aboriginal and Torres Strait Islander people, affecting more men than women (79 and 51 respectively).<sup>14</sup> Between 2006 and 2010, the rate of diagnosis decreased from 40 to 25 per 100,000 Aboriginal and Torres Strait Islander people, while the rate of diagnosis in the non-Indigenous population increased from 3 to 5 per 100,000.<sup>14</sup>

The rates of HIV diagnosis were similar for the Aboriginal and Torres Strait Islander population and the non-Indigenous populations. In 2010, 22 Aboriginal and Torres Strait Islander people were diagnosed with HIV at a rate of 4.6 per 100,000, compared with 1,021 diagnoses in the non-Indigenous population, or 4.0 per 100,000 population.<sup>14</sup>

It is estimated that the prevalence of genital herpes in the Aboriginal and Torres Strait Islander population is 18%, considerably higher than the 12% estimated for the non-Indigenous population.<sup>10</sup>

### STIs and travelling abroad

Foreign travel is in many ways related to the spread of disease. When travelling abroad people may feel less inhibited because of a perceived relaxation of social and moral constraints, leading to changing and potentially unsafe sexual behaviours and resultant exposure to STIs.<sup>15</sup> This situational loss of inhibition is heightened when alcohol and other drugs are used.<sup>2</sup>

Although STIs are present everywhere, many are endemic in developing countries. Infections such as HIV, gonorrhoea, syphilis and chlamydia are more common overseas than in Australia, especially in Africa and Southeast Asia. Some STIs, such as gonorrhoea, are also likely to be resistant to standard treatment.<sup>2</sup>

It has been suggested that only half of travellers engaging in new sexual relationships abroad consistently use condoms.<sup>2,15</sup> This limited condom use appears to be independent of country of origin, travelling style (business, backpacker) or country of destination.<sup>2</sup>

## Sexually transmissible infections: a brief history

Sexually transmissible infections have a long history in the global context. Although it is difficult to determine when such diseases emerged, several sources suggest STIs have been present for centuries.<sup>16,17,18</sup>

Syphilis is thought to have been carried from the New World to Europe after Columbus' voyages.<sup>16</sup> Researchers theorise Europeans may have carried a non-virulent bacteria home, where it mutated into a more deadly form in Europe.<sup>16</sup> Syphilis was a major killer during the Renaissance, and mental illness caused by late-stage syphilis was once one of the more common forms of dementia.<sup>16</sup>

Some well-known historical figures have reportedly suffered from syphilis. Napoleon Bonaparte and Henry VIII were both alleged to have had syphilis.<sup>16</sup> Several artists and writers were suspected of having the infection, including Vincent Van Gogh, Leo Tolstoy and Oscar Wilde.<sup>16</sup> Reportedly upon Al Capone's incarceration at Alcatraz, he was ill with late-stage syphilis and presented confused and disorientated.<sup>16</sup>

The history of gonorrhoea is a little more uncertain. It is alleged that one of the first mentions of the infection occurred in 1611, when the English Parliament passed an act that attempted to reduce the spread of the "perilous infirmity of burning".<sup>17</sup> While not a diagnosis of gonorrhoea, the symptoms described in the decree were consistent with the infection.<sup>17</sup>

Genital herpes has reportedly been around since Ancient Greek times. Herpes is a Greek word meaning to creep or crawl, and Hippocrates speaks of such a condition in his writing.<sup>18</sup> Medical journals from 1700 and 1800 also describe the condition.<sup>18</sup> As with other STIs, the viral nature of genital herpes was not discovered until the medical advances of the twentieth century. Until this period, much speculation surrounded the cause of the condition, ranging from insect bites to eczema-like skin conditions.<sup>18</sup>

## Looking ahead

The notification rates for many STIs are increasing. However, it is not clear whether this is the result of a rise in infection rates, more people being tested for STIs resulting from increased awareness, or a combination of both.<sup>19</sup> In the nine years between 1998–99 and 2007–08, there was a reported six-fold increase in tests for STIs, from 32 per 100,000 to 205 per 100,000.<sup>11</sup> It has been suggested that this may be due to the success of public health campaigns promoting STI screening as standard practice for safe sex.<sup>11</sup>

However, gaps in data make it difficult to present a comprehensive picture of STIs in Australia. Without knowing the reasons behind the recent increases in STIs, it is difficult to determine the success of public health campaigns or whether such campaigns have been targeted effectively.

## Endnotes

- 1 Centres for Disease Control and Prevention, 2012, [Is there a connection between HIV and other sexually transmitted diseases?](#), viewed 9 May 2012, <[www.cdc.gov](http://www.cdc.gov)>.
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# Our health risks - how does Australia compare?

Australia's health generally compares well internationally.<sup>1</sup> Our life expectancy is among the highest in the world, and our infant mortality rate is among the lowest.<sup>2</sup>

Internal and external conditions influence our health. While Australia's external health risk factors (such as access to clean water and sanitation) are low, Australians' internal health risk factors (such as body weight or tobacco smoking) could be modified to further improve our health.

The World Health Organisation (WHO) reports that heart disease, stroke, cancer and other noncommunicable diseases pose a looming health burden.<sup>3</sup> These somewhat preventable diseases are indeed increasing amongst the Australian population, and Australia's population is ageing.

This article focuses on a number of different adult health risk factors for noncommunicable diseases, and analyses the health risks of Australians in the international context.

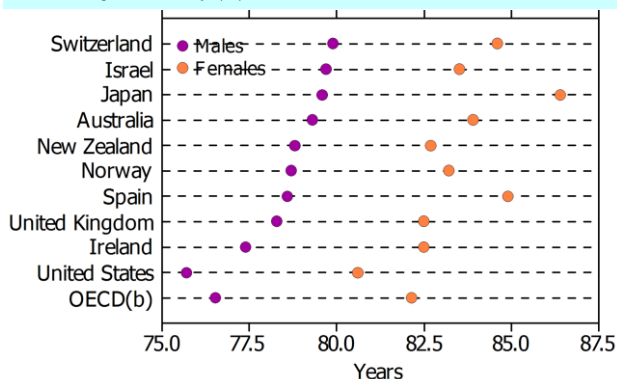
## Australia's health - how do we compare?

For the most part, Australians have similar or better health than other Organisation for Economic Cooperation and Development (OECD) countries.<sup>4</sup>

### ...life expectancy

In 2009, Australia was ranked equal fourth, with Israel, in the OECD for life expectancy, after Japan, Switzerland and Spain.<sup>2</sup> Life expectancy for males in Australia was 79.5 years and 84.0 years for females.<sup>5</sup>

Life expectancy(a) of OECD countries – 2009



(a) Life expectancy at birth.

(b) Data are the average of the OECD countries with data available.

Source: [OECD Health Data 2011: Frequently Requested Data](http://www.oecd.org)  
<[www.oecd.org](http://www.oecd.org)>

## Data sources and definitions

The data in this article are from a variety of sources including the:

- ABS National Health Survey
- World Health Organisation (WHO)
- Organisation for Economic Cooperation and Development (OECD). Available data were used wherever possible, with the OECD averages based on all available data.<sup>6</sup>

In this article an *adult* is defined as a person aged 18 years and over, unless otherwise specified.

**Health risk factors** are specific lifestyle and related factors impacting on health, including: tobacco smoking, alcohol consumption, exercise, body mass, and dietary behaviours - fruit, vegetable and whole milk consumption.

**Life expectancy** is the average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period continued throughout his/her lifetime.

Life expectancy in Australia has increased 5.1 years between 1989 and 2009. This was slightly more than the increase in average years of life expectancy for all OECD countries over that time (4.9 years).<sup>2</sup>

**Australia was ranked equal fourth in the OECD for life expectancy in 2009.**

## Risk factors for health

A small number of risk factors account for much of the morbidity and mortality attributed to noncommunicable disease. These include: tobacco use, excessive alcohol consumption, being overweight or obese, insufficient physical inactivity, high blood pressure, high concentrations of cholesterol in the blood and inadequate intake of fruit and vegetables.<sup>7</sup> Many noncommunicable diseases can be prevented through the reduction of risk factors and other underlying metabolic and physiological causes.

The World Health Organisation has developed a number of strategies to guide policy-makers around the world to create effective strategies to address the public health problems caused by these health risk factors.



## Further definitions

**Age standardisation** is a method that enables comparisons of populations by adjusting for the different age structures of the populations.

