

# Cardiovascular Disease Fact Sheet

## Barwon-South Western Region

---

The **Barwon-South Western** region covers an area of 29,637 square kilometres. It extends from Queenscliffe in the east to the far southwest border with South Australia. In 2005, it had an estimated resident population of 354,306 (7.1% of the Victorian population). The region includes nine local government areas (LGAs). This fact sheet presents Department of Human Services data for the Barwon-South Western region relating to a variety of cardiovascular outcomes and risk factors.

It aims to provide answers to the following questions for this region:

- How common is cardiovascular disease?
  - What is the impact of cardiovascular disease?
  - How common are some of the risk factors for cardiovascular disease—specifically smoking, diet, exercise, obesity and high blood pressure?
  - How commonly do people use screening tests?
- 

Several specific terms are used in this fact sheet. These terms are defined as follows:

- **Cardiovascular disease**  
A general term that refers to heart, stroke and blood vessel disease. The underlying cause of most cardiovascular disease is a gradual clogging of the arteries (called atherosclerosis) that supply blood to the heart, brain and other vital organs.<sup>1</sup>
- **Heart disease**  
A general term used to describe a range of diseases affecting the heart.
- **Ischaemic heart disease**  
A condition caused by the slow build-up over many years of fatty cholesterol-containing deposits (called plaques) in the inner wall of one or more of the heart's arteries. If the coronary arteries (those arteries supplying the heart with oxygen) become too clogged, the flow of blood is reduced and the heart may not be able to meet the demands placed on it to pump harder during times of exercise or stress. It is also sometimes referred to as coronary heart disease and can lead to angina or heart attack.<sup>2</sup>

- **Stroke**  
Stroke occurs when an artery supplying blood to a part of the brain becomes blocked or bursts. As a result, that part of the brain is damaged because it is deprived of its blood supply, which normally carries oxygen and sugar to the brain and enables it to function.<sup>3</sup>
- **Region**  
This fact sheet covers the Barwon-South Western region which includes the following LGAs: Colac Otway, Corangamite, Glenelg, Greater Geelong, Moyne, Queenscliffe, Southern Grampians, Surf Coast and Warrnambool.
- **Local government area (LGA)**  
A municipal council area.
- **Primary care partnership (PCP)**  
Groups of LGAs that cooperate together to improve delivery of primary healthcare services and health promotion activities in their local communities. This fact sheet covers the following PCPs: Barwon Primary Care Forum, South West PCP and Southern Grampians & Glenelg PCP.
- **Prevalence**  
The proportion of people who have a disease at a particular point in time (e.g. 'at the end of 2006'), irrespective of when they were either diagnosed with the condition, or when they first developed the condition.
- **Disability-adjusted life year (DALY)**  
The disability-adjusted life year (DALY) is a measure of the disease impact in a population. This measure combines the effects of healthy years of life lost due to developing illness or becoming injured, with years lost through premature death. One DALY can be thought of as one lost year of healthy life.
- **DALY rates**  
The number of DALYs per 1000 people in the population. The population in areas with high DALY rates has a poorer health status than populations in areas with lower DALY rates. Differences in DALY rates are not due to differences in the age structure between areas.

## Data sources

This fact sheet draws on the following information provided by the Department of Human Services:

- Victorian Population Health Survey 2006
- 2001 Victorian Burden of Disease Study.

Information about the degree of detail available in these data sources is shown in Table 1.

**Table 1: Sources of data on cardiovascular disease, by type of data available**

Source	Type of information	Available for:			
		Victoria	Regions	PCPs	LGAs
Victorian Population Health Survey 2006	Self-reported prevalence of:				
	• heart disease	✓	✓	x	x
	• stroke	✓	✓	x	x
	• obesity/overweight	✓	✓	x	x
	• smoking	✓	✓	x	x
	• physical inactivity	✓	✓	x	x
	• consumption of fruit	✓	✓	x	x
	• consumption of vegetables	✓	✓	x	x
	• high blood pressure	✓	✓	x	x
	• blood pressure screening	✓	✓	x	x
2001 Victorian Burden of Disease Study	Prevalence and DALY rates for:				
	• ischaemic heart disease	✓	✓	✓	✓
	• stroke	✓	✓	✓	✓
	• total cardiovascular disease (DALY rates only)	✓	✓	✓	✓
	• total cardiovascular disease (prevalence)	✓	x	x	x

---

### For further information

Methodological information and other results may be found in selected reports of findings from the Victorian Population Health Surveys and the Victorian Burden of Disease Study. These reports and other useful resources can be downloaded from the website <http://www.health.vic.gov.au/healthstatus/>

---

## How common is cardiovascular disease?

Information about the occurrence of cardiovascular disease is taken from two sources: the Victorian Population Health Survey, an annual statewide survey that the Department of Human Services (Chronic Disease Surveillance and Epidemiology Section, Public Health Group) undertakes in the second half of each year to collect a wide range of information about the health of the adult Victorian population, and from statistics compiled as part of the 2001 Victorian Burden of Disease Study.

Findings from the Victorian Population Health Survey relate to 2006 and are reported as percentages. These data represent the proportion of adults aged 18 years or more who reported that they had been diagnosed with either heart disease or stroke. Adults living in nursing homes and other similar settings were not included in the survey population.

Findings from the 2001 Victorian Burden of Disease study are estimates of the number of people, who at any point in time during the year 2001, had the condition, regardless of when it first affected the individual. These data were available for ischaemic heart disease, inflammatory heart disease and stroke. The data were calculated using a variety of sources and represent all Victorians, irrespective of type of diagnosis, age or living situation.

## How common is heart disease?

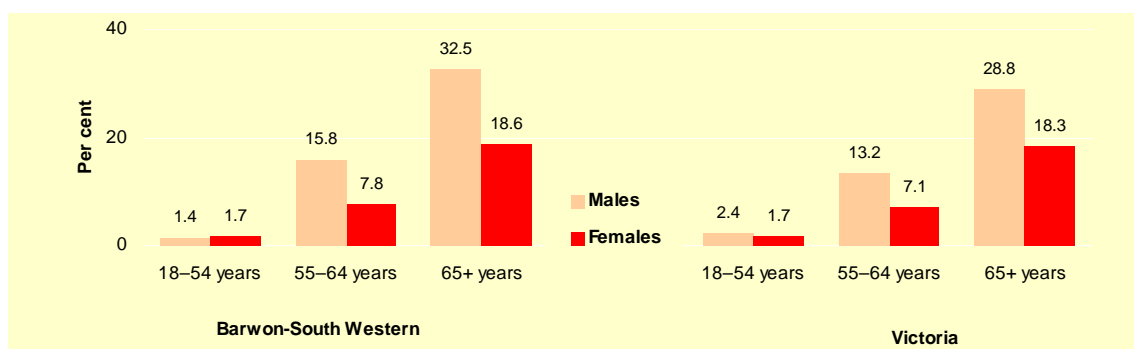
In 2006, 6.8% of Victorians reported that they had been diagnosed with heart disease by a doctor. Additional detail on the specific type of heart disease was not collected. Table 2 compares the self-reported prevalence of heart disease in the Barwon-South Western region with that for Victoria.

