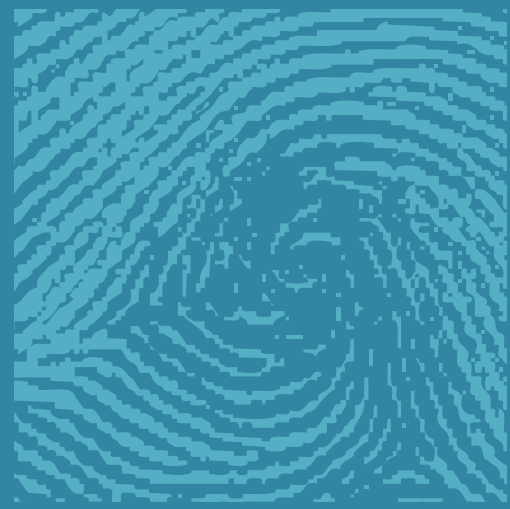


# Planning for healthy communities

Reducing the risk of cardiovascular disease  
and type 2 diabetes through healthier  
environments and lifestyles



## **Planning for healthy communities**

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and type 2 diabetes through healthier  
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This guide was prepared by Deakin University in partnership with the National Heart Foundation of Australia (Victorian Division) and Diabetes Australia – Victoria for the Victorian Department of Human Services, January 2004.

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## Executive Summary

Cardiovascular disease (CVD) and type 2 diabetes mellitus<sup>1</sup> contribute to a high proportion of the burden of disease in Australia. The resulting loss of health, wellbeing and quality of life places a heavy burden on individuals, families, the community and the health care system. There is now convincing evidence that these conditions are largely preventable, and a range of potentially modifiable socioenvironmental conditions and individual behaviours has been identified. Models and frameworks have been developed for investing in health by acting on this knowledge.

The purpose of this guide is to describe what is known about the most effective health promotion strategies for preventing cardiovascular disease and type 2 diabetes. It combines a discussion of cardiovascular disease and diabetes because they share a common patho-physiology and set of risk factors. The guide has been designed to help practitioners, policy makers and planners in Victoria to select evidence based strategies for reducing risk factors.

The evidence is summarised in seven chapters that address the key risk factors for CVD and type 2 diabetes:

- Preventing cardiovascular disease (multiple risk factor interventions)
- Preventing diabetes (multiple risk factor interventions)
- Promoting healthy weight
- Promoting physical activity
- Promoting healthy eating
- Reducing tobacco use
- Improving socioenvironmental conditions and psychosocial factors.

The guide, which is restricted to health promotion interventions targeting **adults**, was developed from an extensive review of the most recent Australian and international research literature (see <http://www.dhs.vic.gov.au/phd/ebhp/>). It is principally a 'review of reviews', presented in narrative format and designed to be user friendly and practical.

The guide outlines the interventions that have been tried and evaluated. For each intervention, the strategy, settings and population groups are described. Wherever possible, effect, reach, sustainability, relative cost and potential for reaching disadvantaged/special population groups are also described. The guide also includes information about key characteristics of effective interventions and potential barriers to implementation. Links are provided to useful resources, evaluation tools, case studies and existing programs, and indicators for measuring effectiveness are suggested.

Health promotion practice should not be restricted only to interventions for which there is convincing evidence of effectiveness. Current policies and recommendations suggest that practitioners adopt a balance between scientific evidence and information about interventions that have the *potential* to be effective in a particular community. The interventions selected should be those best suited to:

<sup>1</sup> All subsequent references to diabetes in this guide apply specifically to type 2 diabetes mellitus or type 2 diabetes – see Glossary, Appendix B for further information.

(1) the local population characteristics and settings; (2) local needs, resources, capabilities and administrative structures; and (3) the economic and social environments of organisations, practitioners and communities.

To assist with local level planning, the guide provides frameworks, checklists and practical tools to help practitioners plan, implement and evaluate integrated health promotion approaches to preventing CVD and diabetes. A sample health promotion planning grid and sample program evaluation plan are included.

A more detailed review of the evidence for health promotion interventions covered in this guide, in the form of summary tables of evidence and narrative reviews of evidence, is available at <http://www.vic.gov.au/phd/ebhp>.

# 1 Introduction

## 1.1 Public health significance of cardiovascular disease and type 2 diabetes

CVD and diabetes comprise two of Australia's seven national health priority areas, based on assessments of their prevalence, severity, costs and opportunities for prevention (Commonwealth Department of Health and Ageing 2002a). Several disadvantaged groups in the community experience a high proportion of the burden of disease associated with CVD and diabetes (Puska and Vartiainen 1999; Turrell et al. 1999). These two diseases (and their risk factors: physical inactivity, obesity, poor nutrition, smoking and psychosocial conditions) are more prevalent among people from low socioeconomic groups, an Indigenous background and a non-English speaking background (AIHW 2002a). Rates of type 2 diabetes in some Aboriginal and Torres Strait Islander communities (up to 30 per cent) are among the highest in the world (AIHW 2002b).

### Cardiovascular disease

CVD is an umbrella term that includes coronary heart disease, stroke and blood vessel disease. These conditions mainly result from the restricted supply of blood to the heart, brain or other parts of the body. CVD is the leading cause of death in Australia, accounting for 39 per cent of all deaths in 2000 (ABS 2002a), 22 per cent of total disease burden (Mathers et al. 1999) and \$3.7 billion (12 per cent) of total health costs in 1993–94 (AIHW 2000). While incidence and mortality rates associated with the disease declined over the three decades to 2000, more people are now living with CVD (21 per cent of the population in 1995), partly as a result of medical advances that have increased the survival rate (ABS 2002a).

### Diabetes

Diabetes is the sixth leading cause of death in Australia. Around one million Australians (7.5 per cent of people aged over 25 years) are estimated to have diabetes, with around half of these cases being undiagnosed (AIHW 2002b). In Australia, the rate of diabetes almost trebled in the two decades to 2000—an epidemic fed mostly by type 2 diabetes (around 85 per cent of all diabetes cases), which is largely preventable by managing lifestyle factors (Dunstan et al. 2001). People with diabetes are more prone to a range of other diseases and medical problems. Importantly, they are two to four times more likely than people without diabetes to develop coronary heart disease or stroke. This means that strategies to prevent diabetes may also significantly contribute to the prevention of CVD. The direct health system cost of diabetes was estimated at \$372 million in 1993–94. When the complications of diabetes were included, the health system cost increased to around \$681 million, representing 2.2 per cent of total health system costs (AIHW 2002b).

In a population that is increasingly aging, overweight and physically inactive, the social and health care costs associated with CVD and diabetes are predicted to increase dramatically unless comprehensive, population-wide preventive strategies are put in place (Bauman et al. 2002). In addition, for prevention strategies to genuinely reduce health inequalities, targeted programs that address the needs of specific groups will be needed to complement population-wide approaches.

## 1.2 Risk factors for cardiovascular disease and type 2 diabetes

Risk factors and risk conditions for CVD and diabetes include:

- *socioenvironmental conditions* such as poverty (absolute and relative) and low social status (Raphael 2003; Raphael et al. 2003)
- *psychosocial risk factors* such as depression, social isolation and lack of social support (Bunker et al. 2003)
- *behavioural risk factors* such as smoking, physical inactivity and dietary fat intake (AIHW 2001)
- *physiological risk factors* such as high cholesterol, hypertension and obesity (AIHW 2001).

Many of these risk factors and conditions are potentially modifiable, thus providing opportunities for prevention.

## 1.3 Cost-effectiveness of health promotion approaches

Concerns about escalating health costs have led to increased interest in the cost-effectiveness of public health programs. While health economists warn that health promoters (like other health care providers) should not be required to justify their efforts on the basis that they *save money*<sup>2</sup> (Cohen 1994), nevertheless, many health promotion interventions do result in substantial cost savings for government and the community. A recent study commissioned by the Commonwealth Department of Health and Ageing '*Returns on investment in public health*' reported an economic analysis of public health programs to reduce tobacco consumption, coronary heart disease, HIV/AIDS, measles and Hib-related diseases, and road trauma (Commonwealth Department of Health and Ageing 2002b). The study estimated the costs of the public health programs and the benefits of the programs in terms of longevity, improved health status, and lower health care expenditures.

Cost-benefit and cost effectiveness estimates for tobacco control, coronary heart disease prevention, diabetes prevention, and cholesterol reduction are as follows.

### *Tobacco*

- Tobacco control programs in Australia were estimated to have contributed to 10 per cent of the decline in tobacco consumption from 1970 to 1998.
- The estimated net benefit (1970-1998) of tobacco control programs was \$8.427 billion.

### *Coronary heart disease*

- Public health campaigns were estimated to have contributed to 10 per cent of the reduction in smoking, 30 per cent of the reduction in cholesterol, and none of the reduction in blood pressure.
- The estimated net benefit (1968-1998) of the public health program was \$8.478 billion.

<sup>2</sup> Maintaining and improving the health of community members is universally seen as a worthwhile investment of resources.

*Diabetes*

- A recent *cost-effectiveness* evaluation indicated that intensive diet/physical activity interventions are more cost-effective than drug treatments (\$24,400 and \$34,500 respectively per case of diabetes prevented) (Diabetes Prevention Program Research Group 2003).

*Cholesterol reduction*

- A cost-effectiveness study by Prosser et al. (2000) reported that, overall, diet was substantially more cost-effective than statin therapy for *primary* prevention of coronary heart disease (CHD) in all 240 risk subgroups (defined by gender, age and CHD factors).

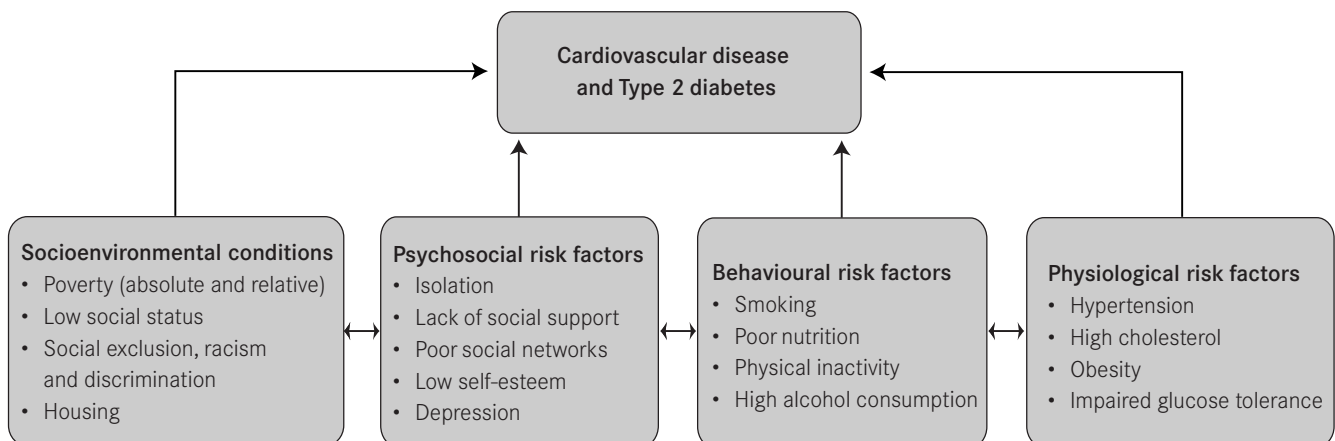
## 2 Health Promotion

### 2.1 Creating healthy communities

Health promotion is the process of enabling people to increase control over the determinants of their lives to improve their health (Department of Human Services 2003). It is based on a social-ecological model of health and adopts a population health approach to health policy, planning and practice. The social-ecological approach acknowledges the multiple and complex influences on people's everyday lives and individual behaviour. This approach emphasises the fundamental importance of the interrelationships among individuals and the social, cultural, environmental, behavioural and biological factors that influence their health (McLeroy et al. 1988; Stokols 1992). The social-ecological model of health also identifies relationships among income, poverty, social exclusion, un/employment and work, gender, culture, addiction, social support, food insecurity, adverse childhood experiences, and their effects on wellbeing and health (Marmot and Wilkinson 1999). Figure 1 summarises the multifaceted model of health determinants that underpins health promotion practice.

**Figure 1: Determinants of cardiovascular disease and type 2 diabetes**

Source: Adapted from Labonte (1993).



#### Upstream-downstream levels of intervention

The Ottawa Charter for Health Promotion (World Health Organisation 1986) contains the following five action areas that provide a framework for addressing the multiple determinants of health:

- building healthy public policy
- creating supportive environments
- strengthening community action
- developing personal skills
- reorienting health services.

These action areas comprise both upstream and downstream levels of intervention. Upstream interventions deal with population-wide influences on health, such as policies surrounding income distribution, education, public safety, housing, work environment, employment, social networks, food supply, transport and pollution. These interventions are extensive and large scale, but they can also be addressed effectively at a more local level via work with communities or groups who share interests and concerns (for example, a local government area). In contrast, downstream interventions are usually discrete, targeted programs with an explicit health purpose. They address a narrower range of benefits and tend to focus more on individuals than whole communities.

## 2.2 Using population wide approaches

In the past, many strategies for reducing the incidence of CVD and diabetes focused on educating and changing the behaviour of individuals considered to be high risk. The major limitations to this approach have been well documented by Rose (1992), who mounted a strong, evidence based argument for using a population wide strategy to prevent conditions such as CVD and diabetes.

Rose (1992) demonstrated that risk factors such as body fat, blood pressure and cholesterol levels are distributed differently within different populations. The distributions are frequently bell-shaped, but with different mean values (for example, blood pressure) for different populations. High risk individuals fall into the extreme upper 'tail' of the distribution.

However, Rose (1992) demonstrated that a large number of people exposed to a small risk may generate many more disease cases than generated by a small number exposed to a high risk. The MRFIT trial in the United States, for example, found that only 8 per cent of the total fatal heart attacks were attributed to men having high cholesterol (over 7.5 mmol/L), while 39 per cent were attributed to men having moderate levels (5–6 mmol/L), because there were many more of the latter group (Rose 1992).

These findings have a number of important implications:

- If the whole population is moved towards slightly lower risk (for example, if the bell-shaped distribution of cholesterol levels moves to the left), then the number of individuals in the high risk 'tail' of the distribution will decrease substantially. Overall disease burden is also reduced because a large number of people are at slightly lower risk.
- It is difficult to change the tail (that is, high risk behaviours such as being sedentary or eating energy dense foods) without changing the population norms that strongly shape the overall distribution. It is very difficult for overweight or obese people, for example, to achieve and maintain weight loss when the social norms and environments of eating and exercise 'conspire against them' (Nestle and Jacobson 2000).