**Body Mass Index** is a measure of overweight and obesity calculated from height and weight information, using the formula weight (kg) divided by the square of height (m<sup>2</sup>). For adults:

- a BMI score between 25kg/m<sup>2</sup> and 29.9kg/m<sup>2</sup> is classed as overweight; and
- a BMI score of 30kg/m<sup>2</sup> or greater is classed as obese.

**Insufficient physical activity** is participation in less than 150 minutes of moderate-intensity physical activity each week.

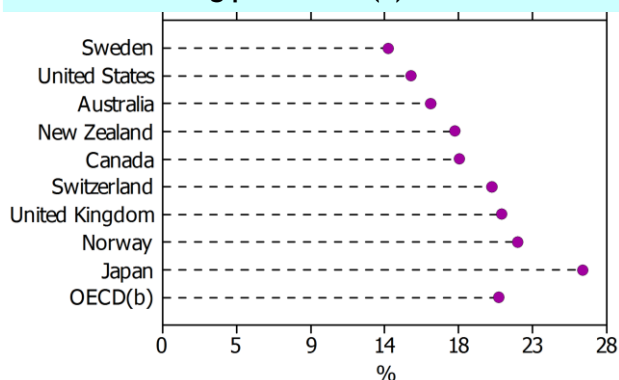
## Tobacco smoking

The World Health Organisation estimates that almost six million people die every year from smoking-related causes, both from direct tobacco use and second-hand smoke.<sup>8</sup> Tobacco use not only reduces life expectancy but also quality of life, with many smoking-related conditions resulting in years living with disabling health problems.

The WHO has reported that daily tobacco smoking rates are highest in the European and Western Pacific Regions.<sup>8,9</sup>

The WHO projects that, without action, by 2030 the number of smoking-related deaths will rise to eight million that year.<sup>8</sup> In response to this, the WHO created the *Framework Convention on Tobacco Control (FCTC)*, with the intention of significantly improving health and reducing the social costs caused by, and the inequality exacerbated by, tobacco in all its forms.<sup>10</sup> Currently, 174 parties (including Australia) have adopted the treaty and, under international law, must perform all obligations contained in the Convention.

## Tobacco smoking prevalence(a) – 2007



(a) Proportion of people aged 15 years and over, who were daily smokers.  
 (b) Data are the average of the OECD countries with data available.

Source: [OECD Health Data 2011: Frequently Requested Data](http://www.oecd.org)  
[www.oecd.org](http://www.oecd.org)

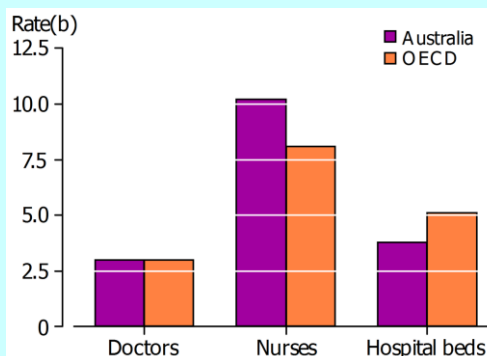
## Health care

Health care constitutes a significant proportion of government spending, averaging 8.8% of GDP of OECD countries in 2008. Australia spent 8.7% of GDP on health in 2008, ranking eighteenth highest among the 34 OECD countries.<sup>2,3</sup>

Health care is complex, with many service providers operating in Australia.<sup>1</sup> Several indicators can tell us how Australia's health system is placed internationally, such as practising doctor and nurse numbers, and the number of hospital beds. These indicators reflect the availability of health services.

While Australia had the same number of doctors as the OECD countries' average in 2008 (3 per 1,000 population), there were more nurses per 1,000 population (10.2 compared with 8.1 nurses). Australia had a lower number of hospital beds per 1,000 population (3.8 beds) than the average of the OECD countries (5.1 beds per 1,000 population).

## Health care in Australia and the OECD(a) – 2008



(a) Average of the OECD countries.

(b) Rate per 1,000 population.

Source: [OECD Health Data 2011: Frequently Requested Data](http://www.oecd.org)  
[www.oecd.org](http://www.oecd.org)

The obligations range from ensuring access to public awareness programs outlining the health risks of consumption and exposure to tobacco, to incorporating bans on smoking in work and public places.<sup>10</sup>

## ...in Australia

Tobacco smoking in Australia has been declining over recent decades. In 2007-08, nearly one in five (19%) Australian adults aged 18 years and over were current daily smokers, down 12% since 2004-05 (after accounting for changes in the age structure).

Australia was below the OECD average (21%) in 2007 with 17% of people aged 15 years and over being daily smokers.<sup>2</sup> Other countries with daily smoking rates lower than the OECD average include the United States (15%) and Sweden (14%).<sup>2</sup>

## Alcohol consumption

The harmful use of alcohol contributes significantly to the global burden of death, disease and injury.<sup>11</sup> Approximately 2.3 million people worldwide died in 2004 from the use of alcohol.<sup>8</sup> More than half of these deaths occurred as the result of noncommunicable disease, including cancers, cardiovascular disease and liver cirrhosis.<sup>8</sup> Alcohol is the causal factor in more than 60 major types of diseases and injuries.<sup>11</sup>

In addition to the detrimental impacts to the consumer through the misuse of alcohol (long-term risks), there are also short-term risks.<sup>12</sup> Short-term risks include the impact on others through the dangerous actions of intoxicated people, such as drink driving and violence.<sup>13</sup> The harmful use of alcohol is a particular threat to men. Globally in 2004, 6.2% of all male deaths were attributable to alcohol, compared with 1.1% of female deaths.<sup>11</sup>

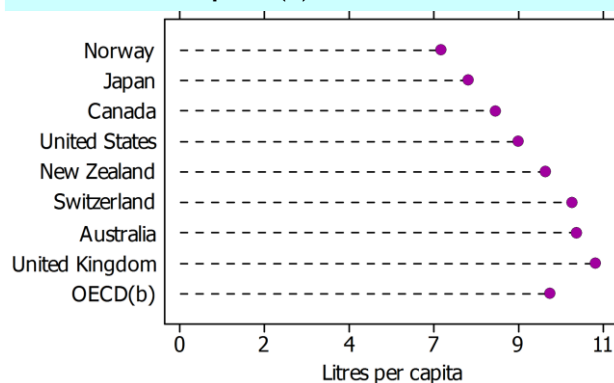
According to the World Health Organisation, the world's highest alcohol consumption levels in 2008 were found in Europe and the Americas.<sup>8, 9</sup>

While the use of alcohol has been stable in most countries of the world since the turn of the century<sup>11</sup>, the World Health Organisation aims to limit dangerous drinking through the *Global Strategy to reduce harmful use of alcohol*.<sup>13</sup> The Strategy suggests policies, interventions and measures. Australia is one of several member countries participating.<sup>13</sup>

## ...in Australia

Apparent alcohol consumption in Australia has been estimated for 2008 at 10.3 litres of pure alcohol per person (aged 15 years and over) per year.<sup>2</sup> Australians consumed more alcohol than the OECD average of 9.6 litres of pure alcohol per person in 2008.<sup>2</sup> As a standard drink consists of 12.5mls of pure alcohol, for

### Alcohol consumption(a) – 2008



(a) Litres of pure alcohol per capita of people aged 15 years and over.

(b) Data are the average of the OECD countries with data available.

Source: [OECD Health Data 2011: Frequently Requested Data](http://www.oecd.org) <[www.oecd.org](http://www.oecd.org)>

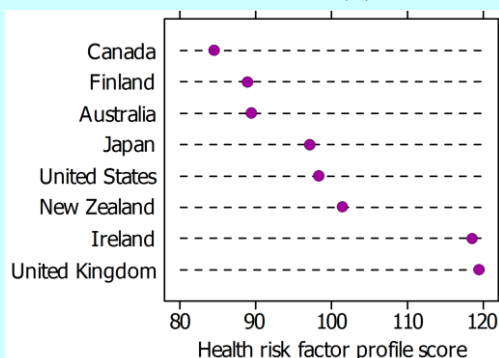
## Best and worst health risks

Using the prevalence of four risk factors for noncommunicable disease (tobacco smoking, alcohol consumption, obesity and insufficient exercise) a health risk factor profile can be built.

For OECD countries with data available in all four health risk areas for 2007, Canada fares the best, with Australia not far behind. The United Kingdom had the worst profile, partly due to having the worst alcohol consumption and physical inactivity rates. Ireland is close behind the United Kingdom.

