

6. Diabetes



Alpine Ararat Ballarat Banyule Bass Coast Baw Baw Bayside Benalla Boroondara Brimbank Buloke Campaspe Cardinia Casey Central Goldfields Colac-Otway Corangamite Darebin East Gippsland Frankston Gannawarra Glen Eira Glenelg Golden Plains Greater Bendigo Greater Dandenong Greater Geelong Greater Shepparton Hepburn Hindmarsh Hobsons Bay Horsham Hume Indigo Kingston Knox Latrobe Loddon Macedon Ranges Manningham Mansfield Maribyrnong Maroondah Melbourne Melton Mildura Mitchell Moira Monash Moonee Valley Moorabool Moreland Mornington Peninsula Mount Alexander Moyne Murrindindi Nillumbik Northern Grampians Port Phillip Pyrenees Queenscliffe South Gippsland Southern Grampians Stonnington Strathbogie Surf Coast Swan Hill Towong Wangaratta Warrnambool Wellington West Wimmera Whitehorse Whittlesea Wodonga Wyndham Yarra Yarra Ranges Yarriambiack Alpine Ararat Ballarat Banyule Bass Coast Baw Baw Bayside Benalla Boroondara Brimbank Buloke Campaspe Cardinia Casey Central Goldfields Colac-Otway Corangamite Darebin East Gippsland Frankston Gannawarra Glen Eira Glenelg Golden Plains Greater Bendigo Greater Dandenong Greater Geelong Greater Shepparton Hepburn Hindmarsh Hobsons Bay Horsham Hume Indigo Kingston Knox Latrobe Loddon Macedon Ranges Manningham Mansfield Maribyrnong Maroondah Melbourne Melton Mildura Mitchell Moira Monash Moonee Valley Moorabool Moreland Mornington Peninsula Mount Alexander Moyne Murrindindi Nillumbik Northern Grampians Port Phillip Pyrenees Queenscliffe South Gippsland Southern Grampians Stonnington Strathbogie Surf Coast Swan Hill Towong Wangaratta Warrnambool Wellington West Wimmera Whitehorse Whittlesea Wodonga Wyndham Yarra Yarra Ranges Yarriambiack Alpine Ararat Ballarat Banyule Bass Coast Baw Baw Bayside Benalla Boroondara Brimbank Buloke Campaspe Cardinia Casey Central Goldfields Colac-Otway Corangamite Darebin East Gippsland Frankston Gannawarra Glen Eira Glenelg Golden Plains Greater Bendigo Greater Dandenong Greater Geelong Greater Shepparton Hepburn Hindmarsh Hobsons Bay Horsham Hume Indigo Kingston Knox Latrobe Loddon Macedon Ranges Manningham Mansfield Maribyrnong Maroondah Melbourne Melton Mildura Mitchell Moira Monash Moonee Valley Moorabool Moreland Mornington Peninsula Mount Alexander Moyne Murrindindi Nillumbik Northern Grampians Port Phillip Pyrenees Queenscliffe South Gippsland Southern Grampians Stonnington Strathbogie Surf Coast Swan Hill Towong Wangaratta Warrnambool Wellington West Wimmera Whitehorse Whittlesea Wodonga Wyndham Yarra Yarra Ranges Yarriambiack Alpine Ararat Ballarat Banyule Bass Coast Baw Baw Bayside Benalla Boroondara Brimbank Buloke Campaspe Cardinia Casey Central Goldfields Colac-Otway Corangamite Darebin East Gippsland Frankston Gannawarra Glen Eira Glenelg Golden Plains Greater Bendigo Greater Dandenong Greater Geelong Greater Shepparton Hepburn Hindmarsh Hobsons Bay Horsham Hume Indigo Kingston Knox Latrobe Loddon Macedon Ranges Manningham Mansfield Maribyrnong Maroondah Melbourne Melton Mildura Mitchell Moira

6. Diabetes

Diabetes mellitus is a common chronic condition characterised by high blood glucose (sugar) levels. The two main types of diabetes mellitus are type 1 (insulin dependent) diabetes and type 2 diabetes. Gestational diabetes is another form of the condition that affects women during pregnancy, with no prior diagnosis of diabetes. This condition usually abates after birth, but may be a risk factor for the development of type 2 diabetes later in life.