**Table 2: Self-reported prevalence of heart disease, by sex and age, 2006**

Sex	Age group	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>	18–54 years	1.4	0.0–2.9	2.4	1.5–3.2
	55–64 years	15.8	7.0–24.6	13.2	9.3–17.0
	65 years or more	32.5	22.7–42.4	28.8	24.6–32.9
	<b>Total</b>	<b>9.5</b>	<b>6.6–12.3</b>	<b>8.1</b>	<b>7.0–9.2</b>
<b>Females</b>	18–54 years	1.7	0.5–2.9	1.7	1.1–2.3
	55–64 years	7.8	3.2–12.4	7.1	4.9–9.3
	65 years or more	18.6	11.9–25.4	18.3	15.1–21.6
	<b>Total</b>	<b>6.5</b>	<b>4.5–8.4</b>	<b>5.6</b>	<b>4.8–6.4</b>
<b>Persons</b>	18–54 years	1.6	0.6–2.5	2.0	1.5–2.5
	55–64 years	11.7	6.8–16.7	10.1	7.9–12.4
	65 years or more	24.8	18.9–30.6	23.0	20.3–25.6
	<b>Total</b>	<b>7.9</b>	<b>6.2–9.6</b>	<b>6.8</b>	<b>6.1–7.5</b>

In Victoria in 2006, over one-quarter of men aged 65 years or more had been diagnosed with heart disease. This compares with 18.3% of Victorian women in the same age group. In the Barwon-South Western region, the self-reported prevalence of heart disease was generally a little higher than that for Victoria; however, the differences were not statistically significant. In men aged 65 years or more the prevalence was 32.5%. As observed for the state as a whole, the prevalence in adult men (9.5%) was higher than in adult women (6.5%).

**Figure 1: Self-reported prevalence of heart disease, by sex and age, 2006**



### How common is ischaemic heart disease?

Ischaemic heart disease is one of the most common types of heart disease. Based on estimates compiled for the 2001 Victorian Burden of Disease Study, there were 45,051 Victorians living with ischaemic heart disease in 2001. This represents 53.9% of Victorians living with heart disease in that year.

Table 3 contains estimates of the number of Victorians living in the Barwon-South Western region with ischaemic heart disease in 2001. It details the number of males and females with ischaemic heart disease in each LGA and PCP of the region.

**Table 3: Estimated prevalent cases of ischaemic heart disease in the Barwon-South Western region, by PCP, LGA and sex, 2001**

Area	PCP	LGA	Males (n)	Females (n)	Persons (n)
Barwon-South Western	Southern Grampians & Glenelg	Glenelg	104	91	195
		Southern Grampians	92	92	184
	South West	Corangamite	88	80	168
		Moyne	76	60	136
		Warrnambool	127	132	259
	Barwon Primary Care Forum	Colac Otway	120	103	223
		Greater Geelong	1118	1076	2194
		Queenscliffe	22	25	47
		Surf Coast	93	79	172
	<b>Total</b>		<b>1839</b>	<b>1737</b>	<b>3576</b>
<b>Victoria</b>		<b>23,227</b>	<b>21,824</b>	<b>45,051</b>	

Some 3576 people were estimated to be living in the Barwon-South Western region with ischaemic heart disease. Of these, more than half lived in the City of Greater Geelong.

Approximately equal numbers of Victorian males and females were estimated to be living with ischaemic heart disease.

## How common is stroke?

In 2006, 1.9% of Victorian adults indicated that they had been diagnosed with stroke by a doctor. Table 4 compares the self-reported prevalence of stroke in the Barwon-South Western region with that for Victoria.

**Table 4: Self-reported prevalence of stroke, by sex and age, 2006**

Sex	Age group	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>	18–54 years	0.0	0.0–0.0	0.4	0.1–0.7
	55–64 years	6.1	0.6–11.6	3.7	1.4–6.0
	65 years or more	11.2	4.8–17.7	7.9	5.6–10.2
	<b>Total</b>	<b>3.0</b>	<b>1.5–4.6</b>	<b>2.1</b>	<b>1.5–2.6</b>
<b>Females</b>	18–54 years	0.9	0.0–1.7	0.5	0.3–0.8
	55–64 years	3.6	0.3–6.8	3.5	1.9–5.2
	65 years or more	8.2	3.4–12.9	5.0	3.2–6.8
	<b>Total</b>	<b>2.9</b>	<b>1.6–4.3</b>	<b>1.8</b>	<b>1.3–2.3</b>
<b>Persons</b>	18–54 years	0.4	0.0–0.9	0.5	0.3–0.7
	55–64 years	4.8	1.7–8.0	3.6	2.2–5.0
	65 years or more	9.5	5.6–13.4	6.3	4.9–7.7
	<b>Total</b>	<b>3.0</b>	<b>2.0–4.0</b>	<b>1.9</b>	<b>1.6–2.3</b>

In the Barwon-South Western region, the self-reported prevalence of stroke among adults (3.0%) was higher than that for Victoria (1.9%). This difference was not statistically significant. In men aged 65 years or more who lived in the region the self-reported prevalence was 11.2%. This compares with a self-reported prevalence of 8.2% among women aged 65 years or more for the region.

Based on information from the 2001 Victorian Burden of Disease Study, an estimated 33,664 Victorians were affected by stroke in 2001. Of these, 2576 lived in the Barwon-South Western region. More than half (58.8%) of people affected by stroke in the region lived in the City of Greater Geelong, the largest LGA in the region.

**Table 5: Estimated prevalent cases of stroke, by PCP, LGA and sex, 2001**

Area	PCP	LGA	Males (n)	Females (n)	Persons (n)
<b>Barwon-South Western</b>	Southern Grampians & Glenelg	Glenelg	60	79	139
		Southern Grampians	61	84	145
	South West	Corangamite	57	75	132
		Moyne	48	57	105
		Warrnambool	85	131	216
	Barwon Primary Care Forum	Colac Otway	65	86	151
		Greater Geelong	648	866	1514
		Queenscliffe	15	21	36
		Surf Coast	63	78	141
	<b>Total</b>			<b>1100</b>	<b>1476</b>
<b>Victoria</b>			<b>14,049</b>	<b>19,615</b>	<b>33,664</b>

There were marked differences in the gender balance between the self-reported data from 2006 and the prevalence estimates from 2001. The prevalence estimates from 2001 were modelled from a wider range of sources and, although less recent,

provide a more accurate reflection of the true prevalence of stroke in the community as they include all cases of stroke, including those in hospitals and nursing homes. In contrast, the 2006 population survey excludes people aged less than 18 years and those who live in institutional settings such as nursing homes. Differences between these two data sources should not therefore be interpreted as reflecting changes in the distribution of stroke.

## What is the impact of cardiovascular disease?

The impact of cardiovascular disease includes that of ischaemic heart disease and stroke together with other types of cardiovascular disease. The impact of cardiovascular disease can be measured using DALYs. DALY rates quantify the number of DALYs lost per 1000 people in the population and are useful when making comparisons of health status between populations in different geographic areas.