While Australia fares relatively well for this health risk profile, the burden of preventable disease remains.<sup>1</sup> Australians still suffer from noncommunicable diseases such as heart attack, stroke and cancer. Thus, Australia has room to improve on its health risk factor profile.

### Health risk factor profile(a) of selected countries – 2007(b)



(a) Only countries with full data available were included. The health risk factor profile score with lower scores indicating less risk of ill health. The health risk factor profile is the sum of the proportion of people (out of 100) for each health risk factor (daily tobacco smoking, obesity and physical inactivity) and the alcohol consumption in Litres.

(b) Data for physical inactivity were for 2008.

Source: [OECD Health Data 2011: Frequently Requested Data](http://www.oecd.org), <[www.oecd.org](http://www.oecd.org)>, and [WHO Global Health Observatory Data Repository](http://www.who.int), <[www.who.int](http://www.who.int)>.

Australia, this equates to an average of 2.2 standard drinks per day per person aged 15 years and over.<sup>14</sup>

The National Health Survey shows that the proportion of people aged 15 years and over at risk, over the long term, from alcohol consumption was 13% in 2007–08. This rate had been stable since 2004–05 (after accounting for changes in the age structure).

## NHMRC Guidelines

In this article, risk over the long-term from alcohol consumption has been measured using the 2001 National Health and Medical Research Council (NHMRC) Guidelines. New Guidelines were introduced in 2009.

For more information see '[Australian guidelines to reduce health risks from drinking alcohol](#)'.

## Being overweight or obese

Approximately 2.8 million people die each year worldwide as a result of being overweight or obese.<sup>8</sup> Risks of developing heart disease, stroke, type 2 diabetes and certain cancers, including breast and colon, increase steadily with increasing body mass index (BMI).<sup>8</sup> Being overweight or obese also has adverse metabolic effects on blood pressure, cholesterol and insulin resistance.<sup>8</sup>

In 2008 worldwide, over one-third (35% or 1.5 billion) of adults aged 20 years and over were overweight,<sup>8, 15</sup> while an additional one-tenth (11% or half a billion) were obese.<sup>8, 15</sup> The rates for obesity have nearly doubled since 1980, when 5% of men and 8% of women were obese, compared with 10% of men and 14% of women in 2008.<sup>8</sup>

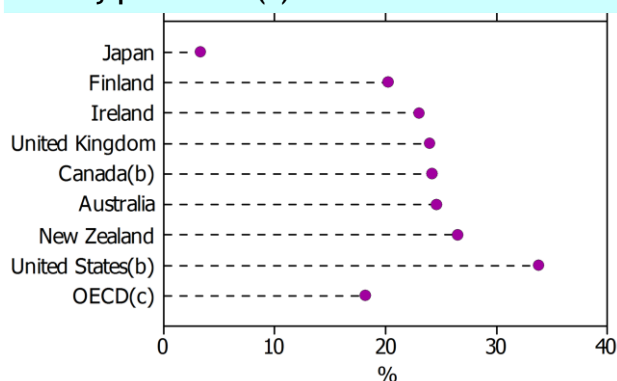
The WHO has reported that the Americas and European Regions had the highest rates of obesity in 2008.<sup>8, 9</sup>

To respond to the increasing burden of noncommunicable diseases the WHO developed the *Global Strategy on diet, physical activity and health*.<sup>16</sup> The Strategy recognises obesity as an important risk factor for noncommunicable diseases. The Strategy aims to provide guidance for governments and communities to take action to promote and protect health through enabling environments and actions.<sup>16</sup>

### ...in Australia

In Australia in 2007–08, a quarter (25%) of all adults were obese (based on measured height and weight), an increase of 27% since 1995 (age-standardised). After adjusting for differences in age structures, Australia was placed well above the OECD countries' average of 18% of the adult population being obese in 2007.<sup>2</sup>

**Obesity prevalence(a) – 2007**



(a) Proportion of the total adult population who are obese. Body Mass Index (BMI) based on measured height and weight.

(b) Data are for 2008.

(c) Data are the average of the OECD countries with data available.

Source: [OECD Health Data 2011: Frequently Requested Data](http://www.oecd.org) <[www.oecd.org](http://www.oecd.org)>

## Physical inactivity

The WHO estimates that worldwide 3.2 million deaths annually are attributable to not being physically active enough.<sup>8</sup> Insufficient physical activity increases the risk of cardiovascular disease, diabetes and certain cancers. Participation in sufficient regular physical activity is estimated to decrease the risk of heart disease by approximately 30%, reduce the risk of diabetes by 27% and the risk of breast and colon cancer by 21–25%. Physical activity also reduces the risk of stroke, hypertension and depression.<sup>8</sup>

In 2008, worldwide, over one-third (31%) of people aged 15 years and over were insufficiently active.<sup>8</sup> The WHO has reported that the regions with the highest rates of insufficient physical activity in 2008 were the Americas and the Eastern Mediterranean Regions.<sup>8, 9</sup>

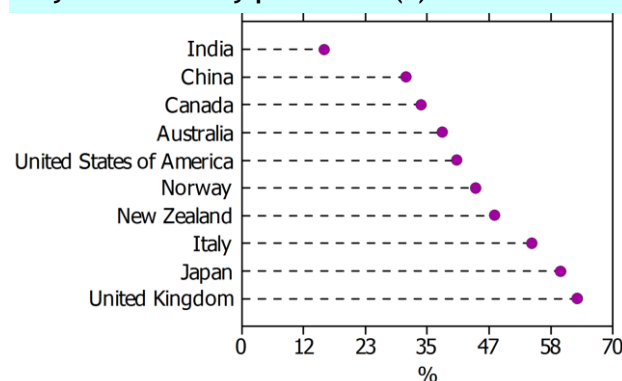
The WHO *Global Strategy on diet, physical activity and health*, which was adopted in 2004, aims to address the growing prevalence of people doing insufficient physical activity.<sup>16</sup>

### ...in Australia

Nearly two-fifths (38%) of Australians aged 15 years and over were insufficiently physically active in 2008. After adjusting for different age structures across various countries, this was higher than the global average of more than one-third (36%) of people who were insufficiently physically active in that year.<sup>17</sup>

According to the ABS National Health Survey, the proportion of Australian adults reporting insufficient physical activity, here defined as a sedentary level of activity, increased slightly in recent years. In 2007–08, over one-third (35%) of Australians aged 15 years and over had a sedentary level of exercise in the two weeks prior to interview, a 5% increase since 2004–05 (after accounting for changes in the age structure).

**Physical inactivity prevalence(a) – 2008**



(a) Age-standardised estimate of the proportion of the total population (15 years and over) who were insufficiently physically active.

Source: [WHO Global Health Observatory Data Repository](http://www.who.int), <[www.who.int](http://www.who.int)>

## Noncommunicable diseases

Unhealthy lifestyle choices lead an individual to be at increased risk of noncommunicable diseases. These chronic diseases are the leading causes of death in the world. In 2008, noncommunicable diseases were responsible for almost two thirds (63%) of the 57 million deaths that occurred worldwide.<sup>8</sup> The majority of these 36 million deaths were attributed mainly to cardiovascular diseases, diabetes, cancers and chronic respiratory diseases.<sup>8</sup> The picture in Australia is similar.<sup>18</sup>

The burden of noncommunicable diseases has risen, and is projected to increase as populations age because these diseases are more common at older ages.<sup>8</sup> In Australia, for example, the prevalence of diabetes is projected to rise, based on the increasing number of people who are obese.<sup>1</sup>

## Looking ahead

International comparisons of Australia's health show us in a favourable light compared with other OECD countries.<sup>2</sup> Despite this, projections of the future health of Australians suggest increasing levels of the noncommunicable and somewhat preventable diseases.<sup>1</sup> The Productivity Commission has estimated that, as a proportion of GDP, health spending will increase by 78% between 2009–10 and 2049–50, partly due to the expected rise in preventable conditions.<sup>19</sup> While Australia's smoking rates are comparatively low, our rates of drinking alcohol, being obese and sedentary are relatively high. Improving on all these risk factors is an important step towards the prevention of potential unnecessary disease and death.

To address this looming health burden, the Australian Government is working with other nations who have similar concerns to endorse international strategies for health promotion and protection. As a result, numerous strategies exist to target health risk factors for noncommunicable diseases. Campaigns such as *Quit Now*<sup>20</sup> and the *Swap It, Don't Stop It*<sup>21</sup> have national coverage through mass media and online education portals. Action is happening at the individual, community and national levels to promote healthy lifestyle habits.

