# DIABETES

## *What is this?*


***Diabetes is defined by the body's inability to control blood glucose.[1] Type 1 diabetes is caused by insulin deficiency as a result of insulin producing cells being destroyed. Type 1 diabetes is often diagnosed in children; however, adults can also develop it. Type 2 diabetes, which is more common than type 1, occurs because of a high level of blood glucose – either the body doesn't make enough insulin or the body's cells do not respond properly to insulin.***

Type 2 diabetes has been thought of as an adult disease, but is increasingly being diagnosed in children. Low activity level, poor diet, and excess body weight (especially around the waist) significantly increase the risk of developing type 2 diabetes. However, a family history of type 2 diabetes is a major risk factor for the disease. Pregnant women can also develop diabetes, known as gestational diabetes.

## *Why is it important?*

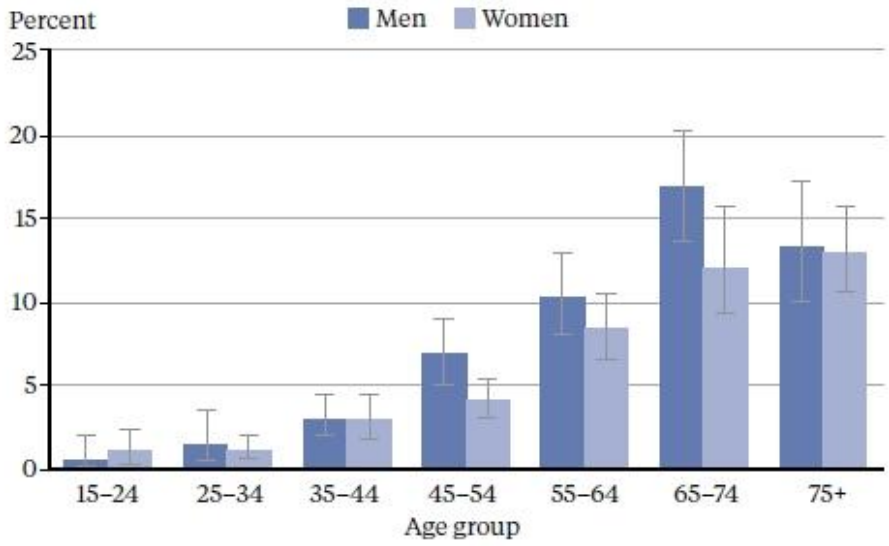
Diabetes can have potentially serious complications including kidney failure, eye disease, foot ulceration and a higher risk of heart disease if not well managed. Diabetes is often associated with obesity, high blood pressure, gout, and high cholesterol. In New Zealand, the prevalence of diabetes has gradually increased in the last15 years to almost 200,000 people.[2] A 2013 study reveals that the actual burden of disease has been underestimated as national estimates have not included undiagnosed diabetes cases. The high prevalence of diabetes will have considerable implications on the health system.[3]

## *Data*

The New Zealand Health Survey[4] reported that around 5% of adults nationally had doctor diagnosed diabetes, 90% of them type 2. The prevalence of diabetes increases with age as shown in Figure 1.

[1] Information in this section (unless otherwise stated) is from the New Zealand Ministry of Health website on diabetes at http://www.health.govt.nz/our-work/diseases-and-conditions/diabetes Accessed 17.09.12.
[2] Ministry of Health. (2012). The Health of New Zealand Adults 2011/12: Key findings of the New Zealand Health Survey. http://www.health.govt.nz/publication/health-new-zealand-adults-2011-12 Accessed 20.12.12.
[3] Coppell, K.J., Mann, J.I.,Williams, S,M., Jo. E., Drury, P.L et al. (2013). Prevalence of diagnosed and undiagnosed diabetes and prediabetes in New Zealand: findings for the 2008/09 Adult Nutrition Survey. *The New Zealand Medical Journal, Vol 126 No 1370*
[4] Ministry of Health. (2012). The Health of New Zealand Adults 2011/12: Key findings of the New Zealand Health Survey. http://www.health.govt.nz/publication/health-new-zealand-adults-2011-12 Accessed 20.12.12.

**Figure 1 Prevalence of diabetes by age group and gender**




Source: 2011/12 New Zealand Health Survey (15 years and over)

Results according to ethnicity from this survey showed that Pacific people had the highest prevalence (10.0%) of the Pacific population's diagnosed diabetes. Māori (7.3%) and Asian (6.2%) also have higher prevalence than the total population. Prevalence among people with European/Other ethnicity is lower at 4.7%. Diabetes is also associated with socio-economic deprivation. People from the most deprived areas were more than twice as likely to be diagnosed with diabetes as those from the least deprived.