Across Victoria, ischaemic heart disease accounts for 58.4% of the cardiovascular disease burden per 1000 in males and 46.9% in females. In the Barwon-South Western region it accounts for 58.4% of the cardiovascular disease burden per 1000 in males and 47.1% of the cardiovascular disease burden per 1000 in females.

Table 6 compares DALY rates for cardiovascular disease in males and females in the Barwon-South Western region with the rates for Victoria.

**Table 6: Burden of disease and injury, all causes and cardiovascular disease, in males and females, DALY rates, 2001**

Disease	Barwon-South Western		Victoria	
	DALY rates per 1000 in males	DALY rates per 1000 in females	DALY rates per 1000 in males	DALY rates per 1000 in females
All causes	144.8	128.5	143.0	129.1
Total cardiovascular disease	25.7	22.3	25.5	22.4
• Ischaemic heart disease	15.0	10.5	14.9	10.5
• Stroke	6.1	7.6	6.2	7.8

DALY rates for total cardiovascular disease in the region were higher for both males and females than those for Victoria. DALY rates for ischaemic heart disease were higher than those for Victoria, whereas DALY rates for stroke were lower for both males and females.

**Table 7: Burden of cardiovascular disease in males and females by PCP and LGA, DALY rates, 2001**

Sex	PCP	Local Government Area	DALY rates per 1000			
			All causes	Total cardio-vascular disease	Ischaemic heart disease	Stroke
Males	Southern Grampians & Glenelg	Glenelg	153.1	27.9	16.7	6.2
		Southern Grampians	147.1	26.1	15.2	6.3
	South West	Corangamite	151.1	27.7	16.2	6.4
		Moyne	140.2	24.8	14.3	5.7
		Warrnambool	158.6	29.5	17.5	6.8
	Barwon Primary Care Forum	Colac Otway	149.6	27.1	16.2	6.0
		Greater Geelong	142.5	25.1	14.6	6.1
		Queenscliffe	131.0	21.0	11.7	5.6
		Surf Coast	135.5	23.0	13.1	5.7
	Females	Southern Grampians & Glenelg	Glenelg	134.1	23.1	10.8
Southern Grampians			131.8	23.9	11.3	8.1
South West		Corangamite	132.1	23.8	11.2	7.9
		Moyne	120.0	21.4	9.9	6.8
		Warrnambool	140.4	25.2	11.9	8.6
Barwon Primary Care Forum		Colac Otway	130.6	22.4	10.4	7.6
		Greater Geelong	127.2	21.7	10.2	7.4
		Queenscliffe	119.4	22.3	10.6	7.6
		Surf Coast	119.9	21.9	10.2	7.2

The highest DALY rates for cardiovascular disease occurred in Warrnambool for both males and females. The lowest DALY rates for cardiovascular disease occurred in Queenscliffe for males and in Moyne for females.

## How common are some of the risk factors for cardiovascular disease?

Selected key risk factors presented here include smoking, inadequate consumption of fruit and vegetables, physical inactivity, obesity and high blood pressure. Self-reported information about behaviour in relation to these risk factors was drawn from the Victorian Population Health Survey. Findings from the survey relate to 2006 and are reported as percentages. These data represent the proportion of adults aged 18 years or more. Adults living in nursing homes and other similar settings were not included in the survey population.

### How common is smoking?

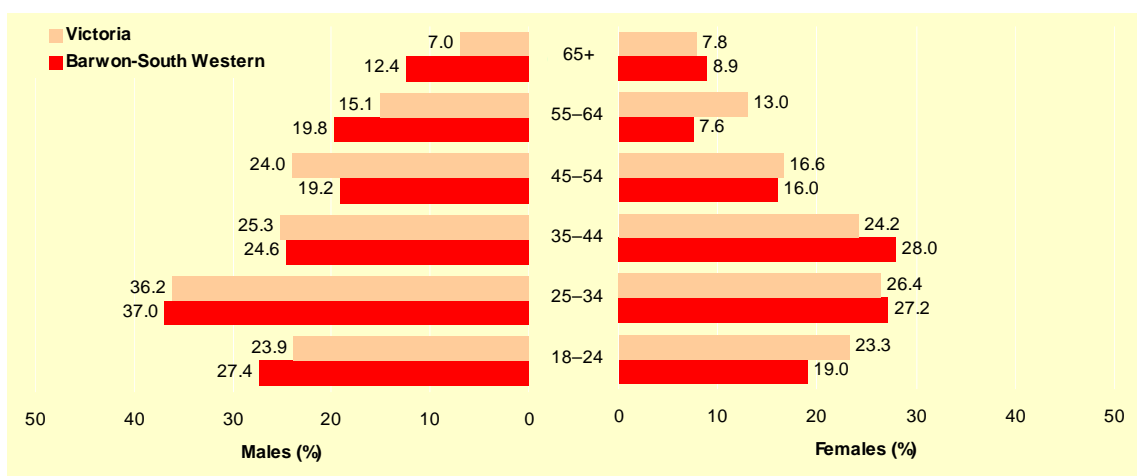
Smoking is a major risk factor for coronary heart disease, stroke and peripheral vascular disease as well as for numerous cancers and a range of other diseases and conditions. Table 8 shows the proportion of Victorian adults who are classified as current smokers on the basis of their self-reported smoking behaviour, by age group and gender. This table compares findings for the Barwon-South Western region with those for Victoria. Current smokers were defined as those who smoke daily or occasionally.

**Table 8: Self-reported prevalence of current smoking, by sex and age, 2006**

Sex	Age group	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>	18–24 years	27.4	9.3–45.6	23.9	17.0–30.8
	25–34 years	37.0	20.7–53.2	36.2	28.7–43.6
	35–44 years	24.6	13.1–36.2	25.3	20.4–30.1
	45–54 years	19.2	10.3–28.1	24.0	19.5–28.6
	55–64 years	19.8	8.6–31.1	15.1	11.3–18.9
	65 years or more	12.4	5.1–19.8	7.0	4.7–9.3
	<b>Total</b>	<b>23.0</b>	<b>18.0–28.0</b>	<b>22.6</b>	<b>20.3–24.9</b>
<b>Females</b>	18–24 years	19.0	3.3–34.6	23.3	16.9–29.6
	25–34 years	27.2	16.2–38.2	26.4	22.1–30.7
	35–44 years	28.0	19.9–36.1	24.2	20.8–27.7
	45–54 years	16.0	9.4–22.5	16.6	13.5–19.6
	55–64 years	7.6	2.6–12.7	13.0	10.1–15.8
	65 years or more	8.9	3.5–14.3	7.8	5.3–10.2
	<b>Total</b>	<b>17.4</b>	<b>14.0–20.8</b>	<b>18.5</b>	<b>17.0–20.0</b>
<b>Persons</b>	18–24 years	23.3	11.3–35.4	23.6	18.9–28.3
	25–34 years	32.1	22.1–42.1	31.2	26.9–35.6
	35–44 years	26.3	19.3–33.4	24.7	21.8–27.7
	45–54 years	17.6	12.1–23.1	20.3	17.5–23.0
	55–64 years	13.7	7.4–20.0	14.0	11.7–16.4
	65 years or more	10.4	6.0–14.9	7.4	5.7–9.1
	<b>Total</b>	<b>20.1</b>	<b>17.1–23.1</b>	<b>20.5</b>	<b>19.1–21.9</b>

More than one in five Victorian adults (20.5%) were categorised as current smokers in 2006 on the basis of their self-reported smoking behaviour. In the Barwon-South Western region the rate was almost identical (20.1%). In common with other parts of Victoria, a higher percentage of men (23.0%) than women (17.4%) in the region were current smokers. The proportion of current smokers was highest in younger age groups for both men and women. For those aged 35–44 years or more, the proportion of adults who were current smokers generally decreased with increasing age.