The population approach seeks to shift the whole population in a favourable direction via strategies that target individual behaviours as well as broader economic, regulatory, social, cultural and physical environments. This approach shifts high risk individuals towards lower risk levels, and also provides small benefits for a large number of people in the middle of the distribution. As a result, the total public health benefit is considerable (Rose 1992; Satterfield et al. 2003).

## Population approaches and social equity

An important limitation of individual focused interventions is that they frequently fail to reach and/or have an impact on disadvantaged groups in the community. Population wide approaches are potentially more equitable than individual focused interventions. Policies to reduce the amount of salt or saturated fats in processed foods, for example, have the potential to reach all individuals regardless of their individual level of knowledge, motivation and material resources (table 1). Such interventions have an impact on hard-to-reach groups and those people who are unlikely to respond to nutrition education campaigns or participate in discrete programs.

**Table 1: Examples of possible interventions to reduce salt consumption**

Intervention	Active <sup>3</sup>	Passive
Population focused	National media campaign promoting reduced salt intake	Regulation to limit salt content in processed foods
Individual focused	Nutrition education in workplaces and primary health care settings	Reduction of salt content of foods in workplace canteens

Nutrition education classes in workplaces and a reduction in the amount of salt added to canteen foods can be effective in reducing salt intake among the employees receiving the intervention. However, similar programs would need to be implemented in nearly all workplaces in the population to bring about measurable change at the population level; even then, the change would be among only the working population.

To produce change at the population level, a balanced mix of population/individual focused strategies and passive/active strategies is required. This multistrategy approach has been successful at the population level in areas such as tobacco control, CVD prevention, road safety, HIV/AIDS prevention, and immunisation (Commonwealth Department of Health and Ageing 2002b).

## Improving health among disadvantaged groups

Strategies for improving health among disadvantaged groups can be grouped into:

1. *Targeted intervention programs* designed with and for disadvantaged groups. These interventions generally include education and/or resourcing to support behaviour change. They address inequalities by specifically targeting disadvantaged groups.
2. *Population interventions* that reach everyone in the setting regardless of knowledge, motivation, compliance or socioeconomic status (as in the salt reduction example). These passive strategies often require changes to policies or regulations at local and/or state levels. They represent an equitable approach that avoids the possible stigma associated with targeting particular groups.
3. *Upstream interventions* directed at policies to reduce social inequalities and improve the social and environmental conditions (for example, poverty, unemployment, education and housing) that influence health behaviours and health outcomes.

<sup>3</sup> 'Active' interventions require individuals to actively choose to make the change, whereas 'passive' interventions bring about change without the active involvement of the individual.

Interventions, principally in areas 1 and 2, have led to reduced tobacco use among low socioeconomic groups in Australia in recent years, although the social gradient in tobacco use remains (White et al. 2003). Interventions at levels 2 and 3 are further upstream and can address inequalities at their source. They usually require intersectoral action at the level of governments and peak organisations, and may seem somewhat distant from the work of many health practitioners. However, locally-based practitioners have an important role that includes:

- awareness raising and advocacy for wider policy, economic and regulatory change to address health and social inequalities
- community action and organisational change (around issues such as local public transport policy and workplace cycling support) that provide opportunities to generate change at a local level
- the development of local upstream interventions (such as community building and urban renewal programs) (chapter 10).

These activities frequently require intersectoral cooperation and local partnerships. The concept of integrated health promotion provides a framework for practitioners to work with multisectoral partners to improve health and wellbeing in local communities.

### 2.3 Integrated health promotion

The most effective disease prevention and health promotion strategies are those that address the individual, social and environmental determinants of health (Nutbeam 1998). This is an integrated approach that incorporates many sectors (for example, transport, urban planning, environment, sport and recreation, food policy and regulation, education, health and welfare) and adopts multiple level strategies implemented concurrently. It offers the greatest potential for having an impact on the health of the population as a whole, addressing health inequalities and sustaining these changes over the long term.

In summary, integrated health promotion refers to agencies and organisations from a wide range of sectors and communities in a catchment working in a collaborative manner, using a mix of health promotion interventions and capacity building strategies to address priority health and well being issues. (Department of Human Services 2003).

### 2.4 A framework for interventions

#### Balancing the mix of interventions

Integrated health promotion involves a balanced mix of both individual and population focused interventions. Population focused approaches can complement individual, high risk approaches, and each is valuable for different reasons. Discrete programs focused on individual behaviour change can be effective for the small number of people who participate, but they are unlikely to be sustainable or to have a significant impact on whole communities without the support of broad structural, policy and environmental change. The population health approach outlined by Rose (1992) provides an evidence based rationale for using an integrated approach to health improvement interventions.

With this rationale in mind, this guide provides practitioners with a range of intervention strategies. Some strategies have the potential to contribute to wider, long term structural and environmental change, through changes in policy, laws and regulations, organisational culture, and local environments. These changes are often facilitated by community participation and advocacy. Other strategies involve program based interventions that have been shown to be effective in reducing individual risk factors for CVD and diabetes. These latter strategies provide a springboard for action within the context of wider, slower social change. Importantly, social equity issues can be addressed via a focus on socially disadvantaged groups and communities that are predisposed to CVD and diabetes. If practitioners are to tackle the health effects of disadvantage, then they need to identify the disadvantaged population groups in their community and incorporate this focus into their goals and objectives, planning and evaluation strategies.

### Selecting interventions

While individual practitioners cannot be expected to implement large scale, population-wide interventions, an integrated, intersectoral approach to planning assists practitioners to identify which agencies and organisations are best placed to address elements of a comprehensive approach. This guide provides the following CVD–Diabetes Prevention Health Promotion Interventions Framework (figure 2) to assist with planning and decision making (Department of Human Services 2003).

To guide solution generation, the framework identifies five categories of health promotion interventions:

- screening, individual risk factor assessment and immunisation (*Note: medical interventions are not included in this evidence based resource.*)
- health education and skill development (usually group activities to enhance skills for adopting and maintaining healthy lifestyle choices)
- social marketing and health information (coordinated communication strategies involving newspapers, radio, television, outdoor promotions and print communication such as leaflets and newsletters)
- community action (participation of community members and groups in advocacy and action for social and environmental change)
- settings and supportive environments (changes to policies, laws and regulations, physical environments and organisations).

This mix of interventions needs to be underpinned by a range of capacity building strategies to ensure program quality and sustainability.

**Figure 2: CVD–Diabetes Prevention Health Promotion Interventions Framework**

Source: Adapted from Department of Human Services (2003)

Individual focus ←		→ Population focus		
<p><b>Screening, risk factor assessment</b></p> <p>Risk factor assessment and monitoring by general practitioner</p>	<p><b>Health education</b></p> <p><b>Skill development</b></p> <p>Healthy eating/cooking demonstration</p> <p>Supermarket tours</p> <p>Education sessions about the benefits of physical activity</p>	<p><b>Social marketing</b></p> <p><b>Health information</b></p> <p>Local advertising campaign about the benefits of cycling to work</p> <p>‘Come and try’ day at a local community house</p>	<p><b>Community action</b></p> <p>Community reference group to lobby council for safer facilities for physical activity</p> <p>Collaboration with local gym to offer off-peak rates for users</p>	<p><b>Settings and supportive environments</b></p> <p>Collaboration with major workplaces to introduce healthy staff canteen policy</p> <p>Collaboration with council and workplaces to provide facilities that encourage active transport (such as showers and bike racks)</p>
<p>Ensuring the capacity to deliver quality programs through capacity building strategies, including:</p>				
<b>Organisational development</b>		<b>Workforce development</b>		<b>Resources</b>

The following chapters are guided by the above framework of interventions. For some risk factors (such as obesity), evidence is not yet available for all intervention types. The interventions are organised along a continuum from individual focused to population/community focused. Wherever possible, information is included about specific settings and population groups.

## 3 Review methods

### 3.1 The evidence based review

The guide has been developed from an extensive review of the Australian and international literature. A copy of the review is available on the Department of Human Services website (<http://www.dhs.vic.gov.au/phd/ebhp/>). The purpose of the review was to identify and describe what is known about the most effective health promotion strategies for reducing the risk factors for CVD and type 2 diabetes. The review was principally a ‘review of reviews’, including systematic reviews from the Cochrane Collaboration Library and other sources, narrative reviews (published and unpublished), journal editorials and professional association position statements. The review also aimed to identify key implementation issues, innovative strategies that show promise of success, and research gaps in the area of CVD and diabetes prevention.

### 3.2 Development of the guide

The guide is a synthesis of the available evidence, providing a narrative summary that draws out the information most relevant to practitioners. For each intervention, the evidence was assessed according to the number of studies, quality of design and execution, consistency of findings, effect size, reach, sustainability and relative costs. Wherever possible, the guide describes the potential of interventions to reach disadvantaged/special population groups. In some cases, the literature identified information about the characteristics of, and barriers to, effective interventions, and the guide includes this information.

The interventions described here are based on the best available evidence; where evidence from intervention trials is scarce or nonexistent, the guide includes evidence from observational studies. Observational studies examine the links between social and/or environmental factors (such as high density urban design, parks and cycling trails) and people’s health behaviour (such as physical activity). This type of data has underpinned the development of innovative and ultimately effective population focused strategies for tobacco control (Mercer et al. 2003). It provides valuable clues to potentially effective interventions that have yet to be rigorously evaluated in other risk factor areas.

Development of the guide involved ongoing consultation with, and review by, experts, key organisations and practitioners. The process included the following steps.

1. A literature review conducted in consultation with the expert review panel.
2. Planning consultations with the project advisory group.
3. A review of existing resources, including comprehensive planning resources and existing evidence based guidelines for diabetes and CVD prevention.
4. Consultation with practitioners, including their written feedback on the existing Department of Human Services evidence based resources, and their contribution to planning this guide by identifying key features and information most relevant for practitioners’ needs.
5. Drafting and review in consultation with the project advisory group.

6. Piloting with practitioners, including two focus group workshops conducted with practitioners from rural and metropolitan Primary Care Partnerships and community health agencies.
7. A review of the draft guide, with suggestions made for increasing its user friendly qualities.
8. A final review and the production of the guide.

Appendix A lists the members of the project team, the project advisory group, the expert review panel and focus group participants.

### **3.3 Presentation of the evidence for effective interventions**

The following chapters present an overview of the best available evidence about effective community based strategies for preventing CVD and type 2 diabetes. The first two chapters describe programs specifically focused on CVD and diabetes prevention, while the following five chapters identify evidence based strategies for addressing individual risk factors: obesity, physical activity, nutrition, tobacco and socioenvironmental and psychosocial factors. The type of interventions that have been used and evaluated vary for each risk factor, and cannot readily be classified into the five strategy areas outlined in the health promotion interventions framework (figure 2). However, interventions are presented in each chapter in order from individual focused to population focused interventions.

## 4 Preventing cardiovascular disease

### 4.1 Background

#### Cardiovascular disease prevalence and trends

CVD is the leading cause of death in Australia, accounting for 39 per cent of all deaths in 2000. Age-specific death rates for CVD increase dramatically with age, with the majority of deaths occurring among people aged 50 years or over. After reaching a peak around the middle of the 20th century, age-standardised death rates for CVD have declined steadily for both men and women. Reductions in CVD morbidity and mortality have been attributed to a combination of behavioural changes and medical interventions. While incidence and mortality rates have declined, however, prevalence rates have increased (to 21 per cent of the population in 1995), partly due to medical advances that have increased the survival rate among people with CVD (Australian Bureau of Statistics 2002a).

#### Costs of cardiovascular disease

The overall burden of disease attributable to CVD in Australia—accounting for both premature mortality and disability—was an estimated 22 per cent of the total disease burden in 1996 (Mathers et al. 1999). The health and economic costs associated with CVD are greater than any other disease, accounting for \$3.7 billion (or 12 per cent) of total health costs in 1993–94 (AIHW 2000).

#### Preventing cardiovascular disease

A number of important CVD risk factors have been identified. These include socioenvironmental risk factors (such as poor material circumstances) (Raphael 2003), psychosocial risk factors (such as depression and lack of social support) (Bunker et al. 2003), behavioural risk factors (such as smoking, physical inactivity and dietary fat intake) (AIHW 2001) and physiological risk factors (such as high cholesterol, hypertension and obesity) (AIHW 2001). A recent evidence based review by the Joint World Health Organisation/Food and Agriculture Organisation Expert Consultation on Diet, Nutrition and the Prevention of Chronic Disease concluded that dietary risk factors for CVD include a high intake of saturated fatty acids, trans fatty acids, sodium, and alcohol (in excess). Protective dietary components include fish and fish oils, potassium, fruits and vegetables, low to moderate alcohol intake, and dietary fibre and wholegrain cereals (World Health Organisation 2003).

#### Social inequalities and cardiovascular disease

In 1995, 82 per cent of women in the lowest socioeconomic group had a CVD risk factor (tobacco smoking, high blood pressure, overweight or obesity, physical inactivity) compared with 69 per cent in the highest group. Almost 13 per cent of women in the lowest socioeconomic group had three or more risk factors, compared with seven per cent of women in the highest group (AIHW 2001).

Men in the lowest socioeconomic group were twice as likely to have three or more risk factors than men in the highest group (18 per cent and nine per cent respectively) (AIHW 2001).

Consistent with their risk factor data, Voss and Begg. (1999) reported substantial socioeconomic status differences in premature mortality from cardiovascular disease among Victorian men and women.

No comparable multiple risk factor data are available for Indigenous Australians, but they are more likely than other Australians to be obese, physically inactive, and to smoke (AIHW 2001). Indigenous Australians have higher mortality rates for cardiovascular disease than the general population (AIHW 2002a).

Prevalence rates of at least one CVD risk factor are slightly higher among men and women in rural and remote areas compared with urban areas, but the differences are not statistically significant (AIHW 2001).

### Overview of interventions reviewed

Interventions to reduce cardiovascular disease risk have addressed one or more risk factors using a range of strategies in a number of settings. The interventions reviewed in this section are those that:

- address multiple CVD risk factors
- use multiple strategies, with adult populations
- focus on primary prevention (that is, a focus on people with no history of CVD)
- employ health promotion strategies (that is, not surgical and drug therapy prevention)
- have a population or group focus rather than an individual counselling focus.

This review needs to be read in conjunction with the complementary reviews of interventions focusing on physical activity, nutrition, smoking, healthy weight and socioenvironmental and psychosocial factors.