## Mortality rates from noncommunicable diseases – Australia and the OECD(a)

Noncommunicable disease	Australia		OECD	
	Males	Females	Males	Females
Ischaemic heart disease(b)	99	52	117	60
Stroke	36	34	54	42
All cancers	184	115	208	124

(a) Data are the average of the 34 OECD countries. Mortality rates are age-standardised death rates per 100,000 population, attributed to the disease.

(b) Includes angina, heart attack and other heart conditions.

Source: [OECD Health at a Glance 2011: OECD Indicators](#), <[www.oecd.org](http://www.oecd.org)>

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# Children with a disability

There is a broad range of disabilities that affect some Australian children. Disabilities that impact upon a child's health, communication, movement or learning can have profound effects on the child's social engagement and education. For parents and families, raising a child with a disability can be demanding physically, emotionally and financially, and can affect many aspects of family functioning.<sup>1</sup>

Ensuring that parents have access to necessary support services is an ongoing issue for government and disability advocacy groups. A number of recent initiatives aim to advance the rights and social inclusion of people with a disability, as well as revolutionise the existing disability services system which has been described as inadequate, fragmented and difficult to navigate.<sup>2</sup>

These initiatives include the Council of Australian Governments' (COAG's) endorsement of the National Disability Strategy<sup>3</sup>, as well as programs such as the Commonwealth Government's 'Better Start for Children with a disability'.<sup>4</sup>

This article investigates the prevalence of disability among children aged 0–14 years, and the types of disability most common among children. It also examines the need for, and the accessibility of, assistance for children with a disability, both at home and at school.

## Data sources and definitions

This article is based on data from the ABS 2003 and 2009 Survey of Disability, Ageing and Carers (SDAC).

In this article, *children* refers to people aged 0–14 years.

**Disability** is defined as any limitation, restriction or impairment which restricts everyday activities and has lasted or is likely to last for at least six months.

Four levels of **core activity** (communication, mobility or self-care) limitation are determined based on whether a person needed help, had difficulty, or used aids or equipment with any of the core activities. A person's overall level of core activity limitation is determined by their highest level of limitation in these activities. The four levels of limitation are:

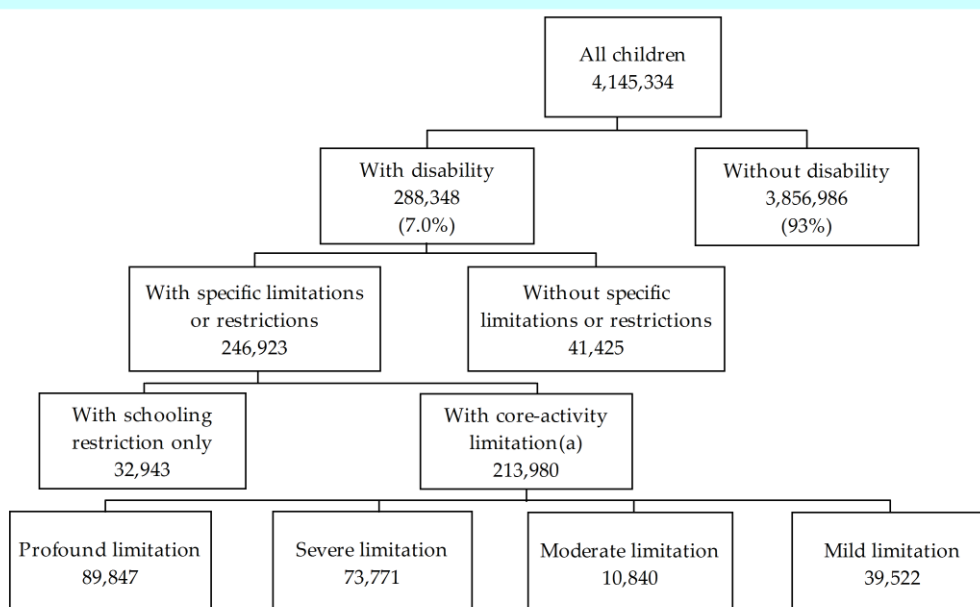
**Profound** The person is unable to do, or always needs help with, a core activity task.

**Severe** The person sometimes needs help with a core activity task; has difficulty understanding or being understood by family or friends; can communicate more easily using sign language or other non-spoken forms of communication.

**Moderate** The person needs no help, but has difficulty with a core activity task.

**Mild** The person needs no help and has no difficulty with any of the core activity tasks, but uses aids and equipment; cannot easily walk 200 metres; cannot walk up and down stairs without a handrail; cannot easily bend to pick up an object from the floor; cannot use or has difficulty using or needs help or assistance with public transport.

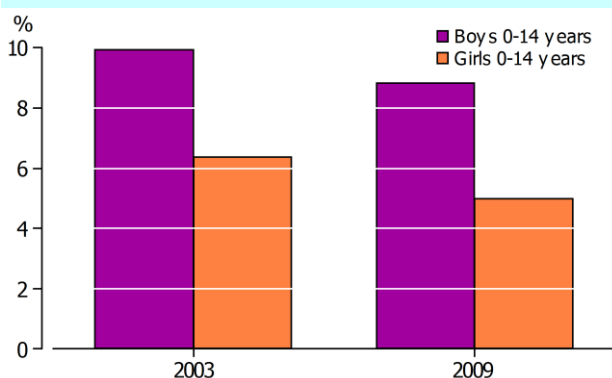
## Children aged 0-14 years with a disability – 2009



(a) Includes children with both core-activity limitations and schooling restrictions.

Source: ABS 2009 Survey of Disability, Ageing and Carers

### Disability rate of children by sex – 2003 and 2009



Source: ABS 2003 and 2009 Survey of Disability, Ageing and Carers

### Disability rates over time

In 2009, four million people in Australia were reported as having a disability. Of all Australians with a disability in 2009, 290,000 (7.2%) were children aged 0–14 years.

**In 2009, 7.2% of all Australians with disability were children aged 0–14 years.**

Between 2003 and 2009 the proportion of all Australians with a disability decreased from 20% to 18%, while the proportion of children aged 0–14 years with a disability decreased from 8.2% to 7.0%.

### Children with a disability

The severity of a child's disability may be determined according to their reported limitations, ranging from those without a specific limitation or restriction, those with only a schooling limitation or restriction, to those with core-activity limitations ranging from profound/severe to moderate/mild.

Of all children with a disability, over half (57%) had a profound or severe disability and one fifth (18%) had a moderate or mild disability. A further 11% of children with a disability were not limited in core activities, but restricted in schooling, with the remaining 14% neither limited in core activities or schooling.

### ...age and sex

Disability rates increased with age, from 3.4% of children aged 0–4 years to 8.8% of those aged 5–14 years.

The rate and severity of disability was higher among boys than girls. Boys aged 0–14 years were more likely to have a disability (8.8%) than girls (5.0%). Boys aged 5–14 years were nearly twice as likely (11.4%) to have a disability than girls aged 5–14 years (6.1%).

**In 2009, boys aged 0–14 years were more likely to have disability (8.8%) than girls (5.0%).**

Boys were also more limited in their core activities than girls, with 60% of boys with a disability reporting severe or profound limitations, compared with half (50%) of girls with a disability. Young boys (aged 0–4 years) with a disability were especially more likely to have severe or profound core activity limitations (74%) compared with young girls (55%).