**Figure 2: Self-reported prevalence of current smoking, by sex and age, 2006**



Most current smokers were daily smokers (Table 9). Among Victorian adults, 17.5% of men and 14.9% of women smoked daily, while 5.1% of men and 3.6% of women smoked occasionally.

**Table 9: Self-reported prevalence of current smoking, by type of smoking behaviour, sex and age, 2006**

Sex Age group	Barwon-South Western				Victoria			
	Current daily		Occasional		Current daily		Occasional	
	(%)	95% confidence interval	(%)	95% confidence interval	(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>								
18–24 years	25.7	7.8–43.5	1.8	0.0–5.3	16.5	10.9–22.1	7.4	2.7–12.1
25–34 years	27.3	11.7–42.8	9.7	0.3–19.1	24.0	17.6–30.4	12.1	6.2–18.0
35–44 years	22.5	11.4–33.6	2.1	0.0–6.3	21.7	17.1–26.3	3.6	1.4–5.7
45–54 years	15.7	7.6–23.9	3.5	0.0–7.5	19.4	15.2–23.6	4.6	2.4–6.9
55–64 years	18.3	7.1–29.5	1.5	0.0–3.6	13.5	9.8–17.1	1.7	0.4–2.9
65 years or more	12.4	5.1–19.8	0.0	0.0–0.0	6.4	4.2–8.6	0.6	0.0–1.2
<b>Total</b>	<b>19.9</b>	<b>15.1–24.7</b>	<b>3.1</b>	<b>1.1–5.1</b>	<b>17.5</b>	<b>15.5–19.4</b>	<b>5.1</b>	<b>3.7–6.6</b>
<b>Females</b>								
18–24 years	19.0	3.3–34.6	0.0	0.0–0.0	15.9	10.7–21.1	7.4	2.9–11.8
25–34 years	25.5	14.7–36.3	1.7	0.0–4.1	21.6	17.6–25.5	4.8	2.5–7.1
35–44 years	20.8	13.4–28.2	7.1	2.7–11.6	19.0	15.8–22.1	5.3	3.4–7.1
45–54 years	11.6	6.1–17.0	4.4	0.4–8.4	14.7	11.7–17.7	1.8	1.0–2.7
55–64 years	5.1	1.0–9.2	2.5	0.0–5.5	11.7	8.9–14.5	1.3	0.6–2.0
65 years or more	8.4	3.0–13.7	0.5	0.0–1.4	6.2	4.0–8.4	1.6	0.4–2.7
<b>Total</b>	<b>14.6</b>	<b>11.3–17.8</b>	<b>2.8</b>	<b>1.6–4.1</b>	<b>14.9</b>	<b>13.5–16.3</b>	<b>3.6</b>	<b>2.8–4.4</b>
<b>Persons</b>								
18–24 years	22.4	10.5–34.4	0.9	0.0–2.7	16.2	12.4–20.0	7.4	4.1–10.6
25–34 years	26.4	16.9–35.9	5.7	0.8–10.7	22.8	19.0–26.5	8.5	5.2–11.7
35–44 years	21.6	15.0–28.3	4.7	1.6–7.8	20.3	17.6–23.1	4.4	3.0–5.9
45–54 years	13.6	8.7–18.5	3.9	1.1–6.8	17.0	14.5–19.6	3.2	2.0–4.4
55–64 years	11.6	5.5–17.8	2.0	0.2–3.9	12.6	10.3–14.8	1.5	0.8–2.2
65 years or more	10.2	5.7–14.6	0.3	0.0–0.8	6.3	4.7–7.9	1.1	0.4–1.8
<b>Total</b>	<b>17.1</b>	<b>14.3–20.0</b>	<b>3.0</b>	<b>1.8–4.1</b>	<b>16.2</b>	<b>15–17.3</b>	<b>4.4</b>	<b>3.5–5.2</b>

The proportion of adult males within the region who reported that they smoked daily was a little higher than that for Victoria, but the difference was not statistically significant. The proportion of adults within the region aged 18–24 years who reported being occasional smokers (0.9%) was significantly lower than that for Victoria (7.4%), although in the same age group, the proportion who reported being current smokers (22.4%) was greater than that for Victoria (16.2%).

## How many serves of fruit and vegetables do people consume?

Plant foods have been found to be protective in a range of heart-related health problems, including coronary heart disease, high blood pressure, obesity and non-insulin dependent diabetes.<sup>4</sup> Inadequate consumption of fruit and vegetables has been identified as a risk factor in the development of a number of chronic diseases, including coronary heart disease and stroke.

Evidence regarding the protective effect of vegetables is stronger than that for fruit, although this may be due to the limited range of fruit available in some populations and/or the greater amount of vegetables in most diets.<sup>5</sup> Current Australian guidelines recommend a daily vegetable intake of three serves for people aged 12–18 years and five serves for people aged 19 years or more. The recommended daily fruit intake is three serves for people aged 12–18 years and two serves for people aged 19 years or more.<sup>6</sup>

Tables 10 and 11 show the levels of reported consumption of fruit and vegetables by sex and number of serves, within the Barwon-South Western region and within Victoria, for adults aged 18 years or more.

**Table 10: Self-reported prevalence of daily vegetable consumption by sex and number of serves, 2006**

Sex	Number of serves	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>	None	5.3	2.7–7.9	5.1	3.9–6.3
	One or two serves	60.5	54.7–66.3	64.4	62.0–66.9
	Three or four serves	26.9	21.6–32.2	22.5	20.4–24.5
	Five or more serves	6.1	3.0–9.2	6.6	5.2–8.0
<b>Females</b>	None	1.8	0.6–2.9	3.9	3.1–4.7
	One or two serves	40.4	35.7–45.0	44.5	42.5–46.5
	Three or four serves	44.1	39.5–48.8	37.5	35.6–39.4
	Five or more serves	13.0	9.9–16.1	13.1	11.9–14.4
<b>Persons</b>	None	3.5	2.1–4.9	4.5	3.8–5.2
	One or two serves	50.2	46.4–53.9	54.2	52.6–55.8
	Three or four serves	35.8	32.2–39.3	30.2	28.7–31.6
	Five or more serves	9.6	7.4–11.8	9.9	9.0–10.9