As at June 2012, the Ministry of Health reported the number of diagnosed cases of diabetes in New Zealand as being 208,076 (predominantly type 2), with the number of newly diagnosed cases of diabetes growing by nearly 10% on the previous year.[5] Within the Canterbury District Health Board (CDHB), there were 19,439 people living with diabetes, this equates to 3.9% of all people within the CDHB region. This is a relatively low rate compared to national rates.

Of the total number of people living with diabetes within the CDHB, 1,793 were either Māori or Pacific. Publicly funded hospitalisation rates for type 1 Diabetes (as shown in Table 1) are slightly higher in the Māori and Pacific populations when compared with European/other ethnicities. The overall hospitalisation rates within the CDHB and New Zealand are similar, however slightly higher in the CDHB female population when compared with the New Zealand female population.

**Table 1 Publicly funded Type 1 Diabetes hospitalisation, all ages, age-standardised rates (per 100,000), 2009-10**

| | | Māori | Pacific | European/ Other | Total |
|---|---|---|---|---|---|
| Canterbury District Health Board | Female | 92.0 | 110.4 | 76.7 | 77.9 |
| | Male | 63.5 | 0.0 | 56.1 | 56.0 |
| | *Total* | *78.0* | *52.1* | *65.9* | *66.4* |
| New Zealand | Female | 76.3 | 48.2 | 61.8 | 63.0 |
| | Male | 60.0 | 37.7 | 69.0 | 63.0 |
| | *Total* | *67.7* | *42.7* | *65.2* | *62.1* |

[5] Diabetes New Zealand. DHB Figures. http://www.diabetes.org.nz/resources/DHB_figures Accessed 17.09.12.

Publicly funded hospitalisation rates for type 2 Diabetes (as shown in Table 2) are much higher for Māori and Pacific ethnicities than European/Other. The overall hospitalisation rates within the CDHB are lower than the overall New Zealand rate.

**Table 2 Publicly funded Type 2 Diabetes hospitalisation, 35+ years, age-standardised rates (per 100,000), 2009-10**

| | | Māori | Pacific | European/ Other | Total |
|---|---|---|---|---|---|
| Canterbury District Health Board | Female | 1,83.4 | 1,441.9 | 191.1 | 260.1 |
| | Male | 517.7 | 1474.4 | 286.1 | 310.4 |
| | *Total* | *858.3* | *1,415.2* | *235.0* | *283.3* |
| New Zealand | Female | 933.7 | 1,626.7 | 207.2 | 313.7 |
| | Male | 816.1 | 1,463.6 | 296.3 | 390.2 |
| | *Total* | *1,019.9* | *1,542.6* | *249.2* | *349.6* |

Hauora Waitaha, a health profile of Māori in Canterbury[6] reported that mortality from diabetes was over five times higher for Māori, and more so for Māori females, for whom the rate was almost seven times higher than non-Māori. Hospital admissions for long-term complications of diabetes were also higher for Māori than non-Māori, with admissions for renal failure five times higher and more than twice as high for lower limb amputations compared to those with European/Other ethnicity.

## *Impact on inequalities*

As the data above demonstrate, there are significant disparities in prevalence and outcomes of diabetes in New Zealand. Two out of three Māori and Pacific people with diabetes die from the disease, compared to one in three people of European ethnicity.[7] Incidence and mortality rates for type 2 diabetes are expected to increase over the next 20 years (along with pre-diabetes, insulin resistance, and obesity) with the biggest impact being on Māori, Pacific people, and those living in deprived neighbourhoods. It has been discovered that for Pacific people the age-specific rates of rates of undiagnosed diabetes compared to diagnosed diabetes was 4:5. Contrast this with the rates for Māori (3:10) and New Zealand Europeans (1:10).[8]

Although family history, particularly in a parent or a twin, is one of the strongest risk factors for developing Type 2 diabetes, genetic explanations in groups disproportionately affected by the disease can lead to misinterpretation of ethnic health disparities as genetic, and therefore natural in origin, rather than recognising such disparities as being due, largely or solely, to social disadvantage.[9]

This point is identified by the results of the New Zealand Health survey that showed a strong relationship between diabetes and deprivation, people living in the most deprived areas were 3.1 times as likely to have diagnosed diabetes as those in the least deprived areas.[10]

