

Health and Lifestyle Behaviours

Victorian Population Health Survey

The Victorian Burden of Disease Study highlights a number of health and lifestyle-related factors that contribute to the total disease burden experienced at the population level. For women in the WMSR, such factors include alcohol consumption, low fruit and vegetable intake, tobacco consumption, high cholesterol and high blood pressure, physical inactivity, obesity, and intimate partner violence. These factors are associated with an increased risk of a range of diseases and conditions (for example, cardiovascular diseases and some cancers) and are often further implicated beyond onset and diagnosis to the management and prognosis of those affected.

Such health and lifestyle-related factors are largely avoidable and modifiable, which means there is considerable scope for health planners to intervene at the individual (behavioural) level to influence the disease burden over time. It is important to remember, however, that public health interventions must not be directed solely at the individual/behavioural level, since socio-economic factors play an equally important role (if not more so) in determining the health and wellbeing status of populations.¹ Indeed, each of the health and lifestyle-related factors mentioned above are variously inflected by socio-economic circumstances. And a strong case can be made for the relationship between the occurrence of intimate partner violence and the socially constructed gender roles that pervade everyday life – roles that generally give men more power over women (in both public and private domains) and foster a tolerance of violence against women.²

The Victorian Population Health Survey (VPHS) was established by the Health Intelligence Unit, Public Health Branch, DHS, in 1998. The survey is

¹ As noted elsewhere in this report, the association between socio-economic status and health and wellbeing is well established in the field of public health. People who experience low socio-economic status carry a greater burden of ill health (morbidity and disability) and live shorter lives than those who are better off. And the more a person experiences disadvantage, the worse their prospects for good health (also known as the 'social gradient' in health'. For more on socio-economic status, see Volume 1: Social Profile of this report.

² See Barwon South-Western Regional Women's Health (2006), 'Women and Violence', Women's Health Victoria: Melbourne, at http://www.whv.org.au/health_policy/banners.htm, accessed January 2009.

designed to provide information to health planners and decision makers about key health and lifestyle-related factors that contribute to the health (illness) status of Victorians aged 18 years or more. The content of the survey was confirmed after reviewing the determinants of chronic diseases/conditions that have a significant impact on Victorians. Priority was given to areas in which public health interventions are most likely to be effective in improving health and the disease burden. In terms of health and lifestyle-related factors, the survey prioritises the following behaviours: alcohol consumption, nutrition and physical activity, smoking, healthy weight and health checks (blood pressure and blood cholesterol).

The survey has been conducted annually since 1999 (this first survey was a demonstration survey). Findings from each survey have been collated and published, along with regional fact sheets.³ The most recent findings for the NWMR refer to the 2006 survey, and are summarised below.⁴ The following discussion also includes additional information and data where relevant to (and readily available for) the behaviours being considered.

Alcohol Consumption

The consumption of alcohol at low or moderate levels can yield health benefits for some people (for example, the reduction of heart disease risk from middle age).⁵ But regular excessive consumption of alcohol over time places people at increased risk of chronic ill health. Conditions include cirrhosis of the liver, cognitive impairment, heart and blood disorders, ulcers, some cancers, and damage to the pancreas. Episodes of heavy drinking can also place the drinker (and others) at risk of injury or death.

³ At <http://www.health.vic.gov.au/healthstatus/vphs.htm> and accessed January 2009.

⁴ Computer-assisted telephone interviews were undertaken from August to December 2006. A representative statewide sample of adults aged 18 years or more was randomly selected from households in each of the eight DHS regions. Approximately 7,500 interviews were completed.

⁵ For this discussion, see Rural and Regional Health and Aged Care Services (2006) Victorian Population Health Survey 2006: Selected Findings, Victorian Government Department of Human Services: Melbourne, p. 17 at http://www.health.vic.gov.au/healthstatus/vphs_current.htm, accessed January 2009.

The Australian Alcohol Guidelines: Health Risks and Benefits specify three risk levels of alcohol consumption over the short term and long term.

- ‘Low risk’ is a level of drinking where the risk of harm is minimal and there are possible benefits.
- ‘Risky’ is a level of drinking at which the risk of harm outweighs any possible benefit.
- ‘High risk’ is a level of drinking at which there is substantial risk of serious harm and above which risk increases rapidly.

Findings for the NWMR from the 2006 VPHS show that:

- Females are less likely than males to be at high risk of alcohol-related harms in the short-term on a yearly, monthly and weekly (especially) basis.
- The difference in the rates between females and males are not significant for long-term harm associated with high risk levels of drinking.
- Females are more likely than males to be abstainers (i.e. never or no longer consuming alcohol).

		SHORT-TERM RISK OF ALCHOL-RELATED HARM							
		Low Risk		Risky or High Risk At Least Yearly		Risky or High Risk At Least Monthly		Risky Or High Risk At least Weekly	
		%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
NWMR	Females	39.5	35.4–43.8	19.3	15.9–23.2	10.6	8.2–13.7	5.8	4.1–8.1
	Males	29.4	24.8–34.5	24.3	19.7–29.7	17.1	13.3–21.8	14.5	10.6–19.5
Victoria	Females	40.4	38.5–42.4	21.4	19.8–23.1	9.6	8.5–10.9	6.1	5.2–7.2
	Males	31.3	29.1–33.6	25.5	23.2–27.9	15.9	14.1–17.9	14.7	12.9–16.7