Over the past three decades, interventions to promote heart health have included:

- programs in health care settings
- community based programs in workplaces and other community settings
- large, multifaceted, community based trials aimed at primary prevention at the population level
- public education incorporating widespread, largely uncoordinated information, education and advice disseminated by government departments and nongovernment organisations.

While all these initiatives are likely to have contributed to the declining incidence of CVD over the past three decades, only the large demonstration trials and smaller scale interventions in health care settings and workplaces have been subjected to rigorous evaluation. Consequently, the evidence base for assessing the effectiveness of community based heart health initiatives is limited to these interventions and probably excludes effective, but unevaluated community based interventions and diffuse public education strategies.

This section summarises the evidence for the effectiveness of:

- interventions in health care settings
- worksite interventions
- multifaceted community based interventions
- policy initiatives.

## 4.2 Interventions in health care settings

### Intervention description

Multiple risk factor interventions (stopping smoking, exercising, following dietary advice, controlling weight, taking anti-hypertensive drugs and/or taking cholesterol lowering drugs) used for the primary prevention of coronary heart disease. Adults attending primary care settings were counselled (individually or in groups) by dietitians, nurses, general practitioners and/or other health professionals about implementing lifestyle changes. Interventions varied from a single consultation to intensive lifestyle advice.

### Population group/setting

The reviewed interventions targeted adults attending primary care settings. Studies included both high risk individuals and the general population. One review included two large US trials among persons of colour and low socioeconomic status.

### Effectiveness

In health care settings, multifaceted interventions targeting high risk individuals were generally effective, but those targeting the general population were less effective, with smaller effect sizes and greater variability among studies. General practitioner based lifestyle advice programs have a modest and variable effect on lifestyle change (smoking, drinking, diet and exercise). There is some debate about the practical significance of small improvements in CVD risk factors through interventions in health care settings. Small effects need to be assessed in the context of the potential for wide population reach, particularly the potential to reach disadvantaged groups. Implementation factors are also likely to be important (see below).

### Implementation issues

- Dietary interventions can be successful among traditionally difficult-to-reach groups (persons of colour and low socioeconomic status) if the interventions are culturally tailored and specifically designed for these groups.
- One review reported several barriers to general practitioners providing health promotion advice to their patients, including limited time, remuneration and doctors' common perception that providing lifestyle advice is not effective in changing patient behaviour.

### Comments

- For the modest changes observed to translate into a useful public health effect, a greater proportion of primary health care providers need to offer lifestyle advice routinely and repeatedly.
- Alternatively, practitioners should direct their efforts towards high risk groups for whom the potential for substantial change may be greater.

### References

Yu-Poth et al. (1999) (meta-analysis); Ketola et al. (2000) (meta - analysis); Ebrahim and Davey Smith (2003) (systematic review and meta-analysis); Wilcox et al (2001) (systematic review); Ashenden et al. (1997) (systematic review).

## 4.3 Workplace interventions

### Intervention description

Workplace health promotion programs have addressed CVD screening and risk assessment, weight loss, healthy eating, alcohol abuse and healthy alliances. Interventions have included awareness raising, lifestyle change (via skills acquisition workshops and counselling) and environmental support programs (for example, low fat foods in workplace canteens).

### Population group/setting

The reviewed interventions targeted adults in workplaces. Most trials did not specifically target minority population groups.

### Effectiveness

Comprehensive programs combining screening and risk assessment with educational programs and/or environmental changes have been effective, but this conclusion was based on only a small number of sound studies. There is no conclusive evidence of the effectiveness of social support provided by peers or group leaders as part of broad educational interventions. Incorporating a skill development component produced variable results. However, combining skills training with social support in interventions targeting a specific risk behaviour was more likely to be effective than using skills training as part of a broad, complex intervention.

### Implementation issues

- Top management should visibly and enthusiastically support, and be involved in, the intervention.
- Employees at all organisational levels should be involved in the planning, implementation and activities of the intervention.
- Interventions should be tailored to the characteristics and needs of the recipients.
- Optimal use of local resources (human, physical and organisational) should be made in organising and implementing the intervention.
- Evaluation should be included as an integral part of any new intervention program. It should include a range of outcome and process measures.

### Comments

- It is relatively easy to recruit eager employees into wellness programs if programs are provided onsite, but engaging the reluctant employees requires one-to-one approaches.
- Overall, the relatively low participation rates are a concern and indicate that these programs reach only certain population groups.

### Reference

Peersman et al. (1998) (systematic review).

## 4.4 Multifaceted community based interventions

### Intervention description

Community based interventions involve health professionals and/or health agencies defining the health problem, developing strategies to remedy the problem, involving local community members and groups in implementing those strategies and working to transfer major responsibility for ongoing programs to local community members and groups (Labonte 1993). Strategies commonly include combinations of mass media, educational materials, workshops/educational sessions, blood pressure and cholesterol screening, individual counselling, self-help support groups, contests and television shows/videos. Targeted outcomes include health risk behaviours (smoking and low physical activity), physical health status (systolic and diastolic blood pressure, blood cholesterol, body mass index, aggregated CVD risk scores and CVD mortality rates) and knowledge. Projects typically run for five to six years.

### Population group/setting

The reviewed interventions targeted adults in community settings, worksites and health care settings. Most targeted all community members, although some focused on high risk individuals. Trials were conducted in north America, Europe and Israel, but US trials predominated. Most trials did not specifically target minority population groups.

### Effectiveness

While some of the early community based heart health programs (such as the North Karelia project and the Stanford Three Communities Study) were effective in reducing CVD risk factors at the population level, subsequent large intervention trials had smaller, more variable impacts. This lack of success indicates that while specific programs conducted within these large interventions were often effective (particularly for motivated high risk individuals), they generally failed to produce substantial change at the population level over and above improvements occurring in the general population. Initial program impacts tend to diminish over time. It is likely that these projects have indirectly contributed to the improving population trends, but not in a way that can be rigorously measured. Measurable change is more likely when high risk individuals are targeted.

### Implementation issues

- A review of the effectiveness of coalitions in heart health promotion could not conclude whether coalitions lead to improved heart health outcomes.
- While it is generally widely recommended that interventions be based on theoretical models (such as theories of behaviour change), there is little evidence that theory based interventions are more effective than approaches that have no formal theoretical base.

### Comments

- Wide variability in the impacts of different interventions poses important questions about the contextual, programmatic and participant characteristics, which clearly have a marked impact on the effectiveness of different interventions.

- The success of the North Karelia project in Finland, for example, might have been partly due to the initial high levels of CVD risk factors and the generally small rural communities involved in the project.

In summary:

- Well planned, well implemented, small scale community programs can be effective but tend to attract high risk or highly motivated individuals. These programs are appropriate for such individuals.
- A large number of such programs would be needed to have an impact on the prevalence of CVD risk factors at a wider community level.
- Practitioners need to carefully define the level at which they expect to have an impact (for example, a town or local government area), then implement sufficient, multifaceted, sustained interventions (that include social and environmental change as well as individual behaviour change) in cooperation with partner organisations.

### References

Dobbins and Beyers (1999) (systematic review); Winkleby et al. (1997) (joint analysis of three trials); Sellers et al. (1997) (meta-analysis); Kuhn et al. (1999) (systematic review).

## 4.5 Policy initiatives

Murray et al. (2003) assessed the cost-effectiveness of nonpersonal interventions (for example, salt reduction legislation) and personal interventions (for example, individual treatment for high cholesterol) to reduce CVD risk. They estimated that all 17 interventions were cost-effective according to the World Health Organisation Commission on Macroeconomics and Health criterion (which defines cost-effective interventions as those that gain each year of healthy life at a cost of less than three times gross domestic product per person). The authors also found that the nonpersonal interventions, while less effective than the personal interventions (in terms of the number of disability adjusted life years averted), were more cost-effective. On this basis, they recommended first introducing nonpersonal interventions, although they also noted that 'their very nature makes reliable assessment of effects challenging' (Murray et al. 2003).

The potential role for practitioners in policy change and implementation is twofold. At the macro level, advocacy for the development of national or state policies that promote health is a key but generally underused health promotion strategy (Nutbeam 1998). At the more local level, health promotion practitioners can both advocate for, and become directly involved in, the development and implementation of local policy in workplaces, local government and other community settings.

Additional policy and nonpersonal interventions directed at specific CVD risk factors are discussed in the reviews of physical activity, nutrition, obesity, smoking, and socioenvironmental and psychosocial factors.

### Reference

Murray et al. (2003) (systematic review of cost-effectiveness).

## 4.6 Future directions for the prevention of cardiovascular disease

Sellers et al. (1997) described three generations of community heart health programs, with the first generation of programs comprising the Finnish North Karelia project, the Stanford Three Communities Study and the World Health Organisation initiated Comprehensive Cardiovascular Community Control Program in the early 1970s. The success of many of these early programs led to a second generation of major trials in the 1980s that incorporated rigorous evaluations. These second generation programs—which include the Stanford Five City Project, the Minnesota Heart Health Program and the Pawtucket Heart Health Program—produced more variable and generally less favourable outcomes. Sellers et al. (1997) described the more recent ‘third generation’ of CVD community programs as those working with hard-to-reach population subgroups. Wilcox et al. (2001) reviewed some of these more recent programs within health care settings.

It is recommended that a ‘fourth generation’ of CVD community programs will:

- continue to develop programs more appropriate for poor, minority, low income and other disadvantaged groups
- address newly identified psychosocial and socioenvironmental determinants of CVD, such as depression, lack of social support and social isolation, material and socioeconomic inequalities (see the review of socioenvironmental and psychosocial interventions)
- incorporate the fiscal, legislative, policy and environmental strategies that most reviewers recommend as potentially very cost-effective interventions, but that have not yet been widely implemented in areas other than tobacco control (see the reviews of food and nutrition interventions, physical activity interventions and healthy weight promotion interventions).

## 4.7 Resources

- The National Heart Foundation of Australia provides a range of resources for promoting heart health. (<http://www.heartfoundation.com.au/>)
- The Health Education and Promotion Scheme (HEAPS) is a searchable database listing a wide range of Australian and New Zealand health promotion projects. The database contains over 6000 entries including programs and resources in a number of health promotion areas (including heart health) for: Indigenous Australians, rural and regional Australia, youth, ethnic communities, women’s health and general practice. The electronic database is available online through libraries and health organisations.
- Also refer to programs and resources listed in chapters covering individual risk factors (chapters 5 to 9).

## 5 Preventing diabetes

### 5.1 Background

#### Diabetes prevalence and trends

Diabetes is the sixth leading cause of death in Australia. Around one million Australians (7.5 per cent of people aged over 25 years) are estimated to have diabetes, with around half of these cases being undiagnosed (AIHW 2002b). In Australia, the rate of diabetes has almost trebled in the past two decades—an epidemic fed mostly by type 2 diabetes (around 85 per cent of all diabetes cases), which is largely preventable by managing lifestyle factors (Dunstan et al. 2001). Rates in some Aboriginal and Torres Strait Islander communities (up to 30 per cent) are among the highest in the world (AIHW 2002b).

#### Complications of diabetes

People with diabetes are more prone to a range of other diseases and medical problems. Importantly, they are two to four times more likely than people without diabetes to develop CVD. This means that strategies to prevent diabetes may also significantly contribute to the prevention of CVD. Other long term complications include blindness before the age of 60 years, kidney disease, neuropathy, impotence in men, limb amputation, foot ulcers, periodontal disease and, in women, pregnancy complications and the need for caesarean delivery.

#### Costs of diabetes

In 1998, almost 64,000 Australians had a disability caused mainly by diabetes. The direct health system cost was estimated at \$372 million in 1993–94; accounting for the complications of diabetes, that cost rose to around \$681 million, representing 2.2 per cent of total health system costs (AIHW 2002b).

#### Preventing diabetes

Type 2 diabetes can involve both insulin resistance and impaired insulin production, either of which may predominate. It is most common among people aged 40 years or over, and early diagnosis and treatment increases the possibility of management through lifestyle modification and/or medication (Dunstan et al. 2001).

Type 2 diabetes is largely preventable. Diabetes risk factors include socioenvironmental risk factors (such as poor material circumstances), psychosocial risk factors (such as social isolation and lack of social support), behavioural risk factors (such as physical inactivity and poor nutrition, including high dietary intake of energy dense foods—particularly fats—and low fruit and vegetable consumption) and physiological risk factors (such as obesity, impaired glucose tolerance—sometimes called pre-diabetes, whereby the condition may progress to diabetes but can be effectively managed through weight reduction and physical activity—and gestational diabetes—whereby diabetes in pregnancy increases the risk of type 2 diabetes later in life for both mother and baby) (National Health and Medical Research Council 2001).

Many of these risk factors and conditions are potentially modifiable, and provide opportunities for prevention. The evidence suggests that two modifiable risk factors—obesity and physical inactivity—are the most important contributors to the development of type 2 diabetes and should be the focus of preventive strategies (Costacou and Mayer-Davis 2003; Mensink et al. 2003; National Health and Medical Research Council 2001).

## Social inequalities and diabetes

Recently, new debates have emerged in the literature about the relationship between social inequalities and type 2 diabetes. Raphael et al. (2003) drew on diverse international literature to outline the ways in which social conditions associated with low income and education have an impact on both people's risk of developing type 2 diabetes and people's ability to manage this chronic disease.

It is well established that low income is a powerful determinant of the quality of early life, levels of stress, the availability of food and the quality of diet, physical activity participation, tobacco smoking and social exclusion (Marmot and Wilkinson 1999). Although diabetes prevention in Australia has remained focused on behavioural risk factors (such as physical inactivity, obesity, poor nutrition, tobacco smoking and psychosocial stress), international research shows that low income is one of the most important upstream determinants of these behavioural risk factors (Raphael 2003; Raphael et al. 2003; Marmot and Wilkinson 1999).

Clearly, the way forward involves political and economic change to reduce social inequalities. However, within the context of this wider, slower social change, there is much to be done at the local level. Attending to more easily modified conventional risk factors such as obesity, poor nutrition and physical inactivity is a valuable springboard for action, particularly if programs are focused on those groups more predisposed to diabetes .

## Specific population groups

Identifying specific groups most at risk of type 2 diabetes is important for targeted interventions. The following table identifies those groups with the highest risk of type 2 diabetes (AIHW 2002b).