Type 1 diabetes is an autoimmune disease in which the body's immune system destroys the insulin-producing cells of the pancreas rendering the individual unable to produce enough of the hormone insulin, which is essential for the control of glucose levels in the blood. It most commonly occurs in persons under the age of 30 years and may be referred to as juvenile-onset diabetes. People with type 1 diabetes require replacement insulin injections (usually several times a day) for life. Unlike type 2 diabetes, it is not caused by lifestyle factors. Type 1 diabetes accounts for approximately 10 to 15 per cent of diabetes mellitus and while a great deal of research is being carried out, at this stage nothing can be done to prevent or cure type 1 diabetes.

Type 2 diabetes is the most common form of diabetes, which occurs mostly in people aged 50 years and over who are overweight, or have a family history of the condition. Accounting for around 85 per cent of all cases of diabetes mellitus, it is caused by insufficient production of insulin and/or the body becoming resistant to high glucose levels in the blood. In many cases, appropriate diet and exercise can control type 2 diabetes. More severe cases require treatment with oral glucose-lowering drugs, insulin injections, or a combination of these. Left untreated, diabetes mellitus can cause kidney, eye and nerve damage, heart disease, stroke and impotence.

Survey results

- The prevalence of doctor diagnosed diabetes for persons aged 18 years and over was 5.8 per cent in 2008.
- Type 2 diabetes was the most commonly reported form of diabetes (4.8 per cent), followed by type 1 diabetes (0.7 per cent).
- The prevalence of type 2 diabetes increased with age and was higher for males (5.8 per cent), compared with females (3.8 per cent).
- The prevalence of type 1 diabetes remained constant between 2005 and 2008, however, the prevalence of type 2 diabetes increased for males from 3.9 per cent to 5.8 per cent over the same period.
- The prevalence of type 2 diabetes was similar between metropolitan and rural areas of Victoria.
- The LGAs of Melton (9.3 per cent), Hume (8.5 per cent), Whittlesea (7.1 per cent) and Frankston (7.0 per cent) had higher prevalence rates of type 2 diabetes, compared with Victoria (4.8 per cent).
- Males and females who reported very high levels of psychological distress, abstinence from alcohol consumption, fair or poor self-reported health and obesity, had higher prevalence rates of type 2 diabetes compared with the average for all Victorian males and females.
- Females who reported sedentary behaviour had a higher prevalence rate of type 2 diabetes compared with the average for all Victorian females.

Respondents were asked if they had ever been told by a doctor that they had diabetes and, if so, what type of diabetes they were told they had. Female respondents were asked if they had ever had diabetes, apart from when they were pregnant. Females who reported only ever having diabetes when they were pregnant are referred to as having had gestational diabetes in the analysis that follows. They are excluded from the overall total for diabetes prevalence.

Table 6.1 shows that the prevalence of doctor diagnosed diabetes for persons aged 18 years and over was 5.8 per cent in 2008. Type 2 diabetes was the most commonly reported form of diabetes (4.8 per cent), followed by type 1 diabetes (0.7 per cent). Gestational diabetes (1.5 per cent) was the second most commonly reported form of diabetes for females.

Although the prevalence of type 1 diabetes was similar between males (0.8 per cent) and females (0.7 per cent), the prevalence of type 2 diabetes was higher for males (5.8 per cent), compared with females (3.8 per cent).