Short-term Risk of Alcohol-related Harm by Sex
North and West Metropolitan Region and Victoria, 2006
Source: Wellbeing and Lifestyle – the Evidence 2006, North and West Metropolitan Region
Victorian Population Health Survey Fact Sheet

		LONG-TERM RISK OF ALCHOL-RELATED HARM							
		Low Risk		Risky		High Risk		Abstainer	
		%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
NWMR	Females	72.3	68.1–76.1	2.6	1.6–4.2	0.2	0.1–0.9	24.1	20.5–28.2
	Males	81.8	77.0–85.7	2.6	1.3–5.2	0.8	0.4–2.0	14.7	11.1–19.1
Victoria	Females	73.7	71.9–75.4	2.9	2.3–3.6	0.7	0.4–1.3	21.9	20.3–23.7
	Males	82.2	80.2–84.0	3.8	2.9–4.9	1.2	0.8–1.8	12.0	10.5–13.8

Long-term Risk of Alcohol-related Harm by Sex
North and West Metropolitan Region and Victoria, 2006
Source: Wellbeing and Lifestyle – the Evidence 2006, North and West Metropolitan Region
Victorian Population Health Survey Fact Sheet

Women and Alcohol

While the figures above show that risky and high risk drinking among men in the NWMR is more likely to be a problem than that of women, there are gender-specific issues to consider in relation to women and alcohol. According to Gippsland Women’s Health Service:⁶

- Rates of drinking among young women are increasing and at some levels are exceeding those of young men.
- Women often carry the burden of other people’s drinking problems. In some ways, the biggest issue for women in terms of problematic alcohol use is the drinking of others. Women, for example, are likely to take on the care of family members who drink such as partners and/or children.
- Women’s drinking is less socially acceptable than men’s, and the stigma and fear of consequences in seeking help can mean women are reluctant to admit to a drinking problem.
- When intoxicated, women are more likely to engage in unprotected sex placing them at higher risk of unplanned pregnancies and sexually transmitted infections. Intoxicated women are also at increased risk of violence and sexual assault.

Nutrition and Physical Activity

Plant foods have been found to protect against a range of heart-related diseases and conditions including coronary heart disease, high blood pressure, obesity and non-insulin dependent diabetes.⁷ Conversely, inadequate consumption of fruit and vegetables has been identified as a risk factor for a number of chronic diseases including coronary heart disease and stroke.

Current Australian guidelines recommend a daily vegetable intake of five serves for persons aged 19 years or more, where a serve is defined as half a cup of cooked vegetables or a cup of salad vegetables. The recommended daily fruit intake is two serves for persons aged 19 years or more, where a serve is defined as one medium piece or two small pieces of fruit, or one cup of diced pieces.

Findings for the NWMR from the 2006 VPHS show that just over one-half (52.9%) of females have the recommended intake of fruit each day while 11.0% have the recommended intake of vegetables each day.

- Females are much more likely than males to meet the dietary guidelines for fruit intake.
- Females are also slightly more likely than males to meet the dietary requirements for vegetable intake.

⁶ Gippsland Women’s Health Service (2006), ‘Women and Alcohol’, Women’s Health Victoria: Melbourne, at http://www.whv.org.au/health_policy/banners.htm, accessed January 2009.

⁷ For this discussion, see National Heart Foundation of Australia and Department of Human Services (2007) Cardiovascular Disease Fact Sheet: North and West Metropolitan Region, at http://www.health.vic.gov.au/healthstatus/vphs_current.htm, accessed January 2009.

	No. of Serves of Fruit Per Day	NWMR		Victoria	
		%	95.0% CI	%	95.0% CI
Females	None	12.4	9.6–15.2	11.1	9.9–12.3
	One Serve	32.6	28.5–36.8	34.0	32.1–35.8
	Two or More Serves	52.9	48.5–57.3	53.8	51.9–55.8
Males	None	20.2	15.7–24.6	20.3	18.3–22.3
	One Serve	39.4	33.9–45.0	38.8	36.3–41.3
	Two or More Serves	39.2	33.7–44.7	39.8	37.2–42.3

	No. of Serves of Vegetables Per Day	NWMR		Victoria	
		%	95.0% CI	%	95.0% CI
Females	None	5.4	3.3–7.4	3.9	3.1–4.7
	One or Two Serves	48.0	43.6–52.4	44.5	42.5–46.5
	Three or Four Serves	34.9	30.7–39.1	37.5	35.6–39.4
	Five or More Serves	11.0	8.3–13.7	13.1	11.9–14.4
Males	None	4.6	2.4–6.8	5.1	3.9–6.3
	One or Two Serves	66.5	61.2–71.9	64.4	62.0–66.9
	Three or Four Serves	21.5	16.9–26.1	22.5	20.4–24.5
	Five or More Serves	5.9	2.9–8.8	6.6	5.2–8.0

Fruit and Vegetable Intake by Sex
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet: North and West Metropolitan Region

Physical inactivity is a major modifiable risk factor for a range of diseases and conditions including cardiovascular diseases, diabetes, obesity, some cancers, and falls among the elderly. Current national guidelines for physical activity recommend that individuals undertake at least 30 minutes of moderate-intensity activity on most days of the week (in other words, on at least five or more days each week).

Findings for the NWMR from the 2006 VPHS show that around one-third (33.8%) of females experience levels of physical inactivity including sedentary behaviour.

- Overall, females are slightly less likely than males to spend insufficient time on physical activity per week; however, for certain age groups (18–24 years, 45–54 years and 65 years or more) the reverse is the case.