### Who is at greater risk of diabetes?

#### *Aboriginal and Torres Strait Islander people*

- Diabetes incidence is up to 30 per cent in some Aboriginal communities, compared with 7 per cent in the general population.
- Indigenous females are more than 14 times more likely than non-Indigenous females to die from diabetes and related problems. Compared with non-Indigenous males, Indigenous males are seven times more likely.

#### *Populations with culturally and linguistically diverse backgrounds*

- Incidence rates are 40 per cent higher in this group than in the general population.
- Females in this group are 50 per cent more likely than other females to die from diabetes and related problems.

#### *Low socioeconomic status*

- Incidence rates are 2.5 times higher for low socioeconomic groups compared with the highest socioeconomic group.

#### *People aged over 40 years*

## Overview of evidence reviewed

The literature on diabetes prevention almost exclusively focuses on interventions for secondary prevention—that is, the screening, detection and management of established diabetes (Lindsay 1999). In contrast, evidence of the effectiveness of interventions for primary prevention (that is, for people with no history of diabetes) is limited. Most published evaluations include trials that adopted a high risk approach focused on people with impaired glucose tolerance. The literature search yielded little information about community based or population-wide approaches. Nonetheless, other sections in this guide provide considerable information about a wider range of community intervention strategies to address the important risk factors for diabetes, such as obesity, physical inactivity, poor nutrition, smoking, and socioenvironmental and psychosocial factors.

The interventions reviewed in this section are those that:

- address multiple diabetes risk factors (obesity, diet and physical activity)
- use multiple strategies with adult populations
- focus on primary prevention (that is, people without clinically diagnosed diabetes)
- employ health promotion strategies (not clinical or drug interventions).

Over the past two decades, interventions to prevent diabetes have included:

- high risk, individual focused approaches:
  - large trials of lifestyle interventions to change diet and/or physical activity, conducted mainly in health care settings for people with impaired glucose tolerance
  - limited small scale programs based in health care and community settings
- population approaches:
  - a small number of multifaceted community interventions, many of which have not been rigorously evaluated
  - public education campaigns comprising widespread, largely uncoordinated information, education and advice disseminated by government departments and nongovernment organisations (Marks et al. 2001a; Satterfield et al. 2003).

The evidence base for assessing the effectiveness of community based diabetes initiatives is limited to these interventions.

Combining individual focused and community-wide interventions is the approach with the greatest potential for having an impact on risk factor levels of the whole population. This brief review includes interventions for which there is evidence of effectiveness, along with strategies identified as being potentially effective. These include:

- education and skill development (diet only)
- education and skill development (diet and physical activity)
- multifaceted community based interventions.

## 5.2 Education and skill development (diet only)

### Intervention description

The interventions included individual and group counselling sessions focused on behaviour change strategies (for reducing fat content), goal setting and self-monitoring (using food diaries). Typical programs included a one-year structured education program of monthly small group sessions. Recommendations included limiting fat intake to less than 30 per cent of total energy intake (with saturated fat less than 10 per cent of total energy intake), increased fruit (two serves per day) and vegetable consumption (five serves per day), and increased fibre intake.

While dietary fat and total energy intakes have been the main focus of research, some recent studies examined the role of other dietary factors (such as fibre, glycaemic index and diet variety) as determinants of weight regulation. The relative importance of these factors is yet to be determined (Marks et al. 2001 a).

### Population group/setting

The reviewed interventions were effective for both men and women in countries such as New Zealand, China and the United States. No specific information was included about disadvantaged groups.

### Effectiveness

Dietary interventions to reduce caloric intake and fat consumption can effectively reduce the progression of impaired glucose tolerance to type 2 diabetes in the short term. The effect of the diet-only interventions was smaller than that of the combined diet and physical activity interventions, with the former having a 4–31 per cent reduction in the progression (Pan et al. 1997; Swinburn et al. 2001). The effects were maintained after one year but not at a five-year follow-up. However, there were no documented broader social support and environmental strategies in place to support these interventions.

Although diet-only interventions showed limited *sustainability* of change, even a short term delay in the onset of diabetes is argued to provide a substantial health gain for individuals who participate in the interventions.

### Implementation issues

- Food diaries were used to count dietary fat for two days per week, rotating the schedule of days to include weekends. Fat content counter booklets were used to assist with estimations of fat intake (Swinburn et al. 2001).
- Characteristics of successful interventions included education sessions that detailed:
  - reasons for reducing fat content
  - how to identify high fat foods
  - label reading
  - practical strategies for reducing fat intake.

Chapter 6 contains more detailed information about strategies for obesity prevention and management.

### References

Marks et al. (2001a) (review); NHMRC (2001) (review); Pan et al. (1997); Swinburn et al. (2001).

## 5.3 Education and skill development (diet and physical activity)

### Intervention description

Most of the interventions focused on reducing the progression of impaired glucose tolerance to type 2 diabetes (National Health and Medical Research Council 2001). They typically involved individual and group counselling programs conducted in health care settings. Adults attending primary care settings received education and counselling from general practitioners, nurses, dietitians and physiotherapists about implementing changes focused on weight loss, diet and physical activity. Several interventions included an ongoing program of community based physical activity.

Intervention duration varied from one counselling session to a three-year program (with seven sessions in the first year and then regular three-monthly group support sessions). Programs typically involved advice and behaviour modification skills for achieving weight loss, maintaining a low fat diet (decreasing fat intake to 30 per cent or less of total energy intake, and saturated fat to 10 per cent or less), increasing fibre intake and exercising moderately for 150 minutes per week (endurance or supervised resistance training).

### Population group/setting

The reviewed interventions were effective for both men and women in countries such as New Zealand, Finland, Sweden, China and the United States (National Health and Medical Research Council 2001). One review provided information about disadvantaged groups (Satterfield et al. 2003).

### Effectiveness

Among high risk groups (such as overweight people and those with impaired glucose tolerance), lifestyle modification programs focused on diet and exercise can reduce the risk of progression to type 2 diabetes. The evidence supports identifying certain risk groups for type 2 diabetes (people with impaired glucose tolerance, overweight/obesity, hypertension and/or a family history of diabetes) and providing targeted programs.

Evaluation measures included progression to type 2 diabetes, weight loss and physical activity. Interventions resulted in a 12–58 per cent reduction in the risk of developing type 2 diabetes. In relation to *sustainability*, weight loss of approximately 5 per cent was sustained for up to 3.2 years in several studies. In one long term study of men, the death rate from heart disease was half that of controls at the 12-year follow-up.

A recent *cost-effectiveness* evaluation indicated that intensive diet/physical activity interventions are more cost-effective than drug treatments (\$24,400 and \$34,500

respectively per case of diabetes prevented). Interventions that combined dietary and physical activity components were more effective than diet-only interventions in achieving sustained weight loss and risk reduction (Diabetes Prevention Program Research Group 2003). The synergistic, interactive effects of combining dietary change and physical activity significantly enhanced the effectiveness of interventions (Mensink et al. 2003).

### **Implementation issues**

Supervised programs with regular follow-up were more effective than general diet and exercise advice. Characteristics of successful interventions included:

- regular three-monthly behaviour modification and support sessions
- either individual program or group sessions (both had similar retention rates)
- six months of supervised group exercise, followed by six months of diet modification
- after 12 months, encouragement for people to be active independently of the program, walking with group partners and/or training at local sports clubs
- physician check-ups at six months and then annually (same physician at each check)
- a multidisciplinary staff team, including a physiotherapist, dietitian, nurse and physician.

Chapter 6 contains more detailed information about strategies for obesity prevention and management.

### **References**

Satterfield et al. (2003) (review); NHMRC (2001) (review); Diabetes Prevention Program Research Group (2003); Mensink et al. (2003).

## **5.4 Multifaceted community based interventions**

### **Intervention description**

Community based interventions involve health professionals and/or health agencies defining the health problem, involving local community members and groups in planning strategies to resolve the problem, and working to transfer major responsibility for ongoing programs to local community members and groups (Labonte 1993). Most interventions reviewed included diet and exercise program strategies, including nutrition education, cooking and food preparation demonstrations, grocery store tours and recipe exchanges. Exercise components included residential walking programs, culturally appropriate exercise facilities, gentle exercise classes and running clubs. More recently, interventions have been trialled with a focus on creating supportive social, physical and policy environments across whole communities.

### **Population group/setting**

The reviewed interventions were conducted among communities known to be at high risk of developing diabetes, and many involved minority and disadvantaged groups—for example, indigenous communities in the United States, Hawaii, Canada and New Zealand (Satterfield et al. 2003) and Aboriginal Australians (Rowley et al. 2000). The review also included a large, multistrategy, community-wide intervention (Andersson et al. 2002).

## Effectiveness

The intervention studies reported post-program improvements in knowledge, the adoption of regular physical activity, and a reduced prevalence of impaired glucose tolerance. Many were limited in their design and evaluation strategies. Few had control groups or pre- and post-test comparisons. Indicators/outcome measures included knowledge, physical activity, body weight and BMI.<sup>4</sup> Nonetheless, the following section provides useful information about the characteristics of the more effective interventions.

### *A community-wide intervention in progress*

A large, 10-year, community-wide intervention, the Stockholm Diabetes Prevention Program, is underway in Sweden. The program involves multiple counties and has adopted a multiple-risk factor approach focused on physical inactivity, obesity, poor dietary habits and tobacco smoking. (Andersson et al. 2002). The project has involved the development of an intersectoral coalition and smaller local steering groups comprised of local government, primary health care organisation, local community organisations and the private sectors (food suppliers, restaurants, local mass media, businesses and industries).

Although the study has not been fully evaluated, the study report documents significant changes to social, environmental and policy environments. Compared with discrete programs focused on individual behaviour change for a small number of participants, such changes have the potential to affect large proportions of the population and to contribute to sustainable change and the long term prevention of diabetes.

### *High risk populations*

Among high risk communities (such as Indigenous or socially disadvantaged populations), the most effective programs have been those that engaged the community members in the program's development, implementation and promotion (Lindsay 1999; Satterfield et al. 2003). Many incorporated culturally relevant messages, symbols and strategies regarding the inclusion of traditional foods, activities and knowledge. Many were also based on a holistic view of health, embracing spiritual, mental, emotional and physical dimensions.

## Implementation issues

Key factors for the success of community based programs have included:

- recognising the key role of community groups in the success of programs
- building on community concern about diabetes
- involving community members as recruiters and data collectors
- consulting widely to ensure all evaluation tools and project materials are culturally appropriate
- identifying populations with a high risk of diabetes
- using both high risk and community-wide strategies
- following the principles of the Ottawa Charter

<sup>4</sup> Body mass index (BMI) is a measure of body fat. The National Health and Medical Research Council (1997) defines obesity as a BMI of greater than 30 kilograms (weight) per metre (height) squared, and overweight as a BMI of 25–30 kilograms per metre squared.

- employing interventions at a range of levels (including outreach, education and screening programs)
- generating long term commitment by community groups and health authorities
- committing resources and organisational support in the long term (five years).

Community based approaches that are governed by the community can:

- identify everyday beliefs and practices within the culture that are protective—for example, Aboriginal people consider family or community oriented physical activity to be protective, but perceive individual physical activity such as jogging and swimming as selfish and with the potential to undermine the health of the community (Thompson 1997)
- support protective factors in meaningful ways—for example, communities may prefer programs that facilitate traditional dance, local sporting teams or family oriented activity rather than individual health and fitness, and programs for social connection and wellbeing rather than for weight loss and appearance (Thompson 1997)
- build social support among family and community members
- help generate support for policy and environmental change.

### Comments

- There have been a number of effective community based interventions, but many have been poorly evaluated.
- Interventions that show the most potential are those that combine strong research designs with participatory approaches involving community decision making at all levels (Satterfield et al. 2003).
- Practitioners are encouraged to select aspects of these interventions that suit the characteristics of their communities and that can realistically be achieved with the available resources and organisational support.
- Evaluation of these strategies and dissemination of the findings will help to build an evidence base of what works.
- More studies are needed that use rigorous designs and evaluation, including pre- and post-test designs and interventions conducted for more sustained periods.
- In addition, more community based studies are needed which measure intermediate indicators—such as physical activity and weight loss—and patterns of community change—such as walking trail use and food buying patterns.

### References

Satterfield et al. (2003) (review); Lindsay (1999) (review); Andersson et al. (2002); Rowley et al. (2000) (Indigenous communities); Thompson (1997) (Indigenous communities).

## 5.5 Future directions for the prevention of diabetes

Many researchers and communities are breaking new ground by implementing culturally relevant prevention programs in settings where many socioeconomic and environmental

challenges exist. Most clinical trials have been conducted in resource intensive settings with highly motivated communities at high risk for diabetes. Adopting preventive measures on a population-wide basis is more challenging but has the potential for greater overall public health benefits (Satterfield et al. 2003).

Several large scale, multistrategy community interventions are underway. While these approaches are promising, they have not yet been fully evaluated (Andersson et al. 2002). Nevertheless, lessons from tobacco control initiatives show that a key element of their success has been the combination of intervention strategies in comprehensive programs that address multiple facets of the environment simultaneously (Mercer et al. 2003).

The next generation of diabetes prevention programs should:

- continue to develop programs more appropriate for minority, low income and other disadvantaged groups
- address newly identified determinants of diabetes, such as depression, lack of social support and social isolation, material conditions and socioeconomic inequalities (see chapter 10)
- incorporate the fiscal, legislative, policy and environmental strategies that most reviewers recommend as potentially cost-effective interventions, but that have not yet been widely implemented in areas other than tobacco control (see chapter 6 for healthy weight promotion interventions, chapter 7 for physical activity interventions and chapter 8 for food and nutrition interventions).

## 5.6 Resources

- The National Health and Medical Research Council's (2001) Diabetes Indicator Set contains measurement indicators that are most likely to be useful in planning and evaluating community-wide prevention programs. The set includes Australian prevalence rates for each risk factor, for men and women, for the general population and for those with diabetes.
- The National Diabetes Strategy 2000-2004 (Department of Health and Ageing 2001) is available at <http://www.health.gov.au/hsdd/nhpq/pubs/diadsyn/diab2000.htm>.
- For a detailed outline of the 10-year, community based Stockholm Diabetes Prevention Program (Andersson et al. 2002) underway in Sweden, see the full *Review of interventions to prevent diabetes* and the tabulated review (<http://www.vic.gov.au/phd/ebhp>). The reviews cover process evaluation and a staged model for assessing the effectiveness of the program.
- The Filipino Diabetes Prevention Program has taken a community participation approach to developing and disseminating culturally and linguistically appropriate dietary information resources for the Filipino community in Melbourne. The program includes a healthy shopping guide, healthy food tips and recipes. It used community support groups and events for dissemination. Details are available from the North West Migrant Resource Centre.