### Disability groups

The types of disability that affect children vary somewhat with age. Of young children aged 0–4 years who had a disability, almost two-thirds (63%) had a sensory (e.g. sight and

### Children aged 0–14 years with a disability by core limitation by age and sex – 2009

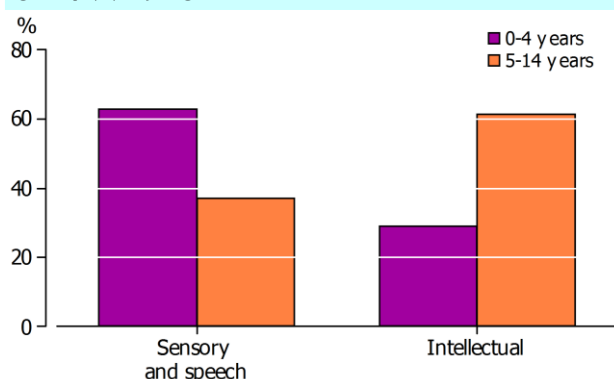
	Boys			Girls			Total		
	0–4 yrs	5–14 yrs	Total	0–4 yrs	5–14 yrs	Total	0–4 yrs	5–14 yrs	Total
	%	%	%	%	%	%	%	%	%
Core limitation									
Profound/severe	74.4	57.8	60.3	55.1	48.9	50.1	66.6	54.8	56.7
Moderate/mild	**4.4	17.3	15.3	**4.1	25.5	21.4	*4.3	20.1	17.5
Has disability, not limited in core activities, restricted in schooling	—	14.0	11.9	—	13.1	10.6	—	13.7	11.4
Has disability, not limited in core activities or restricted in schooling	21.2	10.9	12.5	40.7	12.5	17.9	29.1	11.5	14.4
<b>Total children with a disability (%)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Total children with a disability ('000)</b>	<b>28.1</b>	<b>159.5</b>	<b>187.5</b>	<b>19.2</b>	<b>81.6</b>	<b>100.8</b>	<b>47.3</b>	<b>241.0</b>	<b>288.3</b>
	%	%	%	%	%	%	%	%	%
<b>Disability rate</b>	<b>3.9</b>	<b>11.4</b>	<b>8.8</b>	<b>2.8</b>	<b>6.1</b>	<b>5.0</b>	<b>3.4</b>	<b>8.8</b>	<b>7.0</b>

\* Estimate has a relative standard error of 25% to 50% and should be used with caution.

\*\* Estimate has a relative standard error greater than 50% and should be used with caution.

Source: ABS 2009 Survey of Disability, Ageing and Carers

### Children with a disability, selected disability group(a) by age – 2009



(a) Children can be classified into more than one disability group.

Source: ABS 2009 Survey of Disability, Ageing and Carers

hearing) or speech disability. In contrast, just over one third (37%) of children aged 5–14 years had sensory or speech impairments.

Older children were more likely than younger children to have an intellectual disability. In 2009, almost two thirds (61%) of children aged 5–14 years with a disability had an intellectual disability, more than twice the proportion of children aged 0–4 years with an intellectual disability (29%). This may be partly due to the lack of formal intellectual testing in very young children, who may be unable to sit and concentrate for assessment.

Physical disabilities were also commonly reported by both young (35%) and older children (27%) with a disability.

### Long-term conditions of children with a disability

Children may experience a variety of long-term conditions, though only some of these conditions will have a disabling impact. For example, some children with asthma may have a disability as a result, while other children will not. Children may also have multiple conditions at any one time.

The types of conditions most commonly reported amongst children were mental or behavioural disorders, which affected over three in five (63%) children with a disability in 2009 up from 53% in 2003. Asthma was also common, with 18% of children with a disability having asthma in 2009, although this was down from 24% in 2003.

### ...mental or behavioural disorders

The type of long-term condition affecting children with a disability varied according to age and sex. Mental and behavioural disorders were more common amongst boys (69%) than girls (52%) aged 0–14 years with a disability in 2009.

### Disability groups

Disabilities can be broadly grouped depending on whether they relate to functioning of the mind or the senses, or to anatomy or physiology. A person could be classified to one or more of the following six disability groups.

- Sensory or speech
- Intellectual
- Physical
- Psychological, including mental illness
- Head injury, stroke or brain damage
- Other

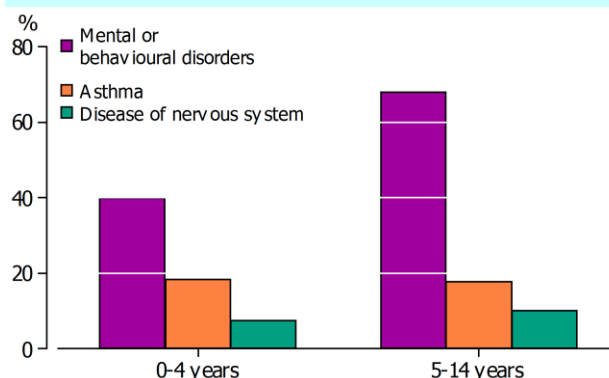
### Long-term condition

A disease or disorder which has lasted or is likely to last for at least six months; or a disease, disorder or event (e.g. accident) which produces an impairment or restriction which has lasted or is likely to last for at least six months.

Older children with a disability were more likely than younger children to be affected by mental or behavioural disorders. Almost three quarters (74%) of boys and over half (56%) of girls aged 5–14 years with a disability reportedly had a mental or behavioural disorder. In contrast, less than half (42%) of boys and just over one third (36%) of girls aged 0–4 years with a disability had a mental or behavioural disorder, though this was still the most commonly reported condition among this age group.

The diagnosis of mental disorders in younger children is very complex. Often children do not receive formal diagnosis until they reach school age. This is in recognition of individual differences and transient circumstances during a child's life, which may affect their behaviour or development.<sup>5</sup>

### Proportion of children with a disability(a) by selected long-term conditions and age – 2009



(a) Conditions which have lasted, or are expected to last, six months or more.

Source: ABS 2009 Survey of Disability, Ageing and Carers



## ...autism

In 2009, autism and related disorders were the most commonly reported mental or behavioural disorder among children with a disability. One in eight (13%) children aged 0–14 years with a disability were reported as having autism or related disorders, a twofold increase since 2003 (6.2%). Boys with a disability were more likely than girls to experience autism and related disorders. In 2009, 17% of boys aged 0–14 years with a disability had autism and related disorders, compared with 6.9% of girls.

**In 2009, 17% of boys aged 0–14 years with a disability had autism and related disorders, compared with 6.9% of girls.**

## ...asthma

The proportion of children with a disability who had asthma was the same in both the younger and older age groups (18%). This was consistent with the similar (but higher) rates for these age groups in 2003 (23% and 24% respectively). The reduction in the number of children with a disability having asthma between 2003 and 2009 may help to explain the decrease in the overall rate of disability among children aged 0–14 years between 2003 and 2009. Over this time, improved evidence-based care has increased the understanding of this condition and its treatment in children.<sup>6</sup>

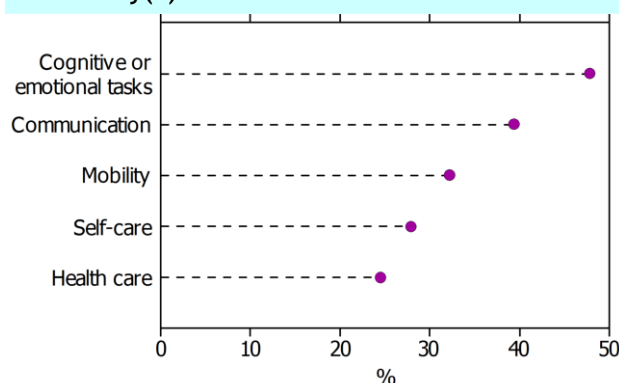
## Need for assistance

In 2009, around two thirds (67%) of children with a disability required assistance with day to day activities. Around half (48%) of all children with a disability required assistance with cognitive or emotional activities such as decision making or thinking through problems, coping with feelings or emotions, and making friendships, maintaining relationships or interacting with others. Other activities that children with a disability might have required assistance with included communication (39%), mobility (32%), self-care (28%) and health care (25%).

## ...assistance received

In 2009, the vast majority (95%) of the 192,500 children aged 0–14 with a disability with a need for assistance were receiving some form of assistance. Nine in ten (91%) were receiving informal assistance, such as from family or friends, while nearly seven in ten (67%) were receiving formal paid assistance. Many children (63%) with a disability who required assistance received a combination of formal and informal care.

## Proportion of children aged 0–14 years with a disability who had a need for assistance by type of activity(a) – 2009



(a) Proportions may add up to more than 100% as respondents could report needing assistance for more than one activity.

Source: ABS 2009 Survey of Disability, Ageing and Carers

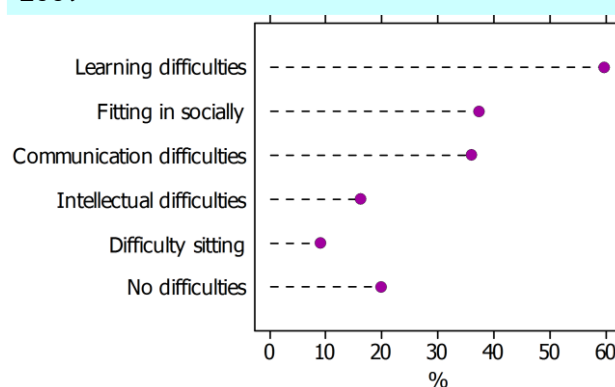
However, around half (52%) of children with a disability who had a need for assistance reported having their needs only partly met, while a small group (2.0%) reported not having their needs met at all.