Table 6.1: Prevalence of diabetes, by diabetes type & sex, 2008

Region	Males			Females			Persons		
	%	Lower 95% CI	Upper 95% CI	%	Lower 95% CI	Upper 95% CI	%	Lower 95% CI	Upper 95% CI
Type 1 diabetes	0.8	0.6	1.0	0.7	0.6	0.9	0.7	0.6	0.9
Type 2 diabetes	5.8	5.3	6.4	3.8	3.5	4.1	4.8	4.5	5.1
Other	0.3	0.2	0.4	0.4	0.3	0.5	0.3	0.3	0.4
Gestational diabetes	1.5	1.2	1.7	0.7	0.6	0.9
Total (excluding gestational diabetes)	6.9	6.4	7.5	4.9	4.5	5.3	5.8	5.5	6.2

95% CI = 95 per cent confidence interval.

Note that figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses.

Data are age standardised to the 2006 Victorian population.

Although the prevalence of type 2 diabetes did not change for females between 2005 and 2008, the prevalence of type 2 diabetes increased for males from 3.9 per cent in 2005 to 5.8 per cent in 2008 (table 6.2).

The prevalence of type 1 diabetes remained relatively steady over the period 2005–2008 for both males and females.

Table 6.2: Prevalence of diabetes, by diabetes type, 2005–2008

	2005	2006	2007	2008
	Per cent			
Males				
Type 1 diabetes	0.9	1.3	0.8*	0.8
Type 2 diabetes	3.9	4.2	4.6	5.8
Females				
Type 1 diabetes	0.5	0.4*	0.8*	0.7
Type 2 diabetes	3.8	3.7	3.8	3.8
Persons				
Type 1 diabetes	0.7	0.9	0.8	0.7
Type 2 diabetes	3.8	4.0	4.1	4.8

Estimates have been age standardised to the 2006 Victorian population.

Ordinary least squares linear regression was used to test for trends over time.

* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Table 6.3 and figure 6.1 show the prevalence of type 1 and type 2 diabetes by sex and age group. The prevalence of type 2 diabetes increased with age and was higher for males across age groups, compared with females. The prevalence of type 1 diabetes did not vary by age group or sex.

Table 6.3: Prevalence of diabetes, by type of diabetes, age group, and sex, 2008

Age group (years)	Type of diabetes					
	Type 1 diabetes			Type 2 diabetes		
	%	Lower 95% CI	Upper 95% CI	%	Lower 95% CI	Upper 95% CI
Males						
18–24 years	**			**		
25–34 years	0.6*	0.3	1.4	**		
35–44 years	0.5*	0.2	1.0	3.0	2.0	4.5
45–54 years	0.6*	0.3	1.2	5.4	4.3	6.8
55–64 years	1.3	0.8	2.1	12.0	10.2	14.0
65+	1.1	0.7	1.7	15.0	13.5	16.7
Total	0.8	0.6	1.0	5.8	5.3	6.4
Females						
18–24 years	0.8*	0.3	1.7	**		
25–34 years	**			0.3*	0.1	0.6
35–44 years	0.4*	0.2	0.8	1.3	0.9	2.1
45–54 years	0.7*	0.4	1.2	3.3	2.6	4.3
55–64 years	1.3	0.8	1.9	6.2	5.3	7.3
65+	0.9	0.6	1.3	11.7	10.5	13.0
Total	0.7	0.6	0.9	3.8	3.5	4.1
Persons						
18–24 years	0.7*	0.4	1.2	**		
25–34 years	0.6*	0.3	1.1	0.3*	0.2	0.7
35–44 years	0.4*	0.3	0.7	2.2	1.6	2.9
45–54 years	0.6	0.4	1.0	4.4	3.7	5.2
55–64 years	1.3	0.9	1.8	9.1	8.0	10.2
65+	1.0	0.8	1.3	13.2	12.2	14.2
Total	0.7	0.6	0.9	4.9	4.5	5.2

95% CI = 95 per cent confidence interval.