## 6 Promoting healthy weight

### 6.1 Background

Overweight and obesity are the largest nutrition related problems in the developed world (Willett 2002). Obese individuals have approximately twice the risk of premature death, compared with those who have a body mass index (BMI) of 20–25 kg/m<sup>2</sup> (Calle et al. 1999). Obesity is estimated to contribute to about two thirds of *type 2 diabetes*, one fifth of heart disease and one third of hypertension in Australia (National Health and Medical Research Council 1997). The association between obesity and type 2 diabetes is particularly strong. Women with a BMI of 26 have eight times the risk of diabetes, compared with women with a BMI of 21. There is a comparable fourfold increase in the risk for men. Risk continues to increase with BMI, and women with a BMI of 35 have 90 times the risk (NSW Health 2002).

A weight gain of approximately 4.5–9 kilograms increases the risk of *coronary heart disease* by 1.25 times in women and 1.6 times in men. Higher levels of body weight gain—10 kilograms in men and 20 kilograms in women—result in an increased risk of coronary heart disease of 1.75 times and 2.65 times respectively (Galanis et al. 1998; Willett et al. 1995).

#### Overweight and obesity levels and trends

Rates of overweight and obesity among Australian adults increased markedly over the past two decades. From 1980 to 1999–2000, the proportion of overweight or obese men aged 25–64 years increased from 47.3 per cent to 65.7 per cent (based on measured height and weight). In the same period, the proportion of overweight or obese women increased from 27.2 per cent to 46.5 per cent (AIHW 2003a).

#### Who is at greater risk of being overweight/obese?

- Men
- Low socioeconomic status women
- Middle aged and older adults (aged 55–64 years)
- Indigenous Australians and some non-English speaking groups

#### Costs of overweight and obesity

Overweight and obesity accounted for 4 per cent of the total disease burden for Australian males and females in 1996 (Mathers et al. 1999) and an estimated 2 per cent of national health care expenditure in 1989 (National Health and Medical Research Council 1997). Estimates for Australia in 1995–96 indicate that the direct and indirect costs of obesity may be in the range of \$680–1239 million (NSW Health 2002). The already high health and financial costs associated with obesity are likely to escalate as the population ages, our ability to treat obesity related disease with pharmaceuticals and surgery improves, and the incidence of obesity increases (Kumanyika 2001).

## Preventing overweight and obesity

Weight control is achieved by balancing energy intake with energy expenditure. Most Australians do not achieve this balance because current lifestyles, environments, social norms, and economic conditions promote the opposite—that is, overconsumption of energy dense foods and drinks, and underactivity (French et al. 2001). These have not been deliberate choices for most people; rather, they are the result of largely external changes that influence behaviour in subtle, unintended ways. Reversing this trend can be achieved by a range of active and passive means (as exemplified in table 1). Authorities can motivate and support people to reduce their energy intake and/or increase their energy expenditure, and they can change the environment so people are assisted to maintain healthy weight without having to deliberately change their behaviour. Evidence suggests that equitable and sustainable change at the population level requires both types of initiative, as has occurred with comprehensive tobacco control strategies (Swinburn 2002; Mercer et al. 2003).

## Recommendations for weight loss and control

The following recommendations are a summary of the US National Institutes of Health Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. (The full list of recommendations is available at [http://www.nhlbi.nih.gov/health/public/heart/obesity/lose\\_wt/recommen.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/recommen.htm).)

- Weight loss and weight maintenance programs should employ a combination of a low kilojoule diet and increased physical activity.
- Physical activity should be part of a comprehensive weight loss or weight control program because it (1) modestly contributes to weight loss in overweight and obese adults, (2) may decrease abdominal fat, (3) increases cardiorespiratory fitness and (4) may help maintain weight loss.
- Initially, programs should encourage moderate levels of physical activity for 30–45 minutes for three to five days per week. All adults should set a long term goal to accumulate at least 30 minutes or more of moderate-intensity physical activity on most (preferably all) days of the week.
- Overweight and obese persons should adopt a low kilojoule diet for weight loss, aiming to create a deficit of 500–1,000 kilocalories [2092–4184 kilojoules] per day. Reducing fat as part of a low kilojoule diet is a practical way of reducing kilojoules.
- Overweight and obese adults should aim to reduce body weight by about 10 per cent from the baseline. With success, and if warranted, they can attempt further weight loss.
- Weight loss should be about 0.5–1 kilogram per week for six months, with the subsequent strategy based on the amount of weight lost.
- A weight maintenance program should be a priority after the initial six months of weight loss therapy.

## Overview of evidence reviewed

The control of overweight and obesity is dominated by interventions aimed at weight loss for people who are overweight and obese. In contrast, a health promotion approach to obesity control emphasises the importance of preventing weight gain in the first place, addressing the determinants of overweight and obesity, and adopting strategies that have an impact on the whole population. This approach is consistent with the population-wide approach to health improvement described in chapter 2. Obesity control strategies that adopt these principles have yet to be implemented and evaluated, so this review covers (1) evidence for the strategies that have been implemented and evaluated (mainly weight loss programs) and (2) a proposed upstream health promotion approach to obesity control.

Individual-focused approaches to obesity control involve interventions in three related areas:

- *Community-wide obesity prevention.* Because the obesity epidemic is recent, few community-wide interventions to prevent obesity have been implemented and evaluated. The prevention of weight gain at the community level has been evaluated only in the context of measuring weight change as part of programs targeting health conditions such as CVD or cancer.
- *Weight loss programs among overweight and obese individuals.* The majority of evaluated weight loss programs have been small scale, clinical based, individual focused programs targeting overweight or obese individuals, often in the context of reducing risk factors for CVD, diabetes and cancer. Improving the effectiveness of weight loss programs requires evidence based answers to questions about the optimum mode of program delivery, the extent and type of dietary modifications, the extent and type of physical activity, and program length.
- *Preventing weight regain.* Evidence that weight loss is difficult to maintain has led to much research directed at preventing weight regain. Most research in this area has focused on variations in weight loss programs, such as extending the length of treatment, altering dietary and exercise prescriptions, and providing ongoing support.

This chapter concludes with a description of a ‘new wave’ of obesity prevention strategies. These strategies adopt a public health approach that includes both active initiatives (individual behaviour change) and passive initiatives (structural, environmental and policy changes) modelled on successful public health strategies in the areas of tobacco control, road safety, CVD prevention and HIV/AIDS prevention (Commonwealth Department of Health and Ageing 2002b).

## 6.2 Community-wide obesity prevention

### Intervention description

No large scale interventions targeting obesity control at the community-wide level have been implemented and evaluated. A number of community-wide CVD prevention programs implemented in the 1970s and 1980s addressed weight control in the context of CVD prevention, and included weight control messages and programs as part of multifaceted

interventions. These strategies incorporated public education and individual behaviour change programs. The public education activities included dietary and physical activity advice provided through newspapers, radio, direct mail, newsletters, leaflets, posters and stickers. Cookbooks and weight loss kits were also distributed. Programs included nutrition, weight loss and exercise classes, seminars, weight loss competitions, home correspondence courses and workshops.

### **Population group/setting**

The reviewed interventions targeted adults in community centres, workplaces and health care settings. Some studies included low income and minority population groups. Most interventions were conducted in north America, with a small number in Europe.

### **Effectiveness**

Weight loss programs conducted at worksites and community centres as part of a multifaceted community-wide strategy (generally in the context of CVD prevention) were usually effective. However, these individual weight loss programs, together with wide scale public education campaigns, were generally not effective at reducing the average BMI of adults in intervention communities (compared with the average BMI of comparison communities). In terms of program *reach*, participation rates (and effectiveness) tended to be higher among women and health conscious individuals with higher education and income levels. Population groups and individuals in need of assistance are difficult to reach.

### **Implementation issues**

- Needs assessments found that expressed interest in participating in programs was higher than participation in those programs, indicating that barriers to participation need to be addressed.
- Correspondence programs were more popular and had higher participation rates than face-to-face formats, suggesting that anonymity, flexibility and time efficiency may be important.

### **Comments**

The consistent finding of success at the individual program level, but failure to achieve an impact at the population-wide level, indicates the following:

- In planning a local strategy, it is important to consider the mix of activities that will reach the majority of individuals within a population, and to include some whole-of-community interventions. The population can be a region, local government area, town or locality. Health practitioners need to work intersectorally and develop partnerships with relevant organisations to plan and implement environmental and policy changes.
- Minority, disadvantaged, difficult-to-reach and/or disinterested individuals and groups require programs that are specifically planned and implemented to meet their needs.
- Achieving change at the population level requires action to address the social, policy, economic and environment factors that promote weight gain. The advantages of following this approach over running lots of community based programs are that it is less costly,

more equitable, less stigmatising, does not require individuals to take action, and has an impact on the disinterested individuals who are unlikely to attend specific programs or take action based on public education.

### References

O'Meara et al. (1998); Hardeman et al. (2000); NHMRC (1997) (narrative review).

## 6.3 Weight loss programs

### Intervention description

These interventions assisted individuals to lose weight by setting diet and/or exercise schedules in clinical, primary care, worksite or community settings, including commercial weight loss programs and self-help. They combined information, education, skills development, food plans, activity plans, behaviour modification plans, incentives and monitoring provided by dietitians, health professionals and/or investigators in verbal or written form, individually or in groups. The length of a program was typically eight to 20 weeks, with intensity of contact decreasing over time. The review excluded surgical and drug therapy interventions, in-patient programs and programs that provide food.

### Population group/setting

The reviewed interventions targeted adults who are overweight or obese and therefore at risk of CVD, diabetes or other weight-related conditions. A large number of weight loss programs have been conducted to reduce blood pressure or cholesterol levels among middle aged and older adults. A small number of programs have been conducted with Indigenous populations.

### Effectiveness

- The combination of restricted kilojoule intake and regular physical activity can result in small to moderate weight loss (around 10 per cent of body mass), typically followed by gradual weight regain to approximately 4 per cent below baseline weight. Programs in clinical, university, primary health care, community and worksite settings, as well as a commercial weight loss program and self-help, have achieved these changes.
- Restricted kilojoule diets result in weight loss regardless of the macronutrient composition of the diet (that is, the proportions of fat, protein and carbohydrates).
- Weight gain can be prevented by eating *ad libitum* (that is, not deliberately restricting kilojoule intake) low fat diets (comprising 20–30 per cent of total energy from fat) because these diets are generally associated with a lower overall energy intake.
- Weight gain can be prevented by physical activity without dietary restrictions. The level of energy expenditure required has yet to be determined, but is likely to be greater than 30 minutes per day of moderate intensity physical activity.

Only a small proportion of overweight or obese individuals choose to participate in weight loss programs, and individuals from disadvantaged but high risk population groups are least likely to participate. As with community based programs, the participation rates (and

effectiveness) of weight loss programs tended to be higher among women and health conscious individuals with higher education and income levels. Middle aged and older adults who are, or perceive themselves to be, at high risk of cancer, CVD or diabetes are more likely to participate in weight loss programs.

The sustainability of weight loss is generally poor (see the following section on preventing weight regain). However, this assessment depends on how weight loss and maintenance are defined. Wing and Hill (2001) concluded that approximately 20 per cent or more of individuals who attempt weight loss would be successful. This estimate defined successful weight loss as an intentional weight loss that is greater than or equal to 10 per cent of initial body weight and that is maintained for at least one year.

### Implementation issues

- Comprehensive needs assessment and a participatory approach to program planning and implementation may improve weight loss outcomes in difficult-to-reach at-risk groups, such as Indigenous and non-Indigenous Australian men.
- Weight control programs for men needed to be nonthreatening and require nondisruptive changes to men's lifestyle.
- Limited healthy food choices in a rural Indigenous community contributed to the failure of a nutrition awareness program to reduce obesity and diabetes in that community. It was suggested that physical activity promotion needed to be included.

### Comments

- In the long term, many people find dietary restrictions difficult to maintain.
- Interactions between individual preferences and weight loss diets with differing macronutrient content have not yet been rigorously investigated—for example, do some people lose more weight on a low fat diet, while others do better by restricting their intake of carbohydrates?
- Weight control efforts in the general community are common, with studies reporting 'self-cure' rates ranging from 9 per cent to 43 per cent. Relatively small rates of success can translate into a large number of individuals in the overall population.

### References

Freedman et al. (2001); Astrup et al. (2000) (meta - analysis); Pirozzo et al. (2003) (meta-analysis); Bray and Popkin (1998); Bravata et al. (2003) (systematic review); Bartlett et al. (1999) (systematic review).

The following case study describes an Australian program that has had some success with population groups at high risk of obesity: Australian men in general and Indigenous Australian men. The GutBusters program is no longer available, but the program format may provide a useful model for weight loss programs for Australian men.

### Case study: Gut Busters men's waist loss program

Rates of overweight and obesity are higher among Australian men (66 per cent) than women (47 per cent) (AIHW 2003). In addition, men are less concerned about their weight, less likely to attend commercial weight loss programs and less likely to be included in weight loss trials. The GutBusters program was a waist loss program designed for Australian men. The program was delivered to groups in a variety of community settings or via audio-taped correspondence (Egger et al. 1999b). The program used qualitative research to identify attitudinal barriers to the use of health resources by working men, and it concluded that male weight control initiatives need to be nonthreatening and require nondisruptive changes to men's lifestyles (Egger et al. 1996). GutBusters did not promote dieting or short term weight loss; instead, it encouraged long term lifestyle changes that can be sustained (Egger et al. 1999b). The program comprised a six-session (five-week) educational course focusing on: a reduction of dietary fat (but de-emphasising kilojoule counting); an increase in dietary fibre; an increase in low intensity physical activity, both planned and incidental; and trade-offs of moderate intakes of alcohol for extra physical activity. It encouraged participation in physical activity by developing a mind set to regard 'movement as an opportunity, not an inconvenience'. (Egger et al. 1999b). The program recruited men through press advertisements or general practitioner referral. The men met in groups of up to 20 for one to three hours per week, and they were paid \$130 for participating in the program.