	LEVELS OF PHYSICAL INACTIVITY – FEMALES							
	NWMR				Victoria			
	Sedentary Behaviour		Insufficient Time and/or Sessions		Sedentary Behaviour		Insufficient Time and/or Sessions	
	%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
18–24	2.5	0.0–6.2	23.8	10.5–37.1	2.5	0.5–4.5	23.9	17.2–30.6
25–34	0.9	0.0–2.6	18.7	11.6–25.9	3.7	1.8–5.5	22.4	18.3–26.6
35–44	3.0	0.0–5.9	28.0	20.0–35.9	3.8	2.2–5.4	25.2	21.7–28.7
45–54	3.2	0.1–6.3	32.8	24.3–41.2	3.8	2.1–5.4	27.3	23.5–31.1
55–64	7.0	2.1–11.9	31.8	22.4–41.2	4.8	2.9–6.6	31.7	27.6–35.8
65+	16.2	7.4–24.9	41.5	30.3–52.7	12.7	9.6–15.7	37.6	33.4–41.8
Total	5.0	3.2–6.9	28.8	24.9–32.7	5.4	4.5–6.3	28.1	26.4–29.9

	LEVELS OF PHYSICAL INACTIVITY – MALES							
	NWMR				Victoria			
	Sedentary Behaviour		Insufficient Time and/or Sessions		Sedentary Behaviour		Insufficient Time and/or Sessions	
	%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
18–24	4.2	0.0–10.2	20.3	7.0–33.7	3.9	0.8–7.0	20.2	13.3–27.1
25–34	0.0	0.0–0.0	24.4	12.7–36.1	2.1	0.6–3.6	24.8	18.5–31.0
35–44	1.3	0.0–3.9	32.5	21.7–43.3	3.7	1.6–5.8	28.7	23.7–33.7
45–54	8.6	2.1–15.1	26.6	16.6–36.5	6.1	3.6–8.6	24.7	20.3–29.1
55–64	11.3	0.7–21.8	38.7	24.2–53.2	5.3	2.2–8.5	31.6	26.0–37.2
65+	1.3	0.0–4.0	40.6	29.4–51.9	7.1	4.9–9.3	32.2	27.9–36.5
Total	3.9	1.8–6.0	29.7	24.8–34.7	4.6	3.6–5.6	27.1	24.8–29.3

Physical Inactivity by Sex by Age
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet: North and West Metropolitan Region

Women and Nutrition

While women in the NWMR are more likely than men to meet the dietary guidelines for fruit and vegetable intake thereby reducing their risk of chronic diseases, it is important to remember the socio-economic realities of women's lives. The fact is that women tend to be over-represented in disadvantaged groups, and those experiencing disadvantage often have fewer resources to facilitate healthy behaviours and lifestyle choices – such as the consumption of recommended amounts of fruit and vegetables.⁸

Women and Physical Activity

The figures from the 2006 VPHS suggest that women in the NWMR are generally less likely than men to experience physical inactivity and are therefore less at risk of diseases and conditions associated with physical inactivity. But it is important to acknowledge that gender-specific barriers to physical activity exist for many women.

- Many women typically juggle primary care responsibilities, household work and paid work in their lives, which leaves little time and energy for physical activity. Studies show that the more children a woman has, the less likely she is to exercise regularly. The most recent ABS Multi-purpose Household Survey (2005–2006) included questions relating to participation in sport and recreation activities. The study found that males are more likely than females to report insufficient time because of work/study as their main constraint to participation; whereas almost twice the number of females compared with males said insufficient time because of family commitments is their main reason.⁹
- Women experiencing socio-economic disadvantage are less likely to exercise regularly because of perceptions of (and actual) associated costs.
- Women can feel uncomfortable undertaking physical activity in public spaces because of sexist attitudes and expectations about women's 'place', i.e. in the home and caring for others rather than themselves.

⁸ Women's Health Grampians (2006) 'Women and Heart Disease', Women's Health Victoria: Melbourne, at http://www.whv.org.au/health_policy/banners.htm, accessed January 2009. Readers can refer to Volume 1: Social Profile of this report for more detailed information about women's socio-economic status.

⁹ Women's Health Grampians (2006) 'Women and Heart Disease', Women's Health Victoria: Melbourne, at http://www.whv.org.au/health_policy/banners.htm, accessed January 2009. Readers can refer to Volume 1: Social Profile of this report for more detailed information about women's socio-economic status.

Smoking

Smoking is a major risk factor for several major diseases and conditions such as coronary heart disease, stroke and peripheral vascular disease.¹⁰ It is also associated with numerous types of cancers. Smoking is also of concern during pregnancy given the evidence of its impact on foetal growth. Findings for the NWMR from the 2006 VPHS show that around one in five (19.0%) of females are current smokers. For females aged 25–34 years and 35–44 years, the rate of smokers is over one-quarter.

- Females overall are less likely than males to be current smokers (with current smokers defined as those who smoke daily or occasionally). Females aged 55–64 years are, however, slightly more likely than their male counterparts to be current smokers.
- While females aged 25–34 years are less likely than their male counterparts to be current smokers, they are more likely to be smoking daily rather than occasionally – a pattern not reflected in the Victorian figures.