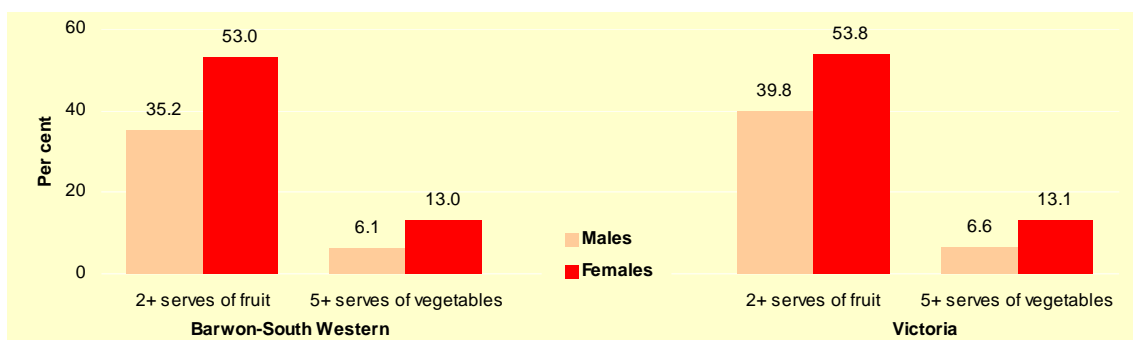
**Table 11: Self-reported prevalence of daily fruit consumption by sex and number of serves, 2006**

Sex	Number of serves	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>	None	27.3	22.0–32.7	20.3	18.3–22.3
	One serve	35.4	29.8–41.0	38.8	36.3–41.3
	Two or more serves	35.2	29.6–40.7	39.8	37.2–42.3
<b>Females</b>	None	7.8	5.4–10.2	11.1	9.9–12.3
	One serve	38.6	34.0–43.2	34.0	32.1–35.8
	Two or more serves	53.0	48.3–57.7	53.8	51.9–55.8
<b>Persons</b>	None	17.3	14.3–20.3	15.6	14.4–16.8
	One serve	37.0	33.4–40.6	36.3	34.7–37.9
	Two or more serves	44.3	40.6–48.0	47.0	45.4–48.6

Adults living in the Barwon-South Western region were significantly more likely to consume three or four serves of vegetables per day than the Victorian average (35.8% compared with 30.2%). Fewer women within the region reported consuming no serves of vegetables (1.8% compared with 3.9% for Victoria). Consumption of fruit within the region was similar to that for Victoria.

Figure 3 shows the proportion of adults aged 18 years or more who reported consuming at least the recommended daily amount of fruit and/or vegetables.

**Figure 3: Self-reported prevalence of consumption of at least the recommended intake of fruit and/or vegetables, by sex, 2006**



### How common is physical inactivity?

Physical inactivity is a major modifiable risk factor for a range of diseases and conditions, including cardiovascular disease, diabetes, obesity, some cancers, and falls among the elderly.<sup>7-11</sup> The national physical activity guidelines for Australians<sup>12</sup> recommend that individuals undertake at least 30 minutes of moderate-intensity activity on most days of the week. This is generally interpreted as meaning at least 30 minutes on each of five or more days of the week.

Table 12 shows the percentage of adults reporting inadequate physical activity during the previous week. Adults with inadequate physical activity include those who are sedentary (5.0% of adults in the region) and those who reported an insufficient amount of time and/or sessions spent exercising during the week. This was defined as exercising for less than 150 minutes per week and/or participating in less than five exercise sessions per week. In the region, 23.3% of adults reported an insufficient amount of time and/or sessions spent exercising.

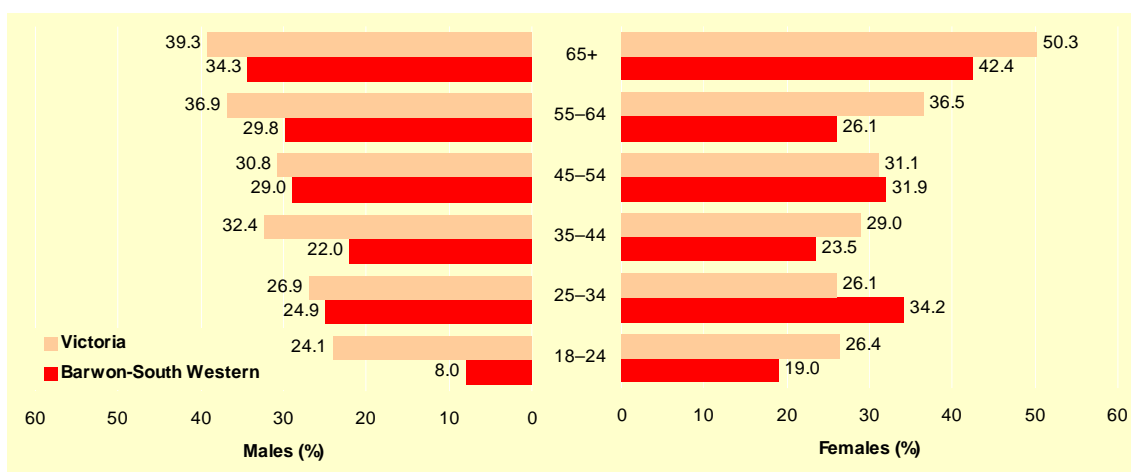
The proportion of adults in the region categorised as having sedentary behaviour was lowest for men aged 18–35 years and for women aged 18–24 years. Women aged 65 years or more who lived in the region were significantly less likely to be categorised as engaging in insufficient physical exercise (25.6% compared with 37.6% for Victoria).

**Table 12: Self-reported prevalence of sedentary behaviour/insufficient exercise during the previous week, by sex and age, 2006**