[6] Reid, M. (2010). HauoraWaitaha I: Health profile for Maori in Canterbury. Christchurch, Canterbury District Health Board.
[7] Maori Diabetes Collective of New Zealand/TeTopu Mate Huka o Aotearoa. http://www.maoridiabetes.co.nz/ Accessed 17.09.12.
[8] Coppell et al. (2013). Prevalence of diagnosed and undiagnosed diabetes and prediabetes in New Zealand: findings for the 2008/09 Adult Nutrition Survey. *The New Zealand Medical Journal, Vol 126 No 1370*
[9] Robson, B., Harris, R. (eds). (2007). Hauora: Maori standards of health IV. A study of the years 2000-2005. Wellington, Te Rōpū Rangahau Hauora a Eru Pomare.
[10] Ministry of Health. (2012). The Health of New Zealand Adults 2011/12: Key findings of the New Zealand Health Survey. http://www.health.govt.nz/publication/health-new-zealand-adults-2011-12 Accessed 20.12.12.

## *Solutions*

Type 2 diabetes is not a sudden illness. If diabetes is diagnosed early and managed well, through exercise, diet, regular checks and sometimes medications, people with diabetes can lead full and healthy lives. Screening for signs of pre-diabetes and insulin resistance related to obesity and management of these conditions is becoming increasingly important.[11]

One in six people with diabetes in the New Zealand Health Survey 2006/07 were able to manage their condition with diet and exercise alone, and only one in every five needed daily insulin injections with the remainder being managed with oral medications. The New Zealand Health Survey 2011/12 did not include questions on diabetes management. All New Zealanders with diabetes are eligible for one free health check with their general practitioner a year. The New Zealand Health Survey 2006/07 reported that 70% of adults diagnosed with diabetes had made use of this service in the previous twelve months.

The complex nature of diabetes requires a comprehensive and sustained approach that tackles all levels of health determinants (including causes, management and complications). The disease reflects complex and reciprocal interactions between personal health and the social and physical environment. Low socioeconomic status, stress and racism are associated with the development of Type 2 diabetes and these need to be tackled using a broad public health approach in efforts to eliminate disparities.[12]

## *Connections with other issues*

Access to Primary Healthcare, Food Security, Alcohol, Smoking, Activity Levels/Exercise, Active Transport, Green Prescriptions, Open Space/Green Space.

## *Data limitations*

The incidence of diabetes is trending upwards and is related to obesity, with an increasing number of children being diagnosed. Additionally, it is estimated that there are about 100,000 people who have diabetes but have not yet been diagnosed.[13]

## *Impact of the earthquakes*

*As time passes and these papers are updated the initial sections on the impact of the earthquake are going to be kept as an archive of what we thought the situation was at the time. Updates are provided where possible.*

**As at March 2013**

As earthquake concerns continue, some people have suffered from anxiety and depression and this has resulted in some people being unable to manage their diabetes effectively.[14]

The Diabetes Centre was closed for six weeks between March and April 2012, and a small triage centre was opened in Christchurch Hospital for people to access services. The Diabetes Centre will be eventually demolished.

The CDHB has also launched the Healthinfo website that contains information recommended by health professionals on a range of health issues including diabetes, and is specific to Canterbury, New Zealand. This website is provided to help people manage their own health but does not take the place of a medical consultation.

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[11] Harwood, M., Tipene-Leach, D. 2007. Diabetes: In: *Hauora: Maori standards of health IV. A study of the years 2000-2005* Wellington, Te Rōpū Rangahau Hauora a Eru Pomare, p. 161-167.
[12] Ibid.
[13] New Zealand Ministry of Health. Diabetes at http://www.health.govt.nz/our-work/diseases-and-conditions/diabetes Accessed 17.09.12.
[14] Information was provided by the Diabetes Centre, 11 March 2013.

**As at November 2011**

Immediately after the earthquakes, many pharmacies where closed. The Diabetes Centre worked with the Ministry of Health to deliver free test strips to welfare centres for three weeks. Pharmaceutical representatives also provided free machines to those people who had lost theirs in the earthquakes.[15]

The Ministry of Health has reported that the stress caused by the aftermath of the earthquake has affected people's motivation to exercise and eat well.[16]

Damage to facilities such as parks, walking and cycling tracks, gyms and recreation centres has also made it more difficult for people to get regular exercise, although alternative exercise classes are being offered in facilities around the city.

Prepared by Community and Public Health.

[15] Ibid

[16] New Zealand Ministry of Health. Managing Stress in an Emergency. http://www.health.govt.nz/yourhealth-topics/emergency-management/managing-stress-emergency Accessed 17.09.12.