	CURRENT SMOKERS – FEMALES			
	NWMR		Victoria	
	%	95.0% CI	%	95.0% CI
18–24	17.7	6.3–29.0	23.3	16.9–29.6
25–34	26.2	18.1–34.4	26.4	22.1–30.7
35–44	25.5	17.6–33.4	24.2	20.8–27.7
45–54	16.1	9.7–22.4	16.6	13.5–19.6
55–64	14.5	7.9–21.2	13.0	10.1–15.8
65+	8.5	1.1–15.9	7.8	5.3–10.2
Total	19.0	15.6–22.4	18.5	17.0–20.0

	CURRENT SMOKERS – MALES			
	NWMR		Victoria	
	%	95.0% CI	%	95.0% CI
18–24	27.1	12.5–41.7	23.9	17.0–30.8
25–34	35.8	21.7–49.9	36.2	28.7–43.6
35–44	35.6	24.2–46.9	25.3	20.4–30.1
45–54	22.3	12.4–32.2	24.0	19.5–28.6
55–64	14.1	4.5–23.7	15.1	11.3–18.9
65+	9.1	2.4–15.7	7.0	4.7–9.3
Total	26.0	20.9–31.1	22.6	20.3–24.9

Smoking Status by Sex by Age
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet: North and West Metropolitan Region

¹⁰ For this discussion, see National Heart Foundation of Australia and Department of Human Services (2007) Cardiovascular Disease Fact Sheet: North and West Metropolitan Region, at http://www.health.vic.gov.au/healthstatus/vphs_current.htm, accessed January 2009.

CURRENT SMOKERS AND SMOKING BEHAVIOUR – FEMALES								
	NWMR				Victoria			
	Daily		Occasionally		Daily		Occasionally	
	%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
18–24	10.9	2.3–19.5	6.7	0.0–14.9	15.9	10.7–21.1	7.4	2.9–11.8
25–34	22.3	14.7–30.0	3.9	0.5–7.4	21.6	17.6–25.5	4.8	2.5–7.1
35–44	19.6	12.5–26.7	5.9	1.3–10.6	19.0	15.8–22.1	5.3	3.4–7.1
45–54	15.1	8.8–21.4	1.0	0.0–2.0	14.7	11.7–17.7	1.8	1.0–2.7
55–64	14.0	7.4–20.6	0.5	0.0–1.5	11.7	8.9–14.5	1.3	0.6–2.0
65+	6.2	0.0–12.9	2.3	0.0–5.6	6.2	4.0–8.4	1.6	0.4–2.7
Total	15.4	12.4–18.5	3.6	1.8–5.3	14.9	13.5–16.3	3.6	2.8–4.4

CURRENT SMOKERS AND SMOKING BEHAVIOUR – MALES								
	NWMR				Victoria			
	Daily		Occasionally		Daily		Occasionally	
	%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
18–24	19.5	6.7–32.3	7.6	0.0–16.3	16.5	10.9–22.1	7.4	2.7–12.1
25–34	19.5	8.0–31.1	16.3	4.7–27.9	24.0	17.6–30.4	12.1	6.2–18.0
35–44	29.6	18.8–40.4	6.0	0.2–11.8	21.7	17.1–26.3	3.6	1.4–5.7
45–54	20.3	10.6–29.9	2.0	0.0–4.8	19.4	15.2–23.6	4.6	2.4–6.9
55–64	13.2	3.7–22.7	0.9	0.0–2.8	13.5	9.8–17.1	1.7	0.4–2.9
65+	9.1	2.4–15.7	0.0	0.0–0.0	6.4	4.2–8.6	0.6	0.0–1.2
Total	19.6	15.1–24.1	6.4	3.1–9.7	17.5	15.5–19.4	5.1	3.7–6.6

Smoking Behaviour of Current Smokers by Sex by Age
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet:
North and West Metropolitan Region

Women and Smoking

While women in the NWMR are less likely than men to be current smokers and are thereby less at risk of smoking-related health conditions and diseases, there are gender-specific questions to consider in relation to women and smoking. According to Women’s Health Victoria:¹¹

- The tobacco industry specifically targets women using marketing techniques that include alliances with companies selling products to women.
- Smoking is linked to isolation and the care-giving role. Women account for more than 80.0% of lone-parent households in Australia, and around 46.0% of single mothers smoke. In addition, the highest smoking rate in this group is in women aged 19–25 years, at around 59.0%.
- Some young women and girls take up smoking as a method of controlling appetite and weight. Fear of weight gain is a social factor that contributes to the smoking status of women.
- Socio-economic disadvantage is associated with increased rates of smoking, and as noted previously women are disproportionately represented in those experiencing disadvantage.

¹¹ Women’s Health Victoria (2006) ‘Women and Smoking’, Women’s Health Victoria: Melbourne, at http://www.whv.org.au/health_policy/banners.htm, accessed January 2009. Readers can refer to Volume 1: Social Profile of this report for more detailed information about women’s socio-economic status.

Healthy Weight

Being overweight or obese is associated with increased risk of developing non-insulin dependent diabetes, cardiovascular diseases and high blood pressure. The ‘body mass index’ (BMI) is the most common way to measure a population’s weight status. BMI is weight divided by height. VPHS classifies BMI data into four categories following recommendations by the World Health Organisation.

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

Being overweight can be caused by increases in body fat or muscle mass/lean tissue. Those with a BMI of 25.0 and higher because of lean tissue mass are not necessarily overweight.

Findings for the NWMR from the 2006 VPHS show that more than one-third (36.0%) of females are either overweight or obese.

- Females are overall less likely than males to be overweight or obese based on self-reported height and weight; however, females aged 18–24 years and 65 years or more are slightly more likely than their male counterparts to be obese – a pattern that is not reflected in the Victorian figures (or not to the same extent for those age 65 years or more).