## Schooling

Regardless of where their education is received, children with a disability have the right to the same educational opportunities as all Australian children.<sup>7</sup>

Nearly all (98%) school aged (5–14 years) children with a disability in 2009 attended school. Two in five (40%) had a severe schooling restriction and another two in five (36%) had a moderate schooling restriction. Over one in five (22%) school aged children with a disability had no schooling restrictions.

## Children with a disability attending school(a) by selected difficulties experienced at school(b) – 2009

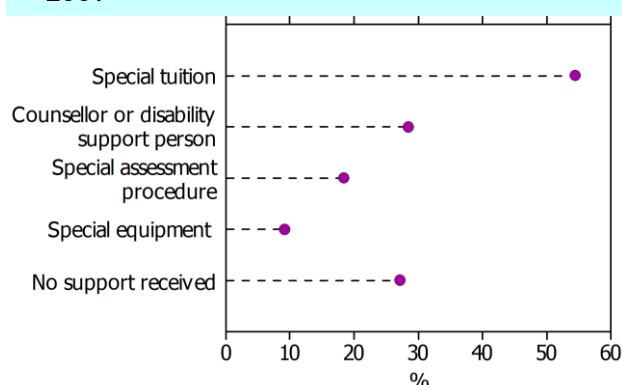


(a) With a schooling restriction.

(b) Can be in more than one category.

Source: ABS 2009 Survey of Disability, Ageing and Carers

### Children with a disability attending school(a) by selected type of support received at school(b) – 2009



(a) With a schooling restriction.

(b) Can be in more than one category.

Source: ABS 2009 Survey of Disability, Ageing and Carers

### ...type of difficulty experienced at school

Of school aged children with a disability who reported having a schooling restriction, three in five (60%) reported having learning difficulties, while over a third were reported as having difficulties fitting in socially (37%) or communication difficulties (36%). One in five (20%) school aged children with a disability who had a schooling restriction had no difficulties.

### ...type of school support

There are a range of different support and assistance options available for school children with a disability. In 2009, over half (54%) of school children (5–14 years) with a disability who had a schooling restriction accessed special tuition, with over one quarter (28%) accessing the assistance of a counsellor or disability support person.

### Impact of caring on parents

As much of the assistance or care provided to children with a disability comes through informal channels, the costs or impacts of this care are important to consider. The person who provides the most ongoing informal assistance to a person with a disability, in terms of help or supervision with the core activities of communication, mobility and self-care, is referred to as their 'primary carer'. This role is often taken on by parents if their child needs assistance.

In 2009, there were 96,000 primary carers whose main recipient of care was their own child aged 0–14 years. Over half (57%) of these primary carers reported that they needed an improvement or more support to assist them in their caring role. Almost two thirds (64%)

### Disability support payments for children

There are a number of support payments available to parents and carers of children with a disability through the Department of Human Services (Centrelink).

The **Carer Payment** is a means tested financial support payment for those who are unable to work in substantial paid employment because they are providing full-time care to a child with a severe disability or medical condition.<sup>8</sup>

The **Carer Allowance** is a supplementary payment for parents or carers who provide additional daily care to a child with disability or medical condition.<sup>9</sup>

reported that the main financial impact of their caring role was a decreased income or an increase in their expenses. However financial costs were not the only impact experienced by parents caring for their children with a disability.

The physical, emotional and time costs of caring can also impact upon a carer's relationships and physical or emotional wellbeing. Half (50%) of parents who were primary carers for their child with a disability reported that their physical or emotional wellbeing had changed due to the caring role. Over one third (38%) of those primary carers with a spouse or partner stated that their relationship had become strained or that they lacked time together due to the caring role. However, a similar proportion (39%) reported that their caring role had brought them closer together.

### Schooling restrictions

A schooling restriction is determined for children aged 5–14 years who have one or more disabilities if, because of their disability they: are unable to attend school; attend a special school; attend special classes at an ordinary school; need at least one day a week off school on average; have difficulty at school.

There are four levels of schooling restrictions, with a child's overall level of schooling restriction determined by their highest level of limitation in these activities:

- *Profound* – the child's condition prevents them from attending school;
- *Severe* – the child attends a special school or special classes; receives personal assistance; has a signing interpreter; receives special tuition; or receives assistance from a counsellor/disability support person;
- *Moderate* – the child often needs time off from school; has difficulty at school because of their condition(s); or has special assessment procedures;
- *Mild* – the child needs a special computer or other special equipment; special transport arrangements; special access arrangements; or other special arrangements or support services.

## Looking ahead

Numerous measures have recently been introduced to address the needs of children with disabilities, their families and carers, as well as those in the wider community with a disability.

Significant evidence into the effectiveness of early childhood intervention for children with a developmental disability has prompted the introduction of the Commonwealth Government's 'Better Start for Children with a disability' program, which provides funding to assist families with the cost of early intervention therapies and treatments. A recent government commissioned report<sup>10</sup> has suggested that this program be expanded to cover a broader range of developmental disorders, increasing the number of children and families able to access evidence-based early childhood intervention supports.

In addition to this report, a recent review of funding for schooling includes recommendations which would increase funding to schools for the additional costs of supporting students with a disability.<sup>11</sup>

Finally, the introduction of the National Disability Insurance Scheme<sup>12</sup> aims to ensure that all children with significant and permanent disability are able to access the services and assistance they need.

## Endnotes

- 1 Reichman N.E., Corman H., Noonan K., 2008, *Impact of child disability on the family*, Maternal and Child Health Journal, 12(6):679-683.
- 2 Productivity Commission, 2011, *Disability care and support: Productivity Commission Inquiry Report Overview and Recommendations*, No. 54, 31 July 2011, viewed 24 January 2012, <[www.pc.gov.au](http://www.pc.gov.au)>.
- 3 Council of Australian Governments, *2010-2020 National Disability Strategy*, 2011, viewed 18 March 2012, <[www.coag.gov.au](http://www.coag.gov.au)>.
- 4 Commonwealth Government, *Better Start for Children with a disability initiative*, viewed 18 May 2012, <[www.fahcsia.gov.au](http://www.fahcsia.gov.au)>.
- 5 Egger H.L. and Angold A., 2006, *Common emotional and behavioural disorders in preschool children: presentation, nosology, and epidemiology*, Journal of child psychology and psychiatry 47:3/4, pp. 313-337.
- 6 Van Asperen P.P., Mellis C.M., Sly P.D. and Robertson C.F., 2011, *Evidence-based asthma management in children – what's new?*, Medical Journal of Australia 194(8), pp. 383-384, <[www.mja.com.au](http://www.mja.com.au)>.
- 7 United Nations Children's Fund, 2007, *Promoting the rights of children with disabilities*, viewed 29 May 2012, <[www.un.org](http://www.un.org)>.
- 8 Department of Human Services, *Carer Payment*, viewed 31 January 2012, <<http://www.humanservices.gov.au>>.
- 9 Department of Human Services, *Carer Allowance*, viewed 31 January 2012, <<http://www.humanservices.gov.au>>.
- 10 KPMG Report to the Department of Families, Housing, Community Services and Indigenous Affairs, 30 September 2011, *Reviewing the evidence on the effectiveness of early childhood intervention*, viewed 3 January 2012, <[www.fahcsia.gov.au](http://www.fahcsia.gov.au)>.
- 11 Australian Government, December 2011, *Review of funding for schooling – final report*, viewed 8 March 2012, <[www.deewr.gov.au](http://www.deewr.gov.au)>.
- 12 Commonwealth Government, *National Disability Insurance Scheme*, viewed 18 May 2012, <[www.ndis.gov.au](http://www.ndis.gov.au)>.



# Child's play

## Children's participation in organised sport or dancing

Participation in physical activity, through various activities such as organised sport or dancing, is important for the development of motor coordination skills, social skills and physical fitness.<sup>1</sup>

While most children may have access to a wide range of sporting activities, certain circumstances or characteristics of a child may be associated with lower or higher participation in organised sport or dancing.

This article looks at participation in organised sport or dancing across Australia for children aged between 5–14 years, by selected characteristics relative to an average or typical situation.

### Who participates in organised sport or dancing?

In the 12 months leading to April 2009, almost two-thirds (63%) of children aged 5–14 years had participated in organised sport or dancing at least once.<sup>2</sup> A child's likelihood of having participated in organised sport or dancing may be related to many characteristics such as their sex, age, country of birth, parents' country of birth, or socioeconomic status.