Sex Age group	Barwon-South Western				Victoria			
	Sedentary behaviour		Insufficient time and/or sessions		Sedentary behaviour		Insufficient time and/or sessions	
	(%)	95% confidence interval	(%)	95% confidence interval	(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>								
18–24 years	0.0	0.0–0.0	8.0	0.0–17.3	3.9	0.8–7.0	20.2	13.3–27.1
25–34 years	0.0	0.0–0.0	24.9	10.8–39.1	2.1	0.6–3.6	24.8	18.5–31.0
35–44 years	3.8	0.0–8.5	18.2	7.6–28.8	3.7	1.6–5.8	28.7	23.7–33.7
45–54 years	3.5	0.0–7.5	25.5	15.1–35.8	6.1	3.6–8.6	24.7	20.3–29.1
55–64 years	8.7	1.2–16.1	21.1	11.3–31.0	5.3	2.2–8.5	31.6	26.0–37.2
65 years or more	6.5	1.4–11.7	27.8	18.4–37.3	7.1	4.9–9.3	32.2	27.9–36.5
<b>Total</b>	<b>3.9</b>	<b>2.0–5.8</b>	<b>21.7</b>	<b>17.1–26.3</b>	<b>4.6</b>	<b>3.6–5.6</b>	<b>27.1</b>	<b>24.8–29.3</b>
<b>Females</b>								
18–24 years	0.0	0.0–0.0	19.0	0.8–37.2	2.5	0.5–4.5	23.9	17.2–30.6
25–34 years	9.1	1.9–16.2	25.1	13.0–37.2	3.7	1.8–5.5	22.4	18.3–26.6
35–44 years	0.8	0.0–2.5	22.7	15.0–30.4	3.8	2.2–5.4	25.2	21.7–28.7
45–54 years	0.4	0.0–1.2	31.5	22.4–40.6	3.8	2.1–5.4	27.3	23.5–31.1
55–64 years	3.6	0.0–7.1	22.5	14.4–30.6	4.8	2.9–6.6	31.7	27.6–35.8
65 years or more	16.8	10.1–23.5	25.6	18.0–33.2	12.7	9.6–15.7	37.6	33.4–41.8
<b>Total</b>	<b>6.0</b>	<b>3.9–8.1</b>	<b>24.9</b>	<b>20.8–29.0</b>	<b>5.4</b>	<b>4.5–6.3</b>	<b>28.1</b>	<b>26.4–29.9</b>
<b>Persons</b>								
18–24 years	0.0	0.0–0.0	13.3	3.0–23.7	3.2	1.3–5.0	22.0	17.2–26.8
25–34 years	4.5	0.9–8.2	25.0	15.7–34.3	2.9	1.7–4.1	23.6	19.8–27.3
35–44 years	2.3	0.0–4.8	20.5	14.0–27.0	3.7	2.4–5.1	26.9	23.9–30.0
45–54 years	1.9	0.0–4.0	28.5	21.6–35.4	4.9	3.4–6.4	26.0	23.1–28.9
55–64 years	6.1	2.0–10.2	21.8	15.5–28.2	5.0	3.2–6.9	31.7	28.2–35.1
65 years or more	12.3	7.8–16.7	26.6	20.6–32.6	10.2	8.2–12.2	35.2	32.2–38.2
<b>Total</b>	<b>5.0</b>	<b>3.5–6.4</b>	<b>23.3</b>	<b>20.3–26.4</b>	<b>5.0</b>	<b>4.4–5.7</b>	<b>27.6</b>	<b>26.2–29.0</b>

Figure 4 shows the proportion of adults, by age group and gender, who undertake less than the recommended levels of exercise. This includes adults who are sedentary together with those who exercise for less than 150 minutes per week and/or participate in less than five exercise sessions per week.

**Figure 4: Self-reported prevalence of sedentary behaviour/insufficient exercise during the previous week, by sex and age, 2006**



Levels of inadequate physical activity increased with age. For most age groups, levels of inadequate physical activity were lower in the Barwon-South Western region than for Victoria.

## How common is obesity?

Cardiovascular health risks associated with being overweight or obese include an increased risk of developing type 2 diabetes, cardiovascular disease and high blood pressure. The most common population-level measure of weight status is body mass index (BMI). Self-reported height and weight data were used to determine the BMI for each survey respondent (weight in kilograms, divided by height in metres squared).

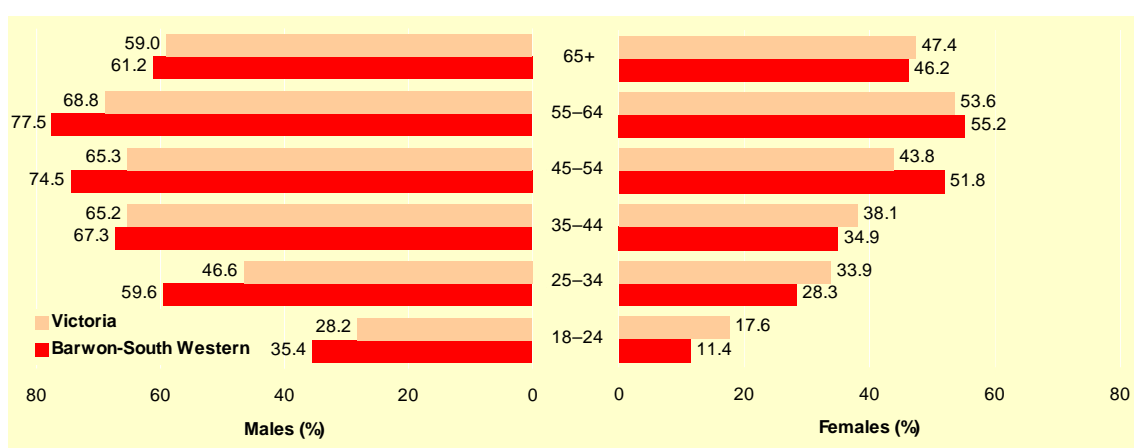
Being overweight refers to increased body weight in relation to height, compared with a standard of acceptable or desirable weight. BMI data were classified into the following categories using the standard cut-offs recommended by the World Health Organization:<sup>13</sup>

- less than 18.5 (underweight)
- 18.5 to less than 25.0 (normal)
- 25.0 to less than 30.0 (overweight)
- 30.0 and above (obese).

Being overweight may be due to increases in body fat, or increases in muscle and other lean tissue. People who are overweight due to lean tissue mass are not necessarily overweight, regardless of BMI.

Figure 5 shows the proportion of adults who are categorised as being either overweight or obese on the basis of their self-reported height and weight by sex and age. It compares findings for the Barwon-South Western region with those for Victoria.

**Figure 5: Prevalence of being overweight or obese, based on self-reported height and weight, by sex and age, 2006**



The proportion of both men and women categorised as being either overweight or obese rose steadily with age until the age group 55–64 years. The highest proportion of overweight/obese men was in the age group 55–64 years (68.8% for Victoria and 77.5% within the Barwon-South Western region). The highest proportion of obese/overweight women was in the age group 55–64 years (53.6% for Victoria and 55.2% within the Barwon-South Western region).

More than one-third (37.0%) of adults in the region were categorised as being overweight. A further 14.5% of adults in the region were categorised as being obese. These proportions were similar to those for Victoria. Within the region, men were significantly more likely to be overweight (49.5%) compared to Victoria (40.0%). This difference was particularly marked for men aged 55–64 years. A total of 62.2% of men in the Barwon-South Western region in this age group were categorised as being overweight compared with 44.0% for Victoria.