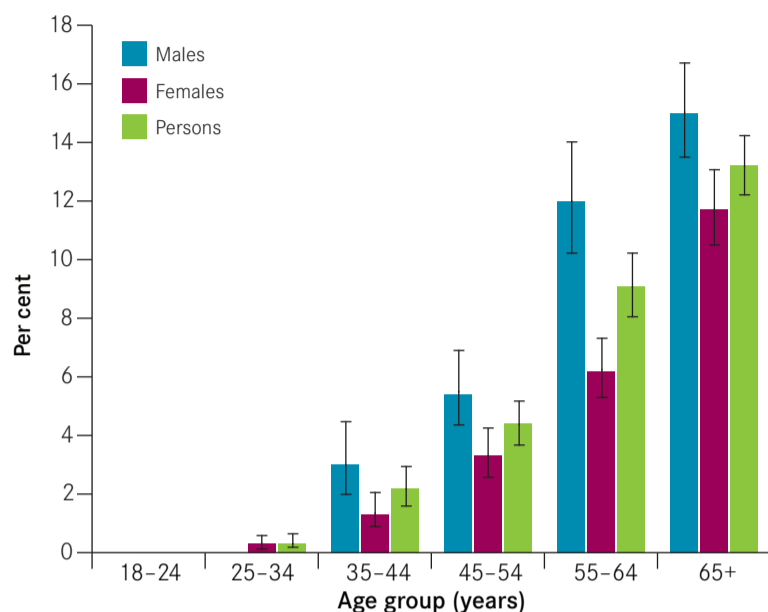
Data are crude estimates, except for the totals, which represent the estimates for Victoria and have been age standardised to the 2006 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above Victoria / below Victoria.

* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

** Estimate has a relative standard error of greater than 50 per cent and is not reported as it is unreliable for general use.

Figure 6.1: Prevalence of type 2 diabetes, by age group and sex, 2008



Data are crude estimates, they have not been age standardised.

Type 2 diabetes by region and LGA

The prevalence of type 2 diabetes was similar between metropolitan (4.8 per cent) and rural (4.8 per cent) areas of Victoria (table 6.4). Type 2 diabetes prevalence ranged from 3.9 per cent in the Eastern Metropolitan region to 5.5 per cent in the North and West Metropolitan region.

Table 6.4: Prevalence of type 2 diabetes, by sex and Department of Health region, 2008

Region	Males			Females			Persons		
	%	Lower 95% CI	Upper 95% CI	%	Lower 95% CI	Upper 95% CI	%	Lower 95% CI	Upper 95% CI
Barwon–South Western	5.4	3.7	7.8	3.9	2.7	5.5	4.6	3.5	6.1
Eastern Metropolitan	5.1	4.0	6.5	2.8	2.2	3.7	3.9	3.3	4.7
Gippsland	6.1	4.9	7.5	4.0	3.1	5.0	4.9	4.2	5.8
Grampians	5.8	4.4	7.6	3.9	3.1	4.8	4.7	3.9	5.7
Hume	4.7	3.8	5.8	4.4	3.6	5.3	4.5	3.9	5.2
Loddon Mallee	5.5	4.2	7.1	4.7	3.7	5.8	5.1	4.2	6.0
North and West Metropolitan	6.6	5.6	7.8	4.4	3.8	5.2	5.5	4.9	6.2
Southern Metropolitan	6.0	5.0	7.2	3.4	2.8	4.2	4.6	4.0	5.3
Metropolitan	6.0	5.4	6.7	3.6	3.2	4.1	4.8	4.4	5.2
Rural	5.4	4.7	6.2	4.2	3.7	4.7	4.8	4.3	5.2
Total	5.8	5.3	6.4	3.8	3.5	4.1	4.8	4.5	5.1

Metropolitan and rural regions are identified by colour as follows: metropolitan / rural.

95% CI = 95 per cent confidence interval.

Data are age standardised to the 2006 Victorian population.