The GutBusters program was also implemented with Indigenous men in four island groups in the Torres Strait region of Northern Australia. It was modified by and for Indigenous men. After an extensive consultation process, training was provided for 22 male community representatives and elders, as well as Indigenous male health workers in the region. Having leaders act as advocates for the program was an attempt to develop a sustainable program. This approach was only partly successful, and most instruction occurred jointly with a visiting GutBusters consultant. Group sessions were held with men in a variety of indoor and outdoor settings. The program was modified using local resources, including flipcharts illustrated by a local artist. Supportive environmental changes included arrangements to increase the quantity of fresh fruit and vegetables and other low fat foods at stores on the islands, and the main private food store on one island agreed to stop selling fried take-away foods to support the program.

## 6.4 Prevention of weight regain

### Intervention description

Interventions aimed at long term maintenance of weight loss using the following strategies: (1) increasing the intensity of initial treatment (for example, using a very low kilojoule diet); (2) extending the length of treatment; (c) altering dietary and exercise prescriptions (for example, advising a low fat diet and physical activity); (d) enhancing motivation (for example, providing financial incentives, social pressure and social support); and (e) teaching maintenance-specific behaviour skills (for example, teaching relapse prevention skills).

### Population group/setting

The reviewed interventions targeted previously overweight or obese adults who have lost weight. Most studies have been controlled trials conducted in clinical settings.

### Effectiveness

At best, a wide range of behavioural strategies can only slightly modify the “remarkably consistent” (Jeffery et al. 2000) natural history of weight loss and regain among participants in behavioural weight loss treatment programs.

- Extending the length of treatment and placing greater emphasis on exercise has delayed but not prevented weight gain.
- Social support strategies (such as including spouses in the program and offering monetary rewards that depend on average group weight losses) have produced promising but modest results.
- Individual financial incentives have not been effective for the long term maintenance of weight loss.
- Low fat diets have been no more effective than kilojoule restricted diets at preventing weight regain.
- Increasing intensity (such as through a very low kilojoule diet) has been ineffective in the longer term.

Based on surveys of people who have successfully lost weight and maintained weight loss, the factors commonly associated with long term weight loss maintenance include:

- a reduced intake of dietary fat (as a means of reducing kilojoule intake)
- participation in physical activity (approximately one hour of moderate intensity physical activity per day)
- continued use of self-monitoring tools and sustained treatment contact
- support for dealing with individual barriers to adopting and maintaining appropriate dietary and physical activity behaviours.

The reach of weight loss maintenance programs is similar to that of weight loss programs (see above). The sustainability of weight loss is generally said to be poor, but this assessment depends on how weight loss and maintenance are defined, as discussed under ‘Weight loss programs’ above).

### Implementation issues

Extending the length of treatment can delay weight regain, but people tire of regularly attending programs.

Adherence to a prescribed exercise program remains a major challenge. Lifestyle physical activity is a promising alternative to exercise programs, but has yet to be rigorously tested. (See chapter 7).

### Comments

- An increase in energy expenditure of approximately 6,000-8,000 kilojoules per week is associated with improved weight maintenance. This is a higher level of physical activity than prescribed in most trials or achieved by most program participants.
- Given that many overweight or obese individuals either dislike or do not have the time to participate in structured exercise programs, a lifestyle approach to building physical activity into everyday activities has been effective in a small number of trials.
- The '30 minutes on most days' recommendation for CVD prevention may be insufficient for weight loss maintenance. Closer to one hour of moderate intensity physical activity per day may be required in both treatment and maintenance programs.
- Physical activity has many health benefits irrespective of weight loss, and obese individuals can obtain these benefits without achieving the levels of physical activity required for weight loss.

Weight loss programs should be provided for overweight and obese individuals who wish to lose weight and maintain weight loss. However, the provision of numerous weight loss programs in multiple community settings will have little impact on the prevalence of overweight and obesity in Australia. More effective strategies for preventing weight gain at the population level will be required to slow or reverse prevalence rates in Australia. These strategies are described in the following section.

### References

Jeffery et al. (2000) (narrative review); Wing and Hill (2001) (narrative review); Costacou and Mayer-Davis (2003) (narrative review); Fogelholm and Kukkonen-Harjula (2000) (systematic review); Miller et al. (1997) (meta-analysis).

## 6.5 Future directions for obesity prevention

Until recently, obesity prevention strategies have focused on persuading and assisting individuals to control their weight by changing their dietary and physical activity behaviours. These have had limited success. It is now recognised that economic, social, policy and environmental changes are required to reverse the growing epidemic of obesity (Nestle and Jacobson 2000). Other public health strategies, such as tobacco control, provide a model that may be useful in preventing obesity. Mercer et al. (2003) listed the five key elements of effective tobacco control as being (1) clinical intervention and management, (2) educational strategies, (3) regulatory efforts, (4) economic approaches and (5) comprehensive programs that combine all of these elements to address the multiple facets of the environment simultaneously.

Kumanyika (2001) argued that passive strategies, such as regulatory efforts and economic approaches, may be more successful than those requiring active decision making because they do not require health to be the basis of decision making and also because they help to reshape community norms.

Health policies do not refer only to national and state policies. Local government, organisations, schools and workplaces all develop and implement health related policies. Health practitioners can both participate in local policy making processes and advocate for policy change at the national and state levels. Kumanyika (2001) listed the following examples of policy and environmental interventions to address obesity. **Many of these initiatives have the potential to be implemented locally. These are marked with an asterisk (\*).**

#### **General interventions–description**

- Developing an intersectoral, national policy on obesity control
- Educating government agency leadership about the inadvertent impacts of their policies on eating and physical activity\*

#### **Physical activity related interventions–description**

- Conducting long term planning of towns and city centres to promote walking and cycling\*
- Introducing measures to slow or ban traffic in some areas\*
- Removing sales taxes on the purchase of exercise equipment
- Changing building codes to increase the use of stairways
- Protecting open spaces through zoning and land use policies\*
- Giving incentives to employers that provide for physical activity breaks or release time\*

#### **Food and eating related interventions–description**

- Labelling the fat and kilojoule content of foods in restaurants and take-away establishments\*
- Setting and enforcing guidelines for the fat content of school and hospital meals\*
- ‘Silently’ altering the content of restaurant foods and processed foods by gradually changing food preparation and processing\*
- Banning some types of food advertising on television
- Regulating television commercials in children’s programming
- Requiring nutrient content information as part of food advertisements
- Using price supports to promote or discourage consumption of certain foods\*
- Levying taxes on certain foods and using the revenue to support other health promotion activities

Kumanyika (2001) also compared the obesogenic environment (Swinburn 2002) with other areas of environmental risk (such as air pollution and pesticide residues), and suggested conducting food and activity related health impact audits of current and proposed policies across all sectors.

### Implementation issues

Kumanyika (2001) summarised the following recommendations for intersectoral policy development and implementation, based on the work of Milio (1990):

- Some type of coordinating body should be created.
- Approaches that can reallocate resources in line with new priorities are more likely to be effective than are those that depend on new resources.
- Regulatory measures that advise rather than prescribe are better accepted.
- It is important to identify and support initiatives that are underway in other sectors that support obesity prevention (for example, active transport policies in municipalities).
- It is important to identify and attempt to defer any unfavourable trends or reversals in nutrition and physical activity policies (for example, the replacement of a workplace canteen with a fast food franchise).
- It is important to identify problematic areas or proposed actions, and attempt to redirect them (for example, replacing car related employee benefits with subsidised public transport, bicycle or gym membership, or free fruits and vegetables).
- Grassroots advocacy efforts can be used to motivate and guide the policy process and challenge market forces.

### Comments

Preventing overweight and obesity involves promoting healthy eating and physical activity. These interventions have been more widely and successfully implemented on their own than in the context of weight control. The normalisation of body weight or body fat is not necessary to improve the health of overweight and obese individuals. Improved nutrition and physical activity levels are associated with a range of health benefits independent of body weight. Chapters 7 and 8 contain reviews of the effectiveness of interventions aimed at promoting physical activity and healthy eating.

## 6.6 Resources

- *US Surgeon General's healthy weight advice for consumers* ([www.surgeongeneral.gov/topics/obesity/calltoaction/fact\\_advice.htm](http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_advice.htm))—practical advice for consumers to balance their food intake and activity.
- The Big Girls' Group, Royal Women's Hospital Melbourne, Tel: (03) 9344 2372 (a six month weight loss and lifestyle program designed to achieve realistic goals with particular attention to fertility issues, as well as general health).
- *Clinical guidelines for obesity management and prevention* ([http://www.nhlbi.nih.gov/health/public/heart/obesity/lose\\_wt/recommen.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/recommen.htm))
- *US Surgeon General's call to action to prevent and decrease overweight and obesity 2001* (<http://www.surgeongeneral.gov/library>)—detailed guidelines for addressing overweight and obesity in a range of settings, along with a resource list of guidelines and funded programs.

- Freedman, MJ, King, J & Kennedy, E 2001, 'Popular diets: a scientific review', *Obesity Research*, vol. 9, pp. 1S–5S—an executive summary of evidence addressing the questions: are popular diets effective for weight loss and/or weight maintenance? What is the effect on composition of weight loss (fat versus lean body mass), micronutrient (vitamin and mineral) status and metabolic parameters (for example, blood glucose, insulin sensitivity, blood pressure, lipid levels, uric acid and ketone bodies)? Do they affect hunger and appetite, psychological wellbeing and the reduction of risk for chronic disease (for example, coronary heart disease, diabetes and osteoporosis)?
- The US Centres for Disease Control and Prevention is currently funding obesity prevention programs in 12 states in the United States (see <http://www.cdc.gov/nccdphp/dnpa/obesity/>). It has also produced a *Resource guide for nutrition and physical activity interventions to prevent obesity and other chronic diseases*. The guide includes several attachments that provide brief summaries of programs and evidence of effectiveness:
  - community nutrition and physical activity planning resources
  - dietary determinants of energy imbalance
  - physical activity strategy
  - 5 A Day (fruit and vegetable) strategy
  - breastfeeding strategy
  - television viewing reduction strategy
  - social-ecological model
  - social marketing
  - nutrition and physical activity recommendations
  - collaborating with partners on secondary prevention strategies.
- The World Health Organisation Regional Office for Europe ([http://www.who.dk/transport/modes/20021107\\_1](http://www.who.dk/transport/modes/20021107_1)) assembled a set of case studies of how citizens can include physical activity as part of their daily travel behaviour. These include city networks (such as the World Health Organisation Healthy Cities network), nongovernmental organisations and health promotion agencies at the national level. The case studies encompass different target populations: children (three cases), older persons (three), the general population (four) and car commuters (two). The London Borough of Camden, for example, implemented the Camden Walking Plan and the Camden Cycling Plan. The plans emphasise the health benefits of walking and cycling, and explain how measurable targets can encourage these two activities. The plans are reviewed annually.

## 7 Promoting physical activity

### 7.1 Background

There is compelling evidence that physical inactivity is responsible for a large proportion of coronary heart disease and type 2 diabetes (as well as some cancers, overweight and obesity, osteoporosis, falls in the elderly and mental health problems). Sedentary people have between 1.5 and two times higher risk of CVD compared with people who are active at moderate levels (such as brisk walking). Physical activity is also vital for the prevention and management of type 2 diabetes.

#### Current physical activity levels and trends

More than half of all Australian adults (57 per cent) are not achieving sufficient levels of physical activity for a health benefit, and almost 15 per cent are completely sedentary. There is also evidence that physical activity rates in Australia are declining (Armstrong et al. 2000).

#### Who is most inactive?

##### *Women*

- Those married
- Those with two or more children under school age
- Those aged 30 years or over

##### *Middle aged and older adults*

- Both men and women aged 40–50 years or older

##### *People with a low socioeconomic status*

- Particularly those with less than 12 years of education

##### *Indigenous population*

##### *Populations with culturally and linguistically diverse backgrounds*

#### Costs of physical inactivity

In Australia, physical inactivity is associated with high direct health costs conservatively estimated at \$400 million per year. About 8000 preventable deaths each year are associated with physical inactivity, which ranks second only to tobacco as the largest contribution to the overall burden of disease (Bauman et al. 2002).

#### Increasing participation

The greatest public health gains are to be achieved by encouraging even small increases in physical activity among the least active Australians—that is, those who are sedentary and engaging in low levels of activity. Current recommendations state that individuals can gain health benefits from accumulating, on most days of the week, 30 minutes or more of moderate intensity physical activity in minimum bouts of around 10 minutes (Bauman et al. 2002).

Physical inactivity is a complex problem that requires action to address the individual, social, cultural, and environmental factors influencing people's participation in physical activity. Public health researchers and policy makers recognise there is no one strategy that works; rather, comprehensive, multistrategy solutions are needed to effectively tackle declining levels of physical activity.

### **Overview of evidence reviewed**

This section provides an overview of the Australian and international evidence about the effectiveness of a range of interventions. Most of the evidence is available for individual focused interventions (such as information, education and behaviour change programs). These programs are successful in getting people more active but they reach only a small proportion of the population and do not produce change that is sustainable in the long term. Physical activity is more likely to be maintained with concurrent community-wide action to create supportive environments (such as policy to support walking and cycling in local communities).

Combining individual focused and community-wide interventions is the approach with the greatest potential for having an impact on the physical activity levels of the whole population. This brief review includes interventions shown to be effective and also strategies identified as being potentially effective. They include:

- health education and skill development
- health information/social marketing
- community-wide interventions
- community action (for social and environmental change)
- policy and environmental approaches (to the built environment and active transport).

## **7.2 Health education and skill development**

### **Intervention description**

Group based health education and skill development includes the provision of education through discrete planned sessions, with the aim of changing knowledge, attitudes, self-efficacy and individual capacity to be more physically active. Programs are generally tailored to the individual's readiness for change, specific interests and preferences. They can be supported by mail, telephone and/or directed media, and include components such as:

- goal setting and self monitoring
- the creation of social support for physical activity
- reinforcement through reward and positive self-talk
- structured problem solving
- the prevention of relapse (Kahn et al. 2002).

### Population group/setting

The reviewed interventions were conducted in health care settings and community settings in the United States, Canada, the United Kingdom and Australia. Most involved more women than men, and most participants were middle-aged adults. Programs tailored for specific groups were particularly effective with women, older adults and minority community groups.

### Effectiveness

Education and skill development programs delivered in group settings have been found to be effective in helping people increase and maintain physical activity in the short term. They are most effective when they are (1) based on an established theory of behaviour change and (2) include social support strategies (Salmon et al. 2000). Maintenance of these effects depends on social support strategies and supportive community environments.

Structured programs are resource intensive and rely on individual contact with programs and practitioners. On their own, they do not have a significant public health impact because their *reach* is limited to only the program participants.

The effectiveness of interventions focused on health care settings, group education and skill development, and social support is as follows.