**Table 13: Prevalence of being overweight or obese, based on self-reported height and weight, by sex and age, 2006**

Sex Age group	Barwon-South Western				Victoria			
	Overweight		Obese		Overweight		Obese	
	(%)	95% confidence interval	(%)	95% confidence interval	(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>								
18–24 years	28.3	6.5–50.2	7.1	0.0–16.7	22.2	15.0–29.4	6.0	2.9–9.0
25–34 years	55.4	39.1–71.7	4.2	0.0–10.1	32.3	25.5–39.1	14.3	9.7–18.9
35–44 years	49.1	35.3–62.9	18.2	6.6–29.8	48.6	43.0–54.1	16.6	12.8–20.4
45–54 years	50.8	38.5–63.1	23.7	12.8–34.6	45.5	40.3–50.6	19.8	15.7–23.9
55–64 years	62.2	50.2–74.2	15.3	6.5–24.0	44.0	38.3–49.7	24.8	19.5–30.1
65 years or more	47.0	36.7–57.4	14.2	7.0–21.4	43.7	39.2–48.3	15.3	12.1–18.5
<b>Total</b>	<b>49.5</b>	<b>43.7–55.4</b>	<b>14.4</b>	<b>10.4–18.3</b>	<b>40.0</b>	<b>37.5–42.5</b>	<b>16.3</b>	<b>14.6–18.0</b>
<b>Females</b>								
18–24 years	11.4	0.0–24.7	0.0	0.0–0.0	12.4	7.7–17.0	5.2	2.2–8.1
25–34 years	16.2	6.5–25.9	12.1	4.2–20.0	21.4	17.3–25.5	12.5	9.3–15.7
35–44 years	17.9	11.2–24.7	17.0	10.0–24.1	24.0	20.6–27.4	14.1	11.4–16.8
45–54 years	33.3	24.1–42.5	18.5	11.2–25.7	25.6	22.0–29.3	18.2	15.1–21.3
55–64 years	32.5	23.2–41.7	22.7	14.7–30.7	31.6	27.6–35.7	22.0	18.3–25.7
65 years or more	32.9	24.6–41.1	13.3	7.3–19.3	32.0	27.9–36.0	15.4	12.1–18.6
<b>Total</b>	<b>25.2</b>	<b>21.4–29.1</b>	<b>14.6</b>	<b>11.7–17.6</b>	<b>24.9</b>	<b>23.3–26.6</b>	<b>14.7</b>	<b>13.4–16.0</b>
<b>Persons</b>								
18–24 years	20.1	6.6–33.6	3.6	0.0–8.6	17.4	13.0–21.8	5.6	3.5–7.7
25–34 years	35.9	25.4–46.5	8.1	3.1–13.1	26.8	22.9–30.8	13.4	10.6–16.2
35–44 years	33.3	25.4–41.1	17.6	10.9–24.4	36.1	32.8–39.5	15.4	13.0–17.7
45–54 years	42.0	34.2–49.7	21.1	14.5–27.6	35.4	32.2–38.6	19.0	16.4–21.6
55–64 years	47.1	39.2–55.0	19.0	13.1–25.0	37.8	34.3–41.3	23.4	20.2–26.6
65 years or more	39.1	32.6–45.7	13.7	9.1–18.3	37.2	34.1–40.2	15.3	13.0–17.6
<b>Total</b>	<b>37.0</b>	<b>33.4–40.6</b>	<b>14.5</b>	<b>12.1–17.0</b>	<b>32.3</b>	<b>30.8–33.8</b>	<b>15.5</b>	<b>14.4–16.6</b>

## How common is high blood pressure?

Elevated blood pressure is an important risk factor for cardiovascular disease. In 2006, 24.5% of Victorians indicated that they had been diagnosed with high blood pressure by a doctor.

Table 14 compares the proportion of adults with high blood pressure in Victoria with that for the Barwon-South Western region.

**Table 14: Self-reported prevalence of high blood pressure, by sex and age, 2006**

Sex	Age group	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
<b>Males</b>	18–24 years	0.0	0.0–0.0	2.6	0.6–4.6
	25–34 years	4.2	0.0–10.1	8.9	4.8–13.1
	35–44 years	13.9	4.5–23.3	11.8	8.4–15.3
	45–54 years	24.8	14.3–35.3	23.6	19.4–27.8
	55–64 years	32.2	20.9–43.5	35.0	29.6–40.4
	65 years or more	58.3	48.1–68.5	54.4	49.9–59.0
	<b>Total</b>	<b>23.8</b>	<b>19.3–28.2</b>	<b>22.2</b>	<b>20.3–24.1</b>
<b>Females</b>	18–24 years	7.6	0.0–21.7	2.8	0.6–5.1
	25–34 years	20.7	10.7–30.8	13.1	9.7–16.5
	35–44 years	13.3	6.9–19.7	14.3	11.7–17.0
	45–54 years	24.6	16.4–32.8	25.6	21.8–29.4
	55–64 years	38.9	29.6–48.3	39.6	35.3–43.9
	65 years or more	62.2	53.8–70.6	59.2	55.0–63.5
	<b>Total</b>	<b>30.8</b>	<b>26.6–34.9</b>	<b>26.7</b>	<b>25.0–28.3</b>
<b>Persons</b>	18–24 years	3.7	0.0–10.7	2.7	1.2–4.2
	25–34 years	12.4	6.4–18.4	11.0	8.3–13.7
	35–44 years	13.6	8.0–19.2	13.1	10.9–15.3
	45–54 years	24.7	18.0–31.3	24.6	21.8–27.4
	55–64 years	35.6	28.3–42.9	37.3	33.8–40.8
	65 years or more	60.5	54.0–67.0	57.1	54.0–60.2
	<b>Total</b>	<b>27.4</b>	<b>24.3–30.4</b>	<b>24.5</b>	<b>23.2–25.7</b>

Levels of high blood pressure were higher among women and increased with increasing age. Overall, levels of high blood pressure were marginally higher in the Barwon-South Western region than for Victoria.

## How commonly do people use screening tests?

In Victoria, data are collected each year about some routine checks or screening tests that may be performed to identify the presence of risk factors for the development of a disease or condition before its symptoms occur. These data are collected via the Victorian Population Health Survey. They are collected for the following two factors that may influence development of cardiovascular disease: blood pressure and blood cholesterol levels.

## How many people have had their blood pressure checked?

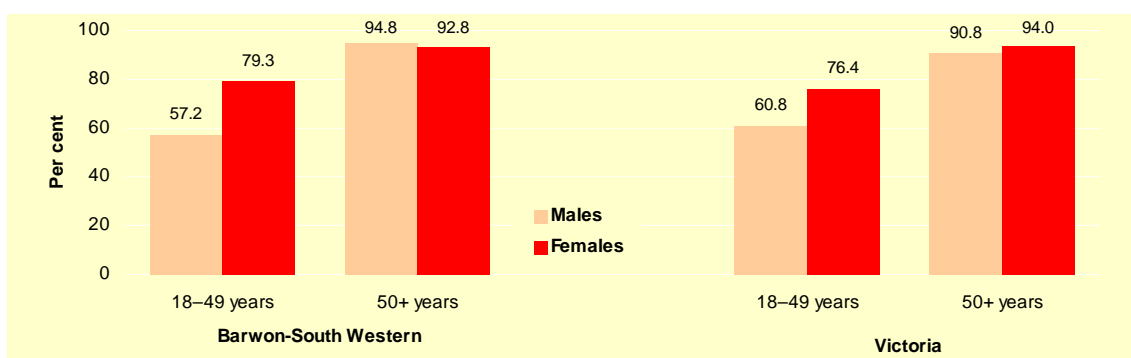
It is recommended that all adults have their blood pressure checked regularly, primarily to identify high blood pressure, also known as hypertension.<sup>14</sup> Table 15 shows the percentage of adults, in the Barwon-South Western region and in Victoria, who reported having had their blood pressure checked within the previous two years.