### ...differences by age

While the likelihood of participating in organised sport or dancing did not differ significantly between young children aged 5–7 years and those aged 8–11 years, it did differ for older children.

Compared with children aged 8–11 years, children aged 12–14 years were 7% less likely to participate in organised sport or dancing. Lower participation in older children is likely due to a number of reasons. For example, early adolescence can be a time when a child's interests and responsibilities expand. School and study commitments and participating in their increasingly busy social lives are the types of activities that may compete for their time.<sup>3</sup>

### ...differences by sex

In 2009, participation in organised sport or dancing was different for boys and girls. Girls were 5% less likely than boys to have participated in organised sport or dancing. The lower participation among girls was despite initiatives to increase participation in these areas and might be due to a lack of confidence in girls approaching activities, cultural and social pressures as well as social stereotyping.<sup>4</sup>

### Data source and definitions

The main data source for this article is the ABS Children's Participation in Cultural and Leisure Activities Survey conducted throughout Australia in April 2009 as a supplement to the ABS Monthly Labour Force Survey (LFS). This article is based on a multiple logistic regression analysis around which a more in depth paper will soon be released in ABS [Perspectives on Sport](#) (cat. no. 4156.0.55.001).

**Children** refer to those aged between 5–14 years. The survey was answered by a parent or guardian on behalf of the child.

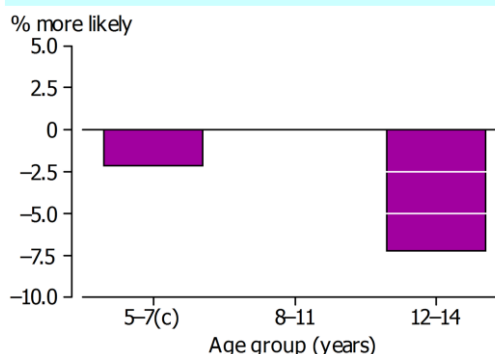
**Participation** refers to the undertaking of an activity outside school hours in the 12 month period to April 2009. **Relative participation** refers to the participation of one group compared to the participation rate of another group.

**Organised sport** refers to sports which are played or trained for outside of school hours organised by a school, club or association. Any organised or structured training or practice sessions are included as long as they have been set by an instructor or coach. Whether the child participated in an organised sport was left to the judgment of the respondent.

In this article, **fortnight** refers to the two school weeks prior to interview.

Interpretation of the term **dancing** was left to the respondent. If the respondent queried the definition they were advised it included formal dancing lessons (e.g. ballet, callisthenics), musicals and eisteddfods where the child's predominant activity was dancing. The dancing must have occurred outside of school hours and may have included lessons, practising and performances.

### Relative participation(a) in organised sport or dancing by age group – 2009(b)



(a) Relative to participation of 8-11 year olds.

(b) In the 12 months to April 2009.

(c) Not statistically significantly different from the 8-11 year old group.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey

## ...differences by socioeconomic status

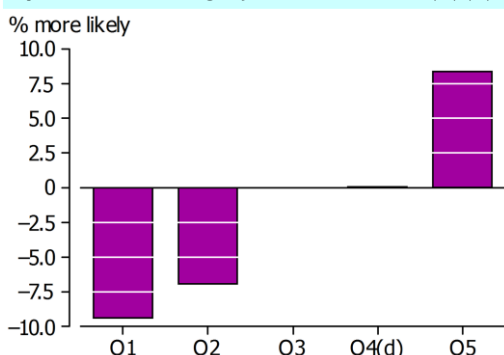
Although not all-encompassing measures, the Socio-Economic Indexes for Areas (SEIFA) and a child's parents' employment status are good proxy indicators of a child's socioeconomic status. Indeed, there are strong relationships between participation in organised sport or dancing and both these factors.

Using the index of relative advantage and disadvantage, in 2009, children living in areas with the most relative advantage (quintile 5), were 8% more likely to participate in organised sport or dancing when compared with children in quintile 3. Conversely, children living in areas with most relative disadvantage (quintile 1), were 9% less likely to participate when compared with children in quintile 3.

**Compared with children from families with one parent employed, children from unemployed single parent families were 20% less likely to participate in organised sport or dancing.**

Further, the number of employed parents in the family is related to whether a child is likely to participate in organised sport or dancing. Compared with families with one parent employed, participation for children in organised sport or dancing was 18% more likely when both parents were employed, 13% less likely when neither parent was employed and 20% less likely for children from unemployed single parent families.

### Relative participation(a) in organised sport or dancing by SEIFA – 2009(b)(c)



- (a) Relative to children in quintile 3.  
 (b) In the 12 months to April 2009.  
 (c) SEIFA Index of Relative Advantage and Disadvantage.  
 (d) Not statistically significantly different from quintile 3.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey

## Socio-Economic Indexes for Areas (SEIFA)

The ABS has developed four indexes to rank the level of social and economic wellbeing of a region. This article uses the Socio-Economic Indexes for Areas (SEIFA) Index of Relative Advantage and Disadvantage based upon the 2006 Census of Population and Housing.

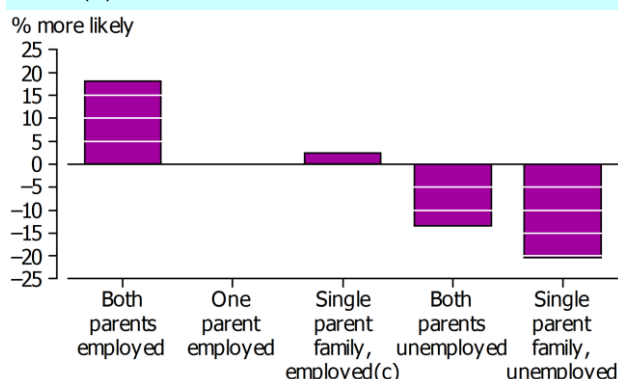
The SEIFA Index of Relative Advantage and Disadvantage combines a number of variables (such as income, education and unemployment) of people, families and dwellings within an area, and ranks these areas on a scale of relative disadvantage.

In this article the scale is divided into *quintiles* - with the lowest or first quintile representing the 20% of households in the areas of greatest relative disadvantage and the highest or fifth quintile representing the 20% of households in the areas of the most relative advantage.

For more information on SEIFA see ABS [Information Paper: An Introduction to Socio-Economic Indexes for Areas \(SEIFA\), 2006](#) (cat. no. 2039.0).

These findings suggest that access to financial resources can affect a child's ability to participate in organised sport or dancing. Parents who are employed may be more able to meet the costs of playing sport such as travel to and from the sport facility, membership fees and uniforms.

### Relative participation(a) in organised sport or dancing by parent(s') employment status – 2009(b)



- (a) Relative to children living in a couple family with one employed parent.  
 (b) In the 12 months to April 2009.  
 (c) Not statistically significantly different from a couple family with one employed parent.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey



### Relative participation in organised sport or dancing by selected variables – 2009(a)

Variable	Compared with	Participation likelihood
Female	Male	5% less likely ↓
Born in a non-main English speaking country	Born in Australia	9% less likely ↓
Did not use internet at home	Did use internet at home	19% less likely ↓
Both parents born in a non-main English speaking country	At least one parent born in a main English-speaking country	24% less likely ↓

(a) In the 12 months to April 2009.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey

### Does a child's family background matter?

There is an association between a child's place of birth, their parents' place of birth, and organised sport or dancing participation. Compared with children born in Australia, in 2009, children who had been born overseas in a primarily non-main English speaking country were 9% less likely to participate in organised sport or dancing.

However, when the comparison is made looking at the birthplace of their parents, the difference is much greater. Children were 24% less likely to participate in organised sport or dancing if both of their parents were born in a non-main English speaking country, compared with children with at least one parent born in a main English speaking country.

These differences could be because of perceived discrimination, a lack of knowledge about sporting associations and clubs, or a lack of parental support.<sup>5</sup>

The lack of parental support may be due to a difference of priorities. Compared with parents from a country that mainly speaks English, parents from a non-main English speaking background may put more importance on

### Main-English speaking countries

For people born overseas, *main English-speaking countries* are the United Kingdom, the Republic of Ireland, New Zealand, Canada, South Africa and the United States of America. Being from a non-main English-speaking country does not imply a lack of proficiency in English.

pursuits such as focusing on studies and caring for extended family members, which leaves little time for other activities such as organised sport and dancing.<sup>6</sup>

### A matter of time?

Children who have access to a wide range of sporting activities may have access to a wide range of leisure time activities that might compete for their time.