Table 6.5 and figure 6.2 show the prevalence of type 2 diabetes by LGA. The prevalence of the disease ranged from 1.6 per cent in the LGA of Melbourne to 9.3 per cent in Melton. The LGAs of Melton (9.3 per cent), Hume (8.5 per cent), Whittlesea (7.1 per cent) and Frankston (7.0 per cent) had prevalence rates for type 2 diabetes that were higher than the rate for Victoria (4.8 per cent).

Table 6.5: Prevalence of type 2 diabetes, by LGA, 2008

LGA	%	Lower 95% CI	Upper 95% CI	LGA	%	Lower 95% CI	Upper 95% CI
Alpine (S)	3.7	2.4	5.7	Mansfield (S)	4.0	2.7	5.8
Ararat (RC)	4.8	3.2	7.3	Maribyrnong (C)	5.5	3.5	8.5
Ballarat (C)	5.0	3.3	7.6	Maroondah (C)	5.0	3.2	7.7
Banyule (C)	3.5	2.3	5.3	Melbourne (C)	1.6*	0.7	3.3
Bass Coast (S)	5.6	3.9	7.9	Melton (S)	9.3	6.6	13.0
Baw Baw (S)	3.5	2.2	5.5	Mildura (RC)	4.9	3.3	7.2
Bayside (C)	2.4	1.5	3.8	Mitchell (S)	5.0	3.2	7.7
Benalla (RC)	5.5	4.0	7.5	Moirā (S)	3.7	2.5	5.6
Boroondara (C)	2.9*	1.5	5.6	Monash (C)	4.0	2.5	6.2
Brimbank (C)	6.7	4.8	9.2	Moonee Valley (C)	3.1	2.0	4.9
Buloke (S)	4.4	3.1	6.2	Moorabool (S)	5.0	3.3	7.4
Campaspe (S)	5.8*	3.6	9.1	Moreland (C)	7.0	5.0	9.6
Cardinia (S)	4.6	3.1	7.0	Mornington Peninsula (S)	3.3	2.2	4.8
Casey (C)	6.6	4.6	9.4	Mount Alexander (S)	3.2	2.1	4.8
Central Goldfields (S)	7.5	5.1	10.9	Moyne (S)	2.7*	1.6	4.5
Colac-Otway (S)	2.8	1.9	4.2	Murrindindi (S)	3.3	2.2	4.9
Corangamite (S)	5.3	3.7	7.4	Nillumbik (S)	1.8*	0.9	3.3
Darebin (C)	6.4	4.2	9.6	Northern Grampians (S)	4.3	3.0	6.1
East Gippsland (S)	4.8	3.3	7.0	Port Phillip (C)	3.1*	1.8	5.1
Frankston (C)	7.0	5.1	9.6	Pyrenees (S)	6.3	4.3	9.0
Gannawarra (S)	4.7	3.3	6.6	Queenscliffe (B)	2.6*	1.6	4.2
Glen Eira (C)	4.0	2.7	5.9	Southern Grampians (S)	3.7	2.5	5.4
Glenelg (S)	6.4	4.6	8.8	South Gippsland (S)	6.1	4.4	8.3
Golden Plains (S)	5.6	3.6	8.5	Stonnington (C)	3.5*	2.0	5.9
Greater Bendigo (C)	5.7	3.8	8.5	Strathbogie (S)	4.5	3.2	6.3
Greater Dandenong (C)	6.6	4.6	9.4	Surf Coast (S)	2.4*	1.4	4.0
Greater Geelong (C)	4.8	3.1	7.4	Swan Hill (RC)	3.4	2.2	5.1
Greater Shepparton (C)	4.2	2.9	6.0	Towong (S)	4.6	3.2	6.6
Hepburn (S)	4.8	3.4	6.8	Wangaratta (RC)	5.2*	3.1	8.7
Hindmarsh (S)	4.0	2.7	5.9	Warrnambool (C)	5.3*	3.2	8.7
Hobsons Bay (C)	3.2	2.1	4.9	Wellington (S)	5.3	3.5	7.9
Horsham (RC)	3.7	2.5	5.5	West Wimmera (S)	3.5	2.3	5.3
Hume (C)	8.5	6.0	11.8	Whitehorse (C)	5.3	3.6	7.7
Indigo (S)	3.3	2.2	5.0	Whittlesea (C)	7.1	5.1	9.8
Kingston (C)	3.6	2.3	5.6	Wodonga (RC)	6.5	4.6	9.0
Knox (C)	4.4	2.9	6.7	Wyndham (C)	4.3	2.8	6.5
Latrobe (C)	5.1	3.6	7.2	Yarra (C)	3.7*	2.2	6.2
Loddon (S)	4.6	3.2	6.4	Yarra Ranges (S)	3.2	2.1	4.9
Macedon Ranges (S)	4.3	2.9	6.2	Yarriambiack (S)	3.5	2.3	5.2
Manningham (C)	3.5	2.2	5.5	Total	4.8	4.5	5.1