**Health care interventions** usually involve individual counselling by a general practitioner, practice nurse and/or physiotherapist.

- On their own, they produce effects that are only modest and short term.
- They are most effective for sedentary people initiating behaviour change, older adults and high risk groups with risk factors such as obesity or impaired glucose tolerance (for example, minority groups).
- There is no evidence that more intensive counselling (up to 60 minutes) is any more effective than brief, opportunistic counselling (three to 10 minutes).
- Practitioners find these strategies difficult to incorporate into their everyday practice. For this reason, more knowledge is needed about implementation issues and critical success factors (Bauman et al. 2002; Egger et al. 1999a; Kahn et al. 2002, Smith et al. 2002).

**Group education** and skill development interventions typically involve a combination of education/skill development sessions and structured weekly exercise programs.

- They are effective in helping people gain the skills and confidence needed to start or resume regular physical activity.
- They are effective in increasing physical activity participation. Other benefits include weight loss (Kahn et al. 2002).
- There is little evidence, however, that these changes are sustained after the intervention. Maintenance of effects depends on social support strategies and supportive community environments.

- For older adults, increases in activity are more likely to be sustained after 12 months via 'lifestyle' programs focused on increasing accumulated activity through everyday life (housework, gardening, stair climbing) than via structured programs (Dunn et al. 1998).
- Lifestyle programs have been found to be more cost-effective after six months and after 24 months (costing US\$17.15 compared with US\$49.31 for structured programs) (Dunn et al. 1998).

**Social support** strategies focus on building, strengthening and maintaining social networks to provide support for behaviour change in physical activity. Interventions involve creating new social networks (such as a walking group) or building on existing networks (such as the workplace). Social support makes it easier for individuals to maintain their involvement in physical activity by increasing their motivation, providing practical assistance (such as shared childcare) and/or providing someone with whom to be active.

- Education and skill development interventions have been more effective when combined with social support strategies (a mean increase in physical activity of 44 per cent with social support, compared with 35.4 per cent without social support strategies) (Kahn et al. 2002).
- Social support strategies have been found to be particularly effective for women and minority community groups (Satterfield et al. 2003).
- Effectiveness is enhanced when community members are involved in developing their own ongoing local initiatives (such as walking groups, small community events and sports teams).

### Implementation issues

Components of effective interventions include:

- setting up a buddy system (so companions can be active together and support the attainment of self-selected personal goals)
- contracting another person to complete specified levels of activity
- establishing walking groups or other groups to provide friendship and support
- phoning other group participants to monitor progress and encourage continued effort
- holding discussions focused on overcoming common barriers and negative attitudes.

### References

Bauman et al. (2002); Dunn et al. (1998) in Salmon (2003); Egger et al. (2002); King et al. (1998); Salmon et al. (2000); Salmon (2003); Smith et al. (2002).

## 7.3 Health information/social marketing

### Intervention description

Coordinated communication strategies are used to present information designed to motivate and encourage people to be more active. Such strategies use local newspapers, radio, television, outdoor promotions and print communications (such as leaflets and newsletters). Media strategies use advertising and/or free publicity through editorials and feature articles.

### Population group/setting

The reviewed interventions used community-wide approaches to target strategies for minority groups/communities (Marcus et al. 1998; Kahn et al. 2002; National Public Health Partnership 2002; Salmon 2003).

### Effectiveness

- Mass media strategies have been found to result in increased knowledge and motivation but have little sustained effect on physical activity participation unless they are combined with other community based strategies.
- Communication strategies have been effective in raising awareness about 'new' forms of exercise (such as cycling for transport) and new facilities (such as walking trails) (Merom et al. 2003; Socialdata Australia 2000).
- The use of signs promoting stair use has been effective but only in the short term. Maps of safe walking routes, walking trail information and public transport timetable links have all been associated with increased participation (National Public Health Partnership 2001a).

The *reach* of communication campaigns is extensive (with up to 60–70 per cent of the population being aware of the message), but they can also effectively target specific high risk groups.

### Implementation issues

- Communication campaigns are more effective when complemented by supportive policy and environmental changes, as shown by TravelSmart WA (see 'Resources' below).
- High risk or disadvantaged groups can be reached effectively through targeted media information strategies developed and implemented by community members using their preferred media.
- Media strategies are useful for (1) promoting new services and facilities for physical activity (such as a walking trail) and (2) generating awareness about opportunities for advocacy and community action (such as participation in a council walking strategy) (Wen et al. 2002).
- Campaigns are costly and need to be carefully planned and targeted using social marketing strategies. Free publicity through local radio and newspapers can reduce costs.

- Advertising is expensive but offers greater control of content. Publicity through interviews and feature articles is free, but the content is difficult to control. It is important to develop a relationship with local journalists/media presenters, and provide well written media releases and information. A useful technique is to present the stories of local people.

### References

Kahn et al. (2002) (review); Marcus et al. (1998); National Public Health Partnership (2001a) (active transport, review); Salmon (2003) (review).

## 7.4 Community-wide interventions

### Intervention description

Community-wide approaches typically combine media campaigns with a range of community outreach activities, including means of strengthening social support, community events, community action groups pursuing local issues, and policy changes.

### Population group/setting

Evidence is available for interventions conducted in small minority communities in the United States, Canada, Mexico, Fiji and New Zealand (Satterfield et al. 2003). Little evidence is available for Aboriginal communities in Australia (Rowley et al. 2000). Large scale interventions have been conducted in Australia to promote walking for women (Wen et al. 2002) and in Sweden for whole municipalities (Andersson et al. 2002).

### Effectiveness

Multistrategy, community-wide campaigns have been found to be effective in increasing physical activity across whole communities (a median increase of 4.2 per cent in the percentage of people being active in the communities receiving the intervention) (Kahn et al. 2002). In Australia, the 'Concord: a great place to be active' campaign achieved a 6.5 per cent increase in participation for women across the whole community, which was sustained at two-year follow-up (Wen et al. 2002).

**Reach and sustainability.** While the effects appear small compared with those of targeted programs, these interventions reach large proportions of the population and thus result in a significant public health benefit. However, they require sufficient resources and well trained staff to ensure they are adequately implemented and evaluated. They have also been found to be effective in generating community action towards social and environmental change to support long term changes to physical activity (Andersson et al. 2003; Satterfield et al. 2003; Wen et al. 2002).

### Implementation issues

- It is important to develop intersectoral partnerships among local government, health services, local businesses, key community leaders and community groups.
- Community-wide campaigns should include action to develop public policy.
- They should engage local politicians and decision makers.

- They should be incorporated into municipal structures.
- Local steering groups should include high level representatives from local government, to encourage commitment from local government and to ease local adoption of the program and its components.
- Communities and organisations should be allowed to assume program ownership as early as practicable and integrate activities into their ordinary agenda.
- Leadership (from the program and community) is vital for effectively initiating and maintaining activities (Andersson et al. 2002).

### References

Andersson et al. (2002) (The Stockholm Diabetes Prevention Project—also see chapter 5); Kahn et al. (2002) (review); Rowley et al. 2000 (Aboriginal communities); Salmon (2003) (review); Satterfield et al. (2003) (review, minority and disadvantaged communities); Wen et al. 2002 (Australian study, women).

## 7.5 Community action (for social and environmental change)

### Intervention description

Community action includes participation by community members in advocacy and action for social and environmental change. Examples include adopt-a-park groups, community building initiatives (such as the Streets Alive partnership program and TravelSmart WA), lobbying for offpeak rates at local facilities, community participation in developing local cycling strategies (such as Bicycle Victoria), audits of community walkability, and active transport in school communities (such as TravelSmart Victoria).

### Population group/setting

The reviewed interventions targeted workplaces, schools and local communities.

### Effectiveness

Community action/participation strategies to increase physical activity have not been widely evaluated. However, community action—such as lobbying by cycling advocacy groups in Victoria—has raised public awareness and contributed to policy and environmental change that has been associated with significant and sustained increases in participation in cycling. An example can be found in Melbourne: over the past five years in the Melbourne central business district, as cycling lanes and facilities have been implemented, cycling for transport has risen by 5 per cent per year. Cyclists' use of Swanston Street has increased by 360 per cent in the past 10 years (Bicycle Victoria 2003).

Community action to build social support for physical activity has also been a key component of effective interventions to promote walking in Australia (NSW Health 2003; Wen et al. 2002) and internationally (National Health and Medical Research Council 2001; Satterfield et al. 2003). Building the capacity of the community to participate in decision making and change has the potential to increase the *reach* and *sustainability* of physical

activity interventions (Kahn et al. 2002; Satterfield et al. 2003). Further evaluations are needed to clarify which strategies are most effective in engaging community members and to document critical success factors.

### References

Kahn et al. (2002) (review); NSW Health (2003) (Australian study, mothers with young children); Satterfield et al. (2003) (minority communities); Wen et al. (2002) (women).

## 7.6 Policy and environmental approaches

### Intervention description

Policy and environmental interventions focus less on individuals and more on the whole community and organisations (such as schools, workplaces and sporting clubs). These strategies have considerable potential to increase community-wide physical activity levels by reducing social and environmental barriers to physical activity, and by ensuring the provision of facilities and resources for people to be active. Policy approaches are needed to bring about changes in social and physical environments, and to advocate for local decision making to support physical activity.

### Effectiveness

Although limited evidence is available regarding the effectiveness of specific policy components, the literature indicates that a range of policy and environmental and policy interventions have considerable potential to increase community-wide physical activity levels.

**Reach and sustainability:** Although the magnitude of change may seem modest compared with that produced by discrete programs and individual behaviour change interventions, the number of people reached and the sustainability of change have the potential for a significant long term public health benefit to result (Saelens et al. 2003).

**Cost and feasibility.** Major infrastructure changes are expensive and can be implemented gradually through planning and policy change. Responsibility can be shared across the intersecting interests of stakeholder groups, such as the health sector, the transport sector, decision makers in urban design, local government, environment groups and special user groups. Smaller scale changes can also be implemented with relatively low cost, such as strategies to address traffic and personal safety, walking trails, signage, access maps and enhanced public transport links.

Strategies for which there is good evidence of effectiveness include:

- signs encouraging stair use
- enhanced places for physical activity (cycling trails, women's fitness centres, running and bicycling clubs)
- workplace interventions (showers and change facilities, lotteries and incentives, fitness testing, time release policies, the promotion of active commuting, advocacy for local support for walking/cycling).

- the building of new leisure centres, particularly in low socioeconomic areas (Kahn et al. 2002; Salmon 2003).

### **Implementation issues**

Characteristics of effective environmental and policy interventions include:

- comprehensive long term strategies that focus on the social, physical, economic and policy environment
- the involvement of multiple stakeholders from many sectors beyond health, including urban planners, local government, the transport sector, environmental protection agencies, criminal justice organisations, community organisations and special interest groups
- the use of interdisciplinary teams and coalitions, including target groups and user groups.
- multiple level interventions that focus concurrently on the social, physical, economic and policy environments - these interventions are most likely to be effective and have the potential to yield more sustainable change
- the appropriate allocation of resources, given that considerable time is needed to establish policy and effect environmental change
- evaluation that includes indicators for changes in attitudes and knowledge, as well as for changes in physical activity behaviour
- the use of baseline, monitoring and long term follow-up measures.

Potential barriers to environmental and policy interventions include:

- building new facilities is time and resource intensive
- enhancing access to facilities requires careful planning, coordination and resources
- success is enhanced by community 'buy-in', which takes time, resources and political commitment
- inadequate resources and lack of trained staff may affect the quality of the intervention and its evaluation.

### **Case study: active transport**

In Australia and overseas, there has been a marked increase in attention to policy and environmental approaches to facilitating active transport. When combined with social marketing strategies, changes to workplace and community environments have been associated with significant increases in the use of walking and cycling (National Public Health Partnership 2001). The National Public Health Partnership developed a portfolio of recommended interventions. The following areas were considered critical in increasing the use of active transport:

#### *1. Social factors*

Creating a milieu in which the use of active transport modes is a normal part of life

Creating positive images of people who walk, cycle or use other active transport modes

Reducing the attractiveness of using motor vehicles (costs, taxes) compared with alternative modes (including public transport)

Raising awareness of the effects that transport policy may have on social exclusion and inequalities in health

### *2. Urban planning*

Designing communities and buildings that encourage walking and active transport; trying to have workplaces near to home

Minimising car dependency by developing mixed land use in neighbourhoods (residential, shops, employment, open space)

Promoting medium and high density housing

Clustering public facilities (such as shops) that can provide a focus for walking

### *3. Transport related issues*

Making active transport easier

Planning street design, walking and cycling paths and facilities

Addressing safety issues (personal safety and traffic safety such as calming devices)

Providing transport facilities that are attractive, convenient and accessible

Providing easily understood information related to the use of active transport modes (timetables, local access maps of walking cycling and public transport routes, facilities and local destinations)

### *4. An intersectoral approach*

Combining land use management and control with transport practices (to ensure effective policies are put in place)

Engaging key stakeholders from other sectors in ways that address their needs and priorities (for example, the potential to reduce greenhouse gases for the environment sector).

Adapted from National Public Health Partnership (2001a).

## **Implementation issues**

A range of sectors has an interest in issues associated with increasing the use of active transport (walking and cycling). In addition to the health benefits of increasing physical activity participation, these issues include generating more effective use of public transport, reducing pollution, preserving the environment and building more cohesive, safe and socially connected communities. This review indicates that the way forward involves building strategic intersectoral partnerships among sectors (such as local government, urban planning and transport, environment, education and social welfare) and with a range of organisations, employers, schools and community groups.

## References

Bauman et al. (2002) (review); Humpel et al. (2003) (review); Kahn et al. (2002) (review); National Public Health Partnership (2001a) (review); Salmon (2003) (review); Saelens et al. (2003) (review).

## 7.7 Specific population groups

Interventions have been evaluated for specific population groups (including women, older adults and Indigenous/culturally and linguistically diverse communities), but few have been in an Australian context. Most of the interventions used varying combinations of the strategies described in this review, including education and individual behaviour change skills, social support, social marketing, community participation and local capacity building.

### Women

In Australia, multistrategy, community-wide programs such as 'Concorde: a great place to be active' have achieved sustained changes in women's participation (Wen et al. 2002). The recruitment of young mothers into community physical activity programs at child health centres has potential for high reach and effectiveness, but the sustainability of the effects depends on social support strategies and supportive environments in local communities (Lewis 2002; NSW Health 2003).