**Table 15: Self-reported prevalence of having had a blood pressure check in the previous two years, by sex and age, 2006**

Sex	Age group	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
Males	18–49 years	57.2	48.4–66.0	60.8	57.2–64.4
	50 years or more	94.8	91.4–98.2	90.8	88.9–92.7
	<b>Total</b>	<b>74.0</b>	<b>68.4–79.6</b>	<b>72.5</b>	<b>70.1–75.0</b>
Females	18–49 years	79.3	73.6–85.1	76.4	74.0–78.8
	50 years or more	92.8	90.0–95.7	94.0	92.8–95.2
	<b>Total</b>	<b>85.9</b>	<b>82.6–89.2</b>	<b>83.6</b>	<b>82.1–85.2</b>
Persons	18–49 years	68.2	62.7–73.7	68.7	66.5–70.9
	50 years or more	93.8	91.5–96.0	92.5	91.4–93.6
	<b>Total</b>	<b>80.1</b>	<b>76.8–83.4</b>	<b>78.2</b>	<b>76.8–79.7</b>

In the Barwon-South Western region 80.1% of adults reported having had their blood pressure checked within the past two years, including almost all adults aged 50 years or more (93.8%).

**Figure 6: Self-reported prevalence of having had a blood pressure check in the previous two years, by sex and age, 2006**



Victorians aged 50 years or more were more likely than younger adults to report having had their blood pressure checked within the past two years. In Victoria, for adults aged less than 50 years, women were more likely than men to have had their blood pressure checked.

## How many people have had their blood cholesterol checked?

Elevated blood cholesterol is an important risk factor for coronary heart disease. Cholesterol checks are recommended for persons potentially at high risk, such as smokers, those with a significant family history of coronary heart disease (a first-degree relative affected before the age of 60 years), those who are overweight or obese, those who have high blood pressure and those aged 45 years or more.<sup>15</sup>

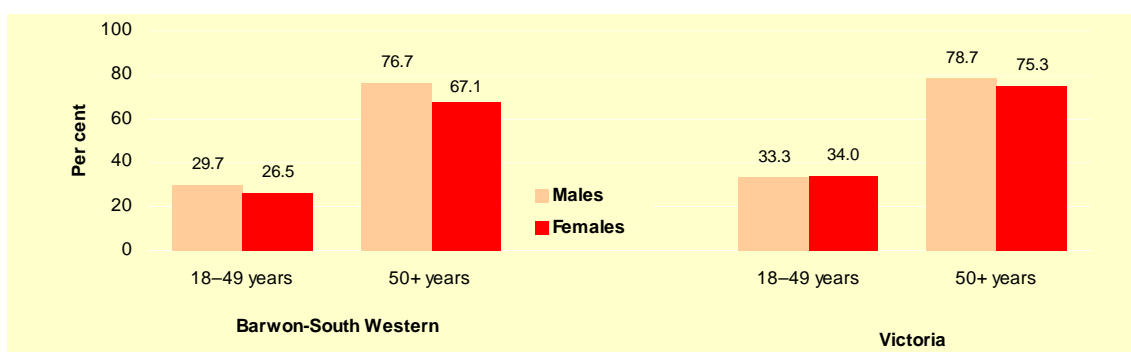
Table 16 shows the percentage of adults in the Barwon-South Western region and in Victoria who have had their blood cholesterol checked within the previous two years.

**Table 16: Self-reported prevalence of having had a blood cholesterol check in the previous two years, by sex and age, 2006**

Sex	Age group	Barwon-South Western		Victoria	
		(%)	95% confidence interval	(%)	95% confidence interval
Males	18–49 years	29.7	22.1–37.2	33.3	30.0–36.7
	50 years or more	76.7	70.5–82.9	78.7	76.0–81.4
	<b>Total</b>	<b>50.7</b>	<b>44.9–56.6</b>	<b>51.1</b>	<b>48.5–53.7</b>
Females	18–49 years	26.5	20.7–32.2	34.0	31.5–36.6
	50 years or more	67.1	61.5–72.7	75.3	72.9–77.6
	<b>Total</b>	<b>46.2</b>	<b>41.6–50.8</b>	<b>50.9</b>	<b>48.9–52.9</b>
Persons	18–49 years	28.1	23.3–32.9	33.7	31.6–35.8
	50 years or more	71.6	67.4–75.8	76.9	75.2–78.7
	<b>Total</b>	<b>48.4</b>	<b>44.7–52.1</b>	<b>51.0</b>	<b>49.4–52.6</b>

Adults living in the Barwon-South Western region were less likely to report having had their blood cholesterol levels checked within the previous two years than Victorians in general (48.4% compared with 51.0%). Significantly fewer women aged 50 years or more in the region reported having undergone testing (67.1%) compared with all Victorian women (75.3%).

**Figure 7: Self-reported prevalence of having had a blood cholesterol check in the previous two years, by sex and age, 2006**



## References

- 1 National Heart Foundation. Available from: <http://www.heartfoundation.com.au/index.cfm?page=49>. Accessed June 30, 2007.
- 2 National Heart Foundation. Available from: <http://www.heartfoundation.com.au/index.cfm?page=184>. Accessed June 30, 2007.
- 3 National Heart Foundation. Available from: <http://www.heartfoundation.com.au/index.cfm?page=187>. Accessed June 30, 2007.
- 4 National Health and Medical Research Council. Dietary guidelines for Australians. Canberra: National Health and Medical Research Council, 1992.
- 5 Mitchell JA, Armstrong B. Cancer prevention by diet and exercise. N S W Public Health Bull 2001;12(1):7–9.
- 6 Australian Department of Health and Family Services. The Australian guide to healthy living, Canberra, 1998.
- 7 Berlin J, Colditz GA. A meta analysis of physical activity in the prevention of coronary heart disease. Am J Epidemiol 1990;132:612–28.
- 8 Bauman A, Owen N. Physical activity of adult Australians: epidemiological evidence and potential strategies for health gain. J Sci Med Sport 1999;2:30–41.
- 9 Powell KE, Thompson PD, Caspersen CJ, Kendrick JS. Physical activity and the incidence of coronary heart disease. Annu Rev Public Health 1987;8:253–87.
- 10 National Institute of Health, Consensus Development Panel on Physical Activity and Cardiovascular Disease. Physical activity and cardiovascular health. JAMA 1996;3(276):241–6.
- 11 Pate RR, Pratt M, Blair SN, Haskell WL, Macera CA, Bouchard C. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. JAMA 1995;273:402–7.
- 12 Australian Institute of Health and Welfare. The Active Australia Survey: a guide and manual for implementation, analysis and reporting, Canberra, 2003.
- 13 World Health Organization. Obesity: preventing and managing the global epidemic, WHO Technical Series no. 894, Geneva, 2001.
- 14 Bindaman AB. Preventable hospitalizations and access to health care. JAMA 1995;274(4):305–11.
- 15 National Heart Foundation of Australia. The Cardiac Society of Australia and New Zealand. Lipid management guidelines 2001. MJA 2001;175(suppl):S57–88.

## Acknowledgements

Produced by the **Heart Foundation** with the assistance of the **Department of Human Services**. All data in this fact sheet were provided via the Department of Human Services.

- For further information about the data in this fact sheet, visit <http://www.health.vic.gov.au/healthstatus/>
- For further information about cardiovascular disease, visit <http://www.heartfoundation.org.au>.