Metropolitan and rural LGAs are identified by colour as follows: metropolitan / rural.

95% CI = 95 per cent confidence interval.

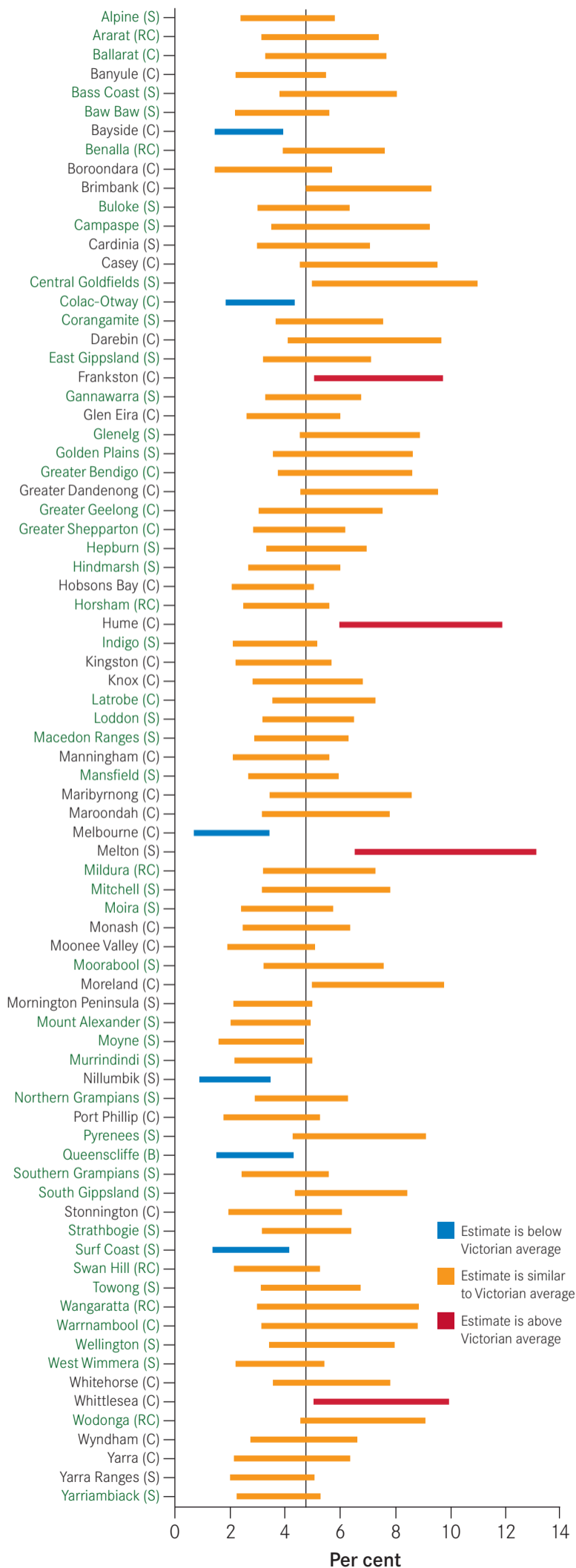
LGA = local government area.