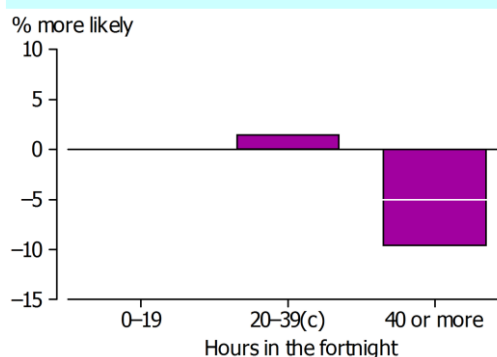
### ...too much technology?

Spending a lot of time watching TV, DVDs or videos is associated with lower participation in organised sport or dancing. In 2009, children who spent 40 or more hours in the fortnight watching TV, DVDs or videos were 10% less likely to participate in organised sport or dancing when compared with children who spent less than 20 hours watching.

However, children who spent between 20–39 hours watching were just as likely to participate in organised sport or dancing as those who spent less time watching.

Further, not using the internet at home had a negative impact on participation. Children who did not use the internet at home in the previous 12 months prior to interview were 19% less likely to participate in organised sport or dancing when compared with children who used the internet at home. This could be because the absence of the internet at home can be indicative of financial constraints, which also impact on participation. For more information see '[Children of the digital revolution](#)' in *Australian Social Trends*, June 2011 (cat. no. 4102.0).

### Relative participation(a) in organised sport or dancing by hours watching TV, DVDs and videos – 2009(b)



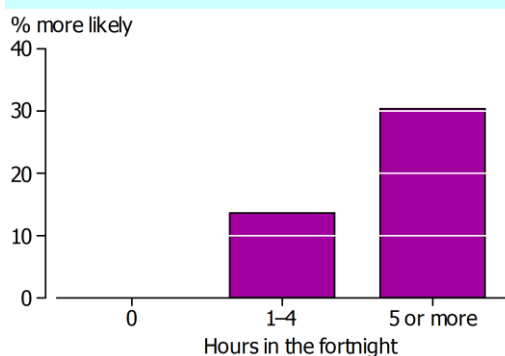
(a) Relative to watching 0-19 hours of TV in the fortnight.

(b) In the 12 months to April 2009.

(c) Not statistically significantly different from 0-19 hours in the fortnight.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey

### Relative participation(a) in organised sport or dancing by hours doing drama – 2009(b)

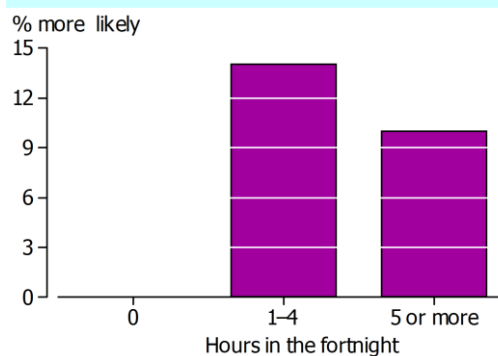


(a) Relative to children doing no drama.

(b) In the 12 months to April 2009.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey

### Relative participation(a) in organised sport or dancing by hours doing homework – 2009(b)



(a) Relative to children doing no homework.

(b) In the 12 months to April 2009.

Source: ABS 2009 Children's Participation in Cultural and Leisure Activities Survey

## ...too much culture?

Culture and the arts are an important part of the Australian lifestyle. Cultural activities include singing, drama, playing a musical instrument, participating in arts and crafts, and attending museums and performing arts events.

Generally, in 2009, children who participated in cultural activities were more likely to have participated in organised sport or dancing when compared with children who had not participated in these activities.

Participating in music had a positive relationship with organised sport or dancing participation. Children who were singing for 1–4 hours or playing a musical instrument for 1–4 hours in the fortnight during a school term were also more likely to be participating in organised sport or dance (12% and 7% more likely, respectively) than children who did not sing or play a musical instrument.

Children who participated in drama for between 1–4 hours in the fortnight were 14% more likely to participate in organised sport or dancing when compared with children who did not participate in drama. Further, children who participated in drama for 5 or more hours were even more likely to have participated in organised sport or dance (30% more likely than those who did not participate in any drama).

Attending a performing arts event had a similar impact to participating in drama. Children who had attended a performing arts event 1–4 times in the last 12 months were also 14% more likely to have participated in organised sport or dancing compared with children who did not attend a performing arts event. Further, for children who had attended 5 or more performing arts events, the likelihood of participating in organised sport or dancing increased to 23%.

However, participating in a cultural activity was not always related to a greater likelihood in participating in organised sport or dancing. Bucking the trend, children who participated in arts and crafts for 5 or more hours in the fortnight were 11% less likely to participate in organised sport or dancing when compared with children that did not participate in arts and crafts, while there was also no positive influence for those who participated in 1–4 hours of arts and crafts.

## ...too much homework?

Contrary to popular belief, children who do their homework also participate in organised sport or dancing. Indeed, there is a positive association in relation to doing homework and participation in organised sport or dancing.

Compared with children who did not do any homework, children who did 1–4 hours or 5 or more hours of homework in the fortnight were more likely to participate in organised sport or dancing (14% and 10% respectively). It has been suggested that participation in organised sport or dancing can foster character traits that prove valuable in academic work.<sup>7</sup>

## Looking ahead

Participating in organised sport or dancing remains popular amongst Australian children and are great ways of improving a child's social skills and physical fitness.

Government and health authorities continue to express concern about the increasing levels of obesity and physical inactivity in children and the consequent long-term health problems. These concerns over children's activity patterns have led to the National Physical Activity Guidelines for Children and Youth.<sup>8</sup> These include:

1. *Children should participate in at least 60 minutes of moderate to vigorous intensity physical activity every day.*

2. *Children should not spend more than 2 hours per day using electronic media for entertainment (e.g. computer games, Internet, TV), particularly during daylight hours.*

Additionally, initiatives such as the Active After-school Communities Program and the Junior Sports Framework address concerns about physical fitness.<sup>9</sup>

Recently, the Prime Minister's challenge and the Prime Minister's Paralympic Challenge were introduced by the Australian Government, in partnership with the Australian Olympic Committee and the Australian Paralympic Committee, to encourage "all Australian primary school-aged children to try a variety of Olympic and Paralympic sports whilst developing valuable life skills such as inclusion, fair play and sportsmanship".<sup>10</sup>

In the broader context of sports participation for all Australians, the National Sport and Active Recreation Policy Framework promotes and facilitates sports participation for both children and adults.<sup>11</sup> A key objective of this framework is on increasing sports participation of particular sub-groups that are under-represented in sport and active recreation.

The development of even more robust policies based on past experience and research aims to ensure that future generations of Australians are healthier than previous generations.

## Endnotes

- 1 Parenting and Child Health, 2011, [Sport for Children](#), viewed 21 March 2012, <[www.cyh.com](#)>.
- 2 Australian Bureau of Statistics, 2009, [Children's Participation in Cultural and Leisure Activities, Australia, 2009](#), cat. no. 4901.0, <[www.abs.gov.au](#)>.
- 3 Kids Health, 2012, [Fitness and your 13 to 18 year old](#), viewed 18 April 2012, <[www.kidshealth.org](#)>.
- 4 Australian Sports Commission, 1999, [National policy on women and girls in sport, recreation and physical activity, 1999-2002](#), viewed 21 March 2012, <[www.ausport.gov.au](#)>.
- 5 Keogh, V., 2002, [Multicultural Sport: Sustaining a level playing field](#), viewed 20 March 2012, <[www.cmy.net.au](#)>.
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- 7 Broh, B. A., 2002, 'Linking extracurricular programming to academic achievement: Who benefits and why?' *Sociology of Education*, 75: 69-91.
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- 9 Australian Sports Commission, 2012, [Schools and Juniors](#), viewed 21 March 2012, <[www.ausport.gov.au](#)>.
- 10 Australian Sports Commission, 2012, [The Prime Minister's Olympic Challenge and the Prime Minister's Paralympic Challenge](#), viewed 15 May 2012, <[www.ausport.gov.au](#)>.
- 11 Australian Sports Commission, 2011, [National Sport and Active Recreation Policy Framework](#), viewed 15 May 2012, <[www.ausport.gov.au](#)>.





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