	OVERWEIGHT OR OBESE – FEMALES							
	NWMR				Victoria			
	Overweight		Obese		Overweight		Obese	
	%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
18–24	7.6	0.0–15.6	4.2	0.0–10.1	12.4	7.7–17.0	5.2	2.2–8.1
25–34	19.4	11.9–26.9	9.1	3.7–14.6	21.4	17.3–25.5	12.5	9.3–15.7
35–44	28.8	21.0–36.6	12.7	6.9–18.4	24.0	20.6–27.4	14.1	11.4–16.8
45–54	17.2	10.5–23.8	21.6	14.6–28.6	25.6	22.0–29.3	18.2	15.1–21.3
55–64	34.5	24.7–44.4	18.0	10.0–26.1	31.6	27.6–35.7	22.0	18.3–25.7
65+	26.9	16.6–37.3	19.2	9.8–28.6	32.0	27.9–36.0	15.4	12.1–18.6
Total	22.2	18.7–25.7	13.8	11.0–16.7	24.9	23.3–26.6	14.7	13.4–16.0

	OVERWEIGHT OR OBESE – MALES							
	NWMR				Victoria			
	Overweight		Obese		Overweight		Obese	
	%	95.0% CI	%	95.0% CI	%	95.0% CI	%	95.0% CI
18–24	28.4	13.1–43.7	2.5	0.0–6.3	22.2	15.0–29.4	6.0	2.9–9.0
25–34	34.5	21.2–47.7	15.5	5.6–25.4	32.3	25.5–39.1	14.3	9.7–18.9
35–44	38.0	26.4–49.6	14.6	6.8–22.4	48.6	43.0–54.1	16.6	12.8–20.4
45–54	37.5	26.4–48.5	27.6	17.4–37.8	45.5	40.3–50.6	19.8	15.7–23.9
55–64	36.4	22.3–50.4	40.1	25.4–54.9	44.0	38.3–49.7	24.8	19.5–30.1
65+	40.6	29.3–51.9	13.1	5.0–21.2	43.7	39.2–48.3	15.3	12.1–18.5
Total	35.9	30.5–41.2	18.1	14.0–22.3	40.0	37.5–42.5	16.3	14.6–18.0

Persons who are Overweight or Obese by Sex by age
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet: North and West Metropolitan Region

Women and Healthy Weight

While women in the NWMR are overall less likely than their male counterparts to be overweight or obese and less at risk of associated diseases and conditions, there are gender-specific questions to consider in relation to women and healthy weight. Obesity and unhealthy weight, like so many other health and lifestyle-related risk factors, are more common to those experiencing socio-economic disadvantage; and women are more likely than men to be among the disadvantaged. According to Women’s Health Victoria, the rate of obesity among women who are most disadvantaged is twice that of women who are least disadvantaged.¹²

12 Women’s Health Victoria (2008) ‘Gender Health Impact Assessment: Cardiovascular Disease’, at http://www.whv.org.au/health_policy/gia.htm, accessed January 2009.

Health Checks (Blood Pressure and Blood Cholesterol)

High blood pressure and high blood cholesterol are risk factors for cardiovascular diseases.¹³ It is recommended that adults have their blood pressure checked regularly to identify hypertension; and that those at high risk of coronary heart disease have regular cholesterol checks. (Those at high risk include smokers, people with a family history of coronary heart disease, people who are overweight or obese, people with high blood pressure, and people aged 45 years or more.)

Findings for the NWMR from the 2006 VPHS show that levels of high blood pressure are generally higher among women than men and increase with age for females and males.

Findings also show that over three-quarters (83.6%) of females had a blood pressure check in the last two years while over one-half (51.1%) of females had a blood cholesterol check.

- Females are much more likely than males to have had a blood pressure check in the last two years.
- There are no significant differences between females and males in the rate of blood cholesterol checks in the last two years.

	HIGH BLOOD PRESSURE – FEMALES			
	NWMR		Victoria	
	%	95.0% CI	%	95.0% CI
18–24	0.8	0.0–2.5	2.8	0.6–5.1
25–34	11.7	4.8–18.6	13.1	9.7–16.5
35–44	16.3	10.0–22.5	14.3	11.7–17.0
45–54	22.7	15.3–30.2	25.6	21.8–29.4
55–64	44.9	34.5–55.4	39.6	35.3–43.9
65+	63.1	52.0–74.1	59.2	55.0–63.5
Total	24.9	21.2–28.6	26.7	25.0–28.3

	HIGH BLOOD PRESSURE – MALES			
	NWMR		Victoria	
	%	95.0% CI	%	95.0% CI
18–24	0.0	0.0–0.0	2.6	0.6–4.6
25–34	10.6	1.7–19.5	8.9	4.8–13.1
35–44	12.0	4.9–19.1	11.8	8.4–15.3
45–54	25.6	16.1–35.1	23.6	19.4–27.8
55–64	33.7	19.9–47.5	35.0	29.6–40.4
65+	53.0	41.5–64.5	54.4	49.9–59.0
Total	20.3	16.2–24.4	22.2	20.3–24.1

High Blood Pressure by Sex by Age
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet: North and West Metropolitan Region

13 For this discussion, see National Heart Foundation of Australia and Department of Human Services (2007) Cardiovascular Disease Fact Sheet: North and West Metropolitan Region, at http://www.health.vic.gov.au/healthstatus/vphs_current.htm, accessed January 2009.