Data are age standardised to the 2006 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above Victoria / below Victoria.

* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Figure 6.2: Prevalence of type 2 diabetes, by LGA, 2008



Metropolitan and rural LGAs are identified by colour as follows:
 metropolitan / rural.
 LGA = local government area.
 Data are age standardised to the 2006 Victorian population.
 The line on the graph is the Victorian estimate, it does not show the 95% CI.
 See the relevant table for the 95% CI for Victoria (Total).

Type 2 diabetes by selected health indicators

Table 6.6 shows the prevalence of type 2 diabetes for males and females by selected health indicators. The table shows that males and females who reported very high levels of psychological distress, abstinence from alcohol consumption, fair or poor self-reported health and obesity had higher prevalence rates of type 2 diabetes compared with the averages for all Victorian males and females. The table also shows that females who reported sedentary behaviour had higher prevalence rates of type 2 diabetes compared with the average for all Victorian females.

Table 6.6: Prevalence of type 2 diabetes, by sex and selected health indicators, 2008

	Males			Females		
	%	Lower 95% CI	Upper 95% CI	%	Lower 95% CI	Upper 95% CI
Level of psychological distress^(a)						
Low (10–15)	4.8	4.3	5.4	3.2	2.8	3.6
Moderate (16–21)	7.1	6.0	8.5	4.7	4.0	5.6
High (22–29)	9.3	7.1	12.0	5.1	4.0	6.5
Very high (30–50)	11.7	7.7	17.3	7.0	5.0	9.7
Physical activity^(b)						
Sedentary	6.3	4.6	8.5	5.3	4.1	6.7
Insufficient time and/or sessions	6.3	5.4	7.4	4.1	3.5	4.8
Sufficient time and sessions	5.5	4.9	6.2	3.2	2.8	3.7
Alcohol consumption^(c)						
At risk or high risk of long-term harm	4.0*	2.4	6.4	1.1*	0.5	2.2
At risk or high risk of short-term harm	4.4	3.7	5.1	1.6	1.2	2.1
Abstainer from alcohol	10.3	8.4	12.7	6.6	5.7	7.6
Nutrition^(d)						
Met guidelines for fruit and vegetable consumption	5.9	4.1	8.5	4.0	3.1	5.1
Met guidelines for vegetable consumption	6.3	4.5	8.8	3.8	3.0	4.8
Met guidelines for fruit consumption	6.5	5.7	7.3	3.7	3.3	4.1
Did not meet guidelines for either fruit or vegetables	5.3	4.7	6.0	3.9	3.3	4.5
Smoking status						
Non-smoker	5.2	4.5	6.0	3.8	3.4	4.2
Ex-smoker	6.4	5.6	7.2	3.8	3.2	4.5
Current	5.2	4.1	6.5	3.3	2.6	4.2
Self-rated health						
Excellent or very good	2.6	2.1	3.2	1.6	1.3	2.0
Good	6.9	6.0	7.9	4.3	3.8	4.9
Fair or poor	10.0	8.7	11.4	7.8	6.8	9.1
Body weight status^(e)						
Underweight	4.0*	2.0	7.9	2.6*	1.2	5.6
Normal weight	3.1	2.5	3.9	1.6	1.3	2.0
Overweight	4.9	4.3	5.7	3.6	3.0	4.3
Obese	12.0	10.5	13.8	8.4	7.3	9.7
Total	5.8	5.3	6.4	3.8	3.5	4.1

(a) Based on Kessler 10 Psychological Distress Scale (K10).

(b) Based on national guidelines (DoHA 1999) and excludes adults aged less than 19 years.

(c) Based on national guidelines (NHMRC 2001).

(d) Based on national guidelines (NHMRC 2003).

(e) Based on Body Mass Index (BMI) score.

95% CI = 95 per cent confidence interval.

Data are age standardised to the 2006 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above Victoria / below Victoria.

* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

References

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