### Older adults

Reviews of interventions targeting older adults indicate that home based programs with telephone support have been as effective as group based interventions in the short term. Long term sustainability has been better in group programs that are based at community centres or health care settings and that include self-monitoring (King et al. 1998).

### Socially disadvantaged groups

The international literature indicates that interventions for low income, Indigenous and culturally and linguistically diverse communities are most effective when (1) they are tailored to the needs, interest and cultural practices of the group, (2) they involve members of the group in planning, implementation (such as peer leaders) and evaluation (community identified priority outcomes) and (3) community ownership of the program occurs as early as possible (Banks-Wallace and Conn 2002; Salmon 2003; Satterfield et al. 2003).

## References

Banks-Wallace and Conn (2002) (review); Satterfield et al. (2003) (review).

## 7.8 Future directions for promoting physical activity

The most effective interventions are those that combine multiple strategies at multiple levels, and that involve a range of key stakeholders and the community. Consequently, the way forward involves using capacity building strategies for developing leadership, building partnerships and facilitating cooperation. This approach depends on a genuine commitment of time and resources, and participation by governments, organisations and members of the community.

## 7.9 Resources

### Section 7.2:

- Women's Participation Program (Sport and Recreation Victoria)—training course available for peer leaders, support materials, resources (<http://www.womensport.com.au>)
- Walking groups and the 'Walk and talk' program (VICFIT Physical Activity Infoline 1800 638 594)

### Section 7.3:

- Resources and television advertisements from the West Australian Premier's Physical Activity Task Force (<http://www.patf.dpc.wa.gov.au/>)
- <http://www.travelsmart.gov.au>
- 'Active for life' campaign in Victoria (<http://www.activeforlife.vic.gov.au>)
- <http://www.activeaustralia.org>

### Section 7.5:

- Bicycle Victoria (2003) (advocacy for cycling support strategies)
- Currie and Develin (1999) (walking groups for mothers)
- TravelSmart Victoria (2003) (community action around active transport)
- *Creating healthy and more sustainable travel options* (<http://www.travelsmart.gov.au/toolkits.html>)

### Section 7.6:

- *Promoting active transport: a portfolio on interventions* (National Public Health Partnership 2002).
- *Supportive environments for physical activity* (<http://www.heartfoundation.com.au/sepa/>)—a guide for working in partnership with local government and communities
- The US Task Force on Community Preventive Services review of interventions (expected to be available in 2004), covering (1) transport policy and infrastructure change to promote nonmotorised transport and (2) urban planning approaches, including zoning, land use, street design and cluster developments (<http://www.thecommunityguide.org>)

### Section 7.7:

- Womensport and Recreation Victoria (<http://www.womensport.com.au>)—resources, guidelines, training courses, funding opportunities, contact organisations
- *Proactive mums: promoting physical activity through childcare centres* (NSW Health 2003)
- Australian Council on the Ageing (<http://www.cotavic.org.au/lls/lls.html#top>)
- VICFIT 'Active at any age' and 'Walk and talk' programs (<http://www.vicfit.com.au>)
- Women's Participation Program (<http://www.womensport.com.au>)—peer leader training for community physical activity programs for culturally and linguistically diverse women, resources and support materials.
- Centre for Multicultural and Youth Issues (<http://www.cmyi.net.au>).

## Evaluation tools

- Physical Activity Monitoring and Evaluation Toolkit by the Centre for Physical Activity and Nutrition Research, Deakin University ([http://www.hbs.deakin.edu.au/HealthSci/Research/PAN\\_Research/PAN\\_ResearchUnit/Behavioural\\_Epidemiology.asp](http://www.hbs.deakin.edu.au/HealthSci/Research/PAN_Research/PAN_ResearchUnit/Behavioural_Epidemiology.asp)) (select: Monitoring and assessing physical activity behaviour)–practical evaluation tools (validated survey questionnaires) and other useful practical information. The questionnaires include:
  - the Active Australia Survey (a brief, easily implemented survey that measures total physical activity)
  - the International Physical Activity Questionnaire (a longer survey that measures leisure time, occupational and incidental physical activity, including transport related physical activity; excellent for policy interventions)
  - a survey of physical activity for specific populations (such as older adults and children; designed for the Australian context)
  - the Environmental Supports for Physical Activity Questionnaire (a US survey that investigates environmental characteristic, including social aspects of neighbourhoods and perceptions of community safety)
  - the Neighborhood Environments Walkability Survey (a US survey that is simple and easily implemented).
- The US Centres for Disease Control and Prevention *Resource guide for nutrition and physical activity interventions to prevent obesity and other chronic diseases* (<http://www.cdc.gov/nccdphp/dnpa/physical/index.htm>)–includes evaluation tools.

## Case studies, best practice programs

- The US Centres for Disease Control and Prevention *Resource guide for nutrition and physical activity interventions to prevent obesity and other chronic diseases* (<http://www.cdc.gov/nccdphp/dnpa/physical/index.htm>)–includes evaluation tools, economic impacts information, resources for practitioners, case studies of programs, community and environmental approaches.
- VicHealth case studies and funding opportunities (<http://www.vichealth.vic.gov.au>)
- VICFIT (<http://www.vicfit.com.au>)
- Irish Heart Foundation’s *Sli na Slainte* (<http://www.irishheart.ie/slinaslainte/default.htm>)
  - a multistrategy national program to promote walking in local communities and workplaces. Website includes an overview, staff and community leader training, an implementation guide, community walking trail development, resources, events and publications.
- *Supportive environments for physical activity. A guide for working in partnership with local government and communities* (<http://www.heartfoundation.com.au/sepa/>)–also information about funding opportunities.

- Cycle-Friendly Workplace booklet - helps businesses recognise the benefits of commuter cycling, create a cycle-friendly culture, and provide incentives for cycling to work. The guide includes case studies of cycle-friendly work places (<http://www.bv.com.au>) (Keyword: Cycle-friendly workplace).
- National cycling strategy (<http://www.abc.dotars.gov.au>)—useful for lobbying local government.
- TravelSmart (<http://www.travelsmart.gov.au> for Australia), (<http://www.travelsmart.vic.gov.au> for Victoria), (<http://www.travelsmart.wa.gov.au> for Western Australia)—excellent policy and practical case studies about increasing the use of walking and cycling for transport; information about media campaigns and community based initiatives; new sections being completed on workplaces, hospitals, schools and special events; great Victorian case studies.
- *Go for green. Environmentally friendly transport options in the US* (<http://www.goforgreen.ca/home>)
- Australian Council on the Ageing (<http://www.cotavic.org.au/llls/llls.html#top>)—information on coordinating a strength training program for older adults.
- Womensport and Recreation Victoria (<http://www.womensport.com.au>)—extensive collection of resources, guidelines, training courses, workshops, funding opportunities and contact organisations.

## 8 Promoting healthy eating

### 8.1 Background

Dietary behaviours influence health and wellbeing at all stages of life. Good nutrition contributes to physical health and vitality, mental health and social wellbeing (National Public Health Partnership 2001b). Diets high in vegetables, fruits and wholegrain cereals, and low in saturated fats, salt and added sugar are associated with protection against coronary heart disease, stroke, diabetes and other diet related chronic conditions (World Health Organisation 2003).

A recent evidence based review by the Joint World Health Organisation/Food and Agriculture Organisation Expert Consultation, *Diet, nutrition and the prevention of chronic disease*, concluded that dietary risk factors for CVD include a high intake of saturated fatty acids, trans fatty acids, sodium and alcohol. Protective dietary components include fish and fish oils, potassium, fruits and vegetables, a low to moderate alcohol intake, and dietary fibre and wholegrain cereals (World Health Organisation 2003). A high intake of saturated fatty acids is a probable risk factor for type 2 diabetes, while dietary fibre, fruits and vegetables are protective against this disease (World Health Organisation 2003).

#### Dietary trends

- Saturated fat intake among adult Australians (12 per cent of total energy intake) is higher than the recommended level of 10 per cent, although overall fat intake declined from 37 per cent in 1983 to 32–33 per cent in 1995 (Marks et al 2001b).
- Less than one in five Australian adults meets the recommended level of vegetable consumption (five or more serves per day) and only half meet the recommended level of fruit consumption (two serves per day) (Marks et al. 2001b).
- The estimated proportion of total energy intake from sugars (including naturally occurring and added sugars) was 19.4 per cent for adult men (aged 19 years or older) in 1995 and 20.9 per cent for adult women (Marks et al 2001b). The recent Joint World Health Organisation/Food and Agriculture Organisation Expert Consultation report recommended a goal of less than 10 per cent of free sugars<sup>5</sup> (World Health Organisation 2003).
- An increase in mean energy intake of around 350 kilojoules per day occurred from 1983 to 1995 among adults aged 25–64 years. Without increases in energy expenditure, these increases in energy intake are likely to result in significant increases in body weight over times (Marks et al. 2001b).

#### Who is more likely to have poor nutrition?

- Men
- Young to middle-aged adults
- People with a low socioeconomic status
- Indigenous populations

<sup>5</sup> 'Free sugars' are all monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and fruit juices (World Health Organisation 2003).

### **Costs of diet related disease**

Poor nutrition is estimated to account for up to 10 per cent of the total burden of disease in Australia (based on the number of disability adjusted life years), due to obesity (4.7 per cent), inadequate consumption of fruits and vegetables (2.8 per cent) and high blood cholesterol (2.1 per cent). Inadequate fruit and vegetable consumption (fewer than two serves and five serves per day respectively) is also responsible for an estimated 11 per cent of the total cancer burden (Mathers et al. 1999). The costs of diet related diseases in Australia in 1989–90 were estimated at \$1.5 billion in direct health care costs and \$2.3 billion in total costs (National Health Strategy 1993).

### **Promoting good nutrition**

The benefits of healthy eating are well recognised. Dietary guidelines for adults, children and adolescents (National Health and Medical Research Council 2003) and older Australians (National Health and Medical Research Council 1999) recommend that a healthy diet includes a variety of foods high in vegetables, fruits and wholegrain cereals, and low in saturated fats, salt and added sugar. However, it has proved difficult to promote healthy eating in the context of lifestyles and environments that frequently encourage the opposite. Comprehensive, multifaceted strategies are needed that target both individual and population-wide influences on eating behaviour.

### **Overview of evidence reviewed**

Interventions to promote healthy eating have generally been conducted in the context of reducing the risk of CVD, cancer and type 2 diabetes. This section summarises the evidence for the effectiveness of:

- interventions in health care settings
- restaurant, supermarket, catering and worksite interventions
- community based programs
- mass media campaigns
- mass communication strategies
- multifaceted community based strategies
- pricing and fiscal food policies.

## **8.2 Interventions in health care settings**

### **Intervention description**

Interventions have ranged from a one-off mailout, to a single consultation, through to intensive lifestyle advice.

### **Population group/setting**

The reviewed interventions targeted adults in health care settings (generally primary care).

### **Effectiveness**

At best, the interventions had modest effects on some dietary patterns. There is some evidence that the more intensive, targeted interventions are effective, but brief, one-off interventions (such as a mailout of nutrition information kits) are ineffective.

### **Implementation issues**

Culturally sensitive, specifically tailored interventions can achieve small but significant effects for disadvantaged groups.

### **Comments**

Modest effects have been found overall. However, interventions in health care settings may be worthwhile for reaching traditionally hard-to-reach minority groups and individuals with low socioeconomic status, because these groups are more likely to be present in health care settings (seeking primary care) than to participate in community nutrition education programs.

### **References**

Ashenden et al. (1997) (systematic review); Wilcox et al. (2001) (systematic review).

## **8.3 Restaurant, supermarket, catering and worksite interventions**

### **Intervention description**

*Most restaurant based 'environmental' interventions* have used 'point of choice' labels (for example, the labelling of low fat dishes as 'good for health') or changed either the availability or price of menu items.

*Supermarket based interventions* have usually involved 'point of choice' information and/or media advertising campaigns.

*Workplace interventions* have included a mixture of educational and environmental strategies, mainly centred on the workplace canteen (for example, comparative nutritional labelling, dietary advice via lectures/pamphlets/films/posters/newsletters/mail, menu changes and changes to the menu prices).

### **Population group/setting**

The reviewed interventions targeted adults in food purchasing settings.

### **Effectiveness**

Restaurant-based interventions are relatively inexpensive and easy to implement, and they appear to have been successful at improving sales figures for the targeted items over the duration of their use.

Supermarket interventions represent a generally effective method of relatively easily and cheaply influencing people's food choices.

A combination of educational and environmental interventions in the workplace can sometimes improve dietary habits. Two large worksite programs resulted in small but statistically significant increases in the intake of fruit and vegetables.

### **Implementation issues**

- ‘Point of choice’ information appears to have been more effective if it included a promotional message (for example, a free taste, special of the day) as well as informative message about the product being a healthy choice.
- Recommendations for implementing health promotion interventions in the workplace include:
  - having top management visibly and enthusiastically supportive of, and involved in, the intervention
  - involving employees at all organisational levels in the planning, implementation and activities of the intervention
  - tailoring interventions to the characteristics and needs of the recipients
  - optimal use of local resources (human, physical and organisational) should be made in organising and implementing the intervention
  - evaluation should be an integral part of any new intervention program. It should include a range of outcome and process measures.

### **Comments**

Most studies were unable to assess the effects of the intervention on overall dietary habits, so the optimum mix, intensity and duration of interventions have yet to be determined.

### **References**

Hider (2001) (systematic review); Peersman et al. (1998) (systematic review); Caliska et al. (1999) (systematic review).

## **8.4 Community-based programs**

This section reviews community based programs targeting only eating behaviour. Other community based programs are multifaceted interventions that include nutrition as just one component (reviewed under ‘Multifaceted community based initiatives’ below).

### **Intervention description**

Interventions in community settings have included small group educational, motivational and behavioural programs (including monitoring) for approximately an eight-week period.

### **Population group/setting**

The reviewed interventions targeted adults in community settings, focusing mainly on fruit and vegetable consumption, often in the context of cancer prevention.

**Effectiveness**

The interventions were found to result in a modest increase (approximately half a serving per day) in the consumption of fruits and vegetables.

**Comments**

The interventions frequently recruited people (mainly women) who were already thinking about increasing their fruit and vegetable intake.

**References**

Caliska et al. (1999) (systematic review); Baghurst (2003) (narrative review).

**8.5 Mass media campaigns****Intervention description**

Mass media campaigns to promote healthy eating have promoted fruit and vegetable consumption and low fat dairy products, as well as providing more general nutritional advice to