		BLOOD PRESSURE CHECK IN THE LAST TWO YEARS			
		NWMR		Victoria	
		(%)	95.0% CI	(%)	95.0% CI
Females	18–49	77.4	72.3–82.4	76.4	74.0–78.8
	50+	95.4	92.9–98.0	94.0	92.8–95.2
	Total	83.6	80.1–87.2	83.6	82.1–85.2
Males	18–49	60.9	53.4–68.3	60.8	57.2–64.4
	50+	94.8	91.6–98.0	90.8	88.9–92.7
	Total	72.5	67.2–77.9	72.5	70.1–75.0

		CHOLESTEROL CHECK IN THE LAST TWO YEARS			
		NWMR		Victoria	
		(%)	95.0% CI	(%)	95.0% CI
Females	18–49	35.8	30.5–41.1	34.0	31.5–36.6
	50+	79.9	74.7–85.2	75.3	72.9–77.6
	Total	51.1	46.7–55.6	50.9	48.9–52.9
Males	18–49	32.0	25.3–38.7	33.3	30.0–36.7
	50+	83.2	77.4–89.1	78.7	76.0–81.4
	Total	49.6	44.0–55.3	51.1	48.5–53.7

Blood Pressure Check and Cholesterol Check by Sex by Age
North and West Metropolitan Region and Victoria, 2006
Source: Cardiovascular Disease Fact Sheet:
North and West Metropolitan Region

Participation in the National Cervical Screening Program

Screening for Cervical Cancer

Cervical cancer is currently diagnosed in about 150 Victorian women each year and is almost always linked to the human papilloma virus (HPV).¹⁴ Unlike many other cancers, screening for cancer of the cervix is possible because cervical cells pass through a series of detectable changes (dysplasia) before they become cancerous. Indeed, the main risk factor for cervical cancer is non-participation in regular screening (i.e. every two years) through a Pap test. It is estimated that regular Pap tests save more than 1,200 Australian women each year from developing cervical cancer. Of those who develop cervical cancer, most have never had a Pap test or did not have them regularly.

The National Cervical Screening Program is one of three population-based cancer screening programs currently operating in Australia (the other two are BreastScreen and the National Bowel Cancer Program). Its introduction in the 1980s has seen the death rate from cervical cancer in Victoria decrease steadily to being among the lowest in the world. The program is administered in Victoria through PapScreen Victoria.

According to figures from the Victorian Cervical Cytology Registry (VCCR), the current 24-month period (2007 and 2008 calendar years) participation rate of Victorian women aged 20–69 years who are estimated to be eligible for a Pap test is 63.1%, and this rate has remained steady since the previous 24-month period.¹⁵ The introduction of the National HPV Vaccination Program in 2007 has emphasised the importance of ongoing regular Pap tests for vaccinated young women eligible to participate in the National Cervical Screening Program; and the latest VCCR figures show that the participation rate for the 20–29 year age group (which includes many young women in the National HPV Vaccination Catch-up

¹⁴ For this discussion, see Better Health Channel, 'Cervical Cancer', at http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Cervical_cancer?OpenDocument, accessed January 2009.

¹⁵ Victorian Cervical Cytology Registry (2008) Statistical Report 2007, Victorian Cervical Cytology Registry: Carlton South, at <http://www.vccr.org/stats.html>, accessed January 2009. Eligible women are between 18–70 years of age who have had sexual intercourse and who retain a cervix. The screening program targets eligible women aged between 20 and 60 years.

Program) have not declined in the last 12 months.

While the majority of eligible women are presenting for regular screening, the overall Victorian participation rate means that nearly one-third are missing out on the Pap test, placing them at risk of developing cervical cancer. According to PapScreen Victoria, challenges exist in the recruitment of women to the program including (and not limited to):¹⁶

- Lack of information and understanding about the test.
- Fear of Pap tests, or bad past experiences.
- Lack of transport and/or access to health services.
- Fear of results/not wanting to know the results.
- Cultural and language difficulties for women from diverse backgrounds.
- Embarrassment/uncomfortable nature of the test.
- Reluctance to have the Pap test taken by a practitioner that they know.
- Challenging and inappropriate health professional perceptions and attitudes.
- Difficulty in accessing a provider of their choice.
- Being busy or forgetting when it is due.

Specific sub-groups of women who are likely to be under-screening (or not presenting to services at all) because of one or several of the barriers above include women who identify as Aboriginal or Torres Strait Islander (ATSI), women from culturally and linguistically diverse backgrounds, women who have experienced childhood sexual abuse, women with disabilities, women with mental illness, women in prison and women in remote areas.

Participation rates in the National Cervical Screening Program can be helpful to health planners in identifying local areas in need of interventions to redress barriers to regular screening. When considered in the light of socio-economic and demographic information (such as those detailed in Volume 1: Social Profile of this report), specific sub-groups of women can be identified and further supported to attend screening services on a regular basis.

¹⁶ PapScreen Victoria, 'Barriers to Screening for Women', at <http://www.papscreen.org.au/browse.asp?ContainerID=forhealthprofessionals>, accessed January 2009.

Participation Rates for the WMSR

The participation rates of women aged 20–69 years estimated to be eligible for a Pap test were sourced through VCCR for the 24-month period of 2007 and 2008 (calendar years). Figures were requested at the postcode level, and are represented in the tables that follow (along with the suburbs they refer to). It is noted that postcodes and their suburbs do not always concord exactly with LGA boundaries. The following table places some postcodes and suburbs in the LGA that ‘best fits’ their actual location.¹⁷

Other data notes to consider before proceeding lie in the imprecision of calculations and vulnerability to measurement error because of the denominators and numerators used. According to VCCR, the biggest impact on denominator error comes from uncertainty about hysterectomy rates since only women with a cervix are considered eligible for cervical screening.¹⁸ The biggest impact on numerator error comes from imperfect record-linkage between multiple smears from the same woman (resulting in an overestimate of the number of women screened) and inaccuracies in the database regarding whether the Pap test was taken from a woman with or without a cervix. Because of the associated imprecision, data on participation rates should be interpreted with caution – particularly with regard to postcodes/suburbs and age groups with small numbers of women involved.

¹⁷ Taylors Hill is a suburb in Melton but it appears with the other suburbs that share the postcode 3037 under Brimbank. Cairnlea and Deer Park are suburbs in Brimbank but they appear with the other suburbs that share the postcode 3023 under Melton. Keilor Park is a suburb in Brimbank but it appears with the other suburbs that share the postcode 3042 under Moonee Valley. Derrimut is a suburb in Brimbank but it appears with the other suburbs that share the postcode 3030 under Wyndham. Keilor East is partly in Brimbank and Moonee Valley and it appears under Moonee Valley. Eynesbury is partly in Wyndham and Melton and it appears under Melton with the other 3338 postcodes. Laverton is partly in Wyndham and Hobsons Bay and it appears in Hobsons Bay with the other 3028 postcodes. Brooklyn is partly in Hobsons Bay and Maribymong and it appears under Maribymong with the other 3012 postcodes. Hillside is partly in Melton and Brimbank and it appears under Brimbank with the other 3037 postcodes. Postcode 3051 includes 3051 since the population for the latter is very small (and the ABS merges very small population areas with neighbouring larger areas). This is the case, too, with postcode 3030, which includes 3027.

¹⁸ The VCCR uses estimates of the number of women who have had a hysterectomy from the 2004–2005 National Health Survey and then applies these to each postcode. While the appropriateness of this method of estimating the numbers of eligible women is frequently debated, in the absence of local hysterectomy rates it has been considered to be the best approach.

The following tables show the participation rates of eligible women across the WMSR LGA postcodes and their suburbs by 10 year age groups (with figures for Victoria as the comparator). The numbers in the table represent the women who had at least one Pap test in the time period, and who appear to have a cervix, i.e. who have not had a hysterectomy according to information held by VCCR. The percentages are the numbers of women screened as a proportion of the ABS female estimate resident population for each postcode (using 2006 ABS population data) after adjustment for the proportion estimated to have had a hysterectomy. In other words, the percentages reflect the estimated proportions of women with a cervix who have had at least one Pap test in the time period (adjusted for hysterectomy).

Suburbs with lower screening rates across all five age groups relative to Victoria are shaded in the tables. They indicate areas of interest for health promotion practitioners to improve participation rates at the local level.

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN BRIMBANK									
		20–29		30–39		40–49		50–59		60–69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3020	Sunshine, Sunshine W, Sunshine N, Albion	1253	44.7%	1769	60.3%	1363	60.3%	1083	60.6%	652	52.6%
3021	St Albans, Kealba, Albanvale, Kings Park	1747	41.5%	2220	62.7%	1969	59.6%	1684	58.4%	859	57.6%
3022	Ardeer	101	53.8%	180	97.2%	139	103.3%	128	106.9%	68	88.5%
3036	Keilor, Keilor N	198	59.5%	252	71.1%	321	76.4%	307	78.4%	123	60.5%
3037	Delahey, Sydenham, Calder Park, Hillside	1690	50.2%	2694	64.5%	1787	65.3%	819	64.8%	271	60.7%
3038	Taylors Lakes, Keilor Downs, Keilor Lodge	934	47.0%	1346	65.0%	1781	67.4%	968	63.1%	364	65.9%
3043	Tullamarine	651	47.7%	807	61.4%	674	61.0%	676	63.2%	360	61.4%

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN HOBSONS BAY									
		20–29		30–39		40–49		50–59		60–69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3015	Newport, South Kingsville, Spotswood	550	56.3%	1100	68.1%	825	71.4%	453	75.2%	187	56.7%
3016	Williamstown, Williamstown N	459	61.0%	879	76.1%	928	74.0%	560	79.9%	219	66.4%
3018	Altona, Seaholme	349	49.9%	525	64.5%	484	62.8%	394	61.9%	243	59.1%
3025	Altona N	382	47.9%	486	64.4%	325	61.2%	279	69.2%	321	63.0%
3028	Altona Meadows, Seabrook, Laverton	1001	46.7%	1421	58.5%	1315	57.9%	754	57.7%	341	55.3%

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN MARIBYRNONG									
		20-29		30-39		40-49		50-59		60-69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3011	Footscray, Seddon	760	44.1%	1027	64.4%	654	65.4%	392	75.2%	208	62.4%
3012	Brooklyn, Kingsville, Maidstone, W Footscray, Tottenham	788	44.1%	1290	64.8%	837	61.4%	502	64.5%	265	58.3%
3013	Yarraville	542	60.7%	1063	70.7%	682	69.9%	323	70.7%	156	54.7%
3019	Braybrook	255	47.8%	330	64.3%	259	58.8%	179	57.4%	71	42.9%

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN MELBOURNE									
		20-29		30-39		40-49		50-59		60-69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3000	Jolimont, Melbourne	1428	34.4%	685	68.2%	319	73.7%	292	83.0%	102	78.1%
3002	E Melbourne	359	53.5%	320	62.8%	138	59.6%	175	78.5%	102	79.4%
3003	W Melbourne	259	45.6%	189	75.5%	76	69.4%	60	71.0%	27	82.1%
3004	St Kilda Rd	268	28.6%	212	42.3%	104	44.7%	150	58.0%	100	62.5%
3008	Docklands	375	58.1%	218	67.5%	103	68.3%	87	61.2%	32	75.2%
3207	Port Melbourne	785	59.3%	1186	69.8%	633	69.7%	494	72.1%	291	68.2%
3051	N Melbourne	788	45.6%	595	64.6%	319	64.9%	229	74.5%	106	56.2%
3052	Parkville	342	42.4%	179	72.5%	111	72.1%	106	84.5%	57	81.9%
3053	Carlton	974	32.1%	469	58.9%	223	60.0%	207	66.7%	103	56.6%
3054	Carlton N	828	55.0%	579	70.2%	324	67.7%	253	77.7%	161	88.5%

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN MELTON									
		20-29		30-39		40-49		50-59		60-69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3023	Burnside, Burnside Heights, Caroline Springs, Ravenhall, Cairnlea, Deer Park	1701	51.8%	2348	65.9%	1495	69.5%	1012	67.4%	355	63.7%
3335	Plumpton, Rockbank	72	65.5%	67	77.8%	68	63.4%	67	77.5%	25	64.6%
3337	Kurunjang, Melton S & W, Toolern Vale	1074	51.5%	1060	56.9%	985	56.6%	820	58.8%	282	55.3%
3338	Brookfield, Eynesbury, Exford, Exford Downs	459	49.3%	430	55.3%	433	54.1%	383	50.3%	104	44.1%
3340	Parwan	545	58.9%	752	63.0%	775	66.5%	573	71.1%	305	73.4%
3427	Diggers Rest	90	52.7%	93	55.7%	92	53.5%	75	51.9%	33	57.2%

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN MOONEE VALLEY									
		20-29		30-39		40-49		50-59		60-69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3031	Flemington, Newmarket, Kensington	1156	50.9%	1229	64.3%	603	65.6%	389	68.6%	165	55.7%
3032	Ascot Vale, Maribyrnong	1163	50.2%	1433	69.6%	982	66.3%	656	71.2%	263	56.6%
3033	Keilor E	410	49.6%	641	68.7%	557	65.4%	517	69.6%	467	66.7%
3034	Avondale Heights	360	47.1%	462	61.3%	478	68.9%	424	70.9%	309	57.9%
3039	Moonee Ponds	638	58.1%	875	72.2%	698	77.0%	428	76.0%	202	61.6%
3040	Aberfeldie, Essendon, Essendon W	953	55.5%	1179	69.7%	1263	73.1%	825	72.5%	343	64.0%
3041	Strathmore Heights	361	61.7%	545	75.6%	584	69.6%	424	74.2%	193	65.2%
3042	Airport W, Niddrie, Keilor Park	507	51.5%	743	66.9%	578	65.0%	491	72.2%	340	64.9%

Postcode and Suburbs		SCREENING PARTICIPATION RATES OF FEMALES IN WYNDHAM									
		20–29		30–39		40–49		50–59		60–69	
		No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
3024	Mambourin, Mount Cottrell, Wyndham Vale	461	47.3%	564	54.8%	357	48.1%	228	48.6%	81	37.6%
3026	Laverton N, Williams Landing	< 10	<37.1%	< 10	<14.5%	< 10	<10.9%	< 10	<12.9%	< 10	<16.6%
3029	H Crossing, Tarneit, Truganina	1802	49.5%	2310	57.2%	2112	58.1%	1168	55.7%	461	57.0%
3030	Cocoroc, Point Cook, Werribee, Werribee S, Quandong, Derrimut	2158	52.4%	3166	62.4%	2267	60.7%	1198	57.4%	566	54.6%
3211	Little River	22	68.8%	57	78.5%	69	95.5%	39	70.6%	10	69.3%

SCREENING PARTICIPATION RATES OF FEMALES IN WMSR (AGGREGATE OF POSTCODES)									
20–29		30–39		40–49		50–59		60–69	
No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women	No. Women Screened	% Eligible Women
32054	47.9%	40041	64.2%	31110	64.0%	21276	64.9%	10293	59.9%

Cervical Cancer Screening Participation Rates by Age Group Western Metropolitan Sub-region Postcodes and Suburbs, 2007 and 2008
Source: Victorian Cervical Cytology Registry¹⁹

SCREENING PARTICIPATION RATES OF FEMALES IN VICTORIA					
	20–29	30–39	40–49	50–59	60–69
	% Eligible Women	% Eligible Women	% Eligible Women	% Eligible Women	% Eligible Women
Victoria	52.7%	65.4%	66.5%	69.6%	64.4%

Cervical Cancer Screening Participation Rates by Age Group Victoria, 2006 and 2007
Source: Victorian Cervical Cytology Registry²⁰

¹⁹ Some of the participation rates are close to or over 100.0%. This is likely to be because of small numbers in this area considered as well as inaccuracies associated with small area data collection.

²⁰ Victorian Cervical Cytology Registry, 'Statistical Report 2007', at http://www.vccr.org/stats_reports/2007/screening_07.html#2.2, accessed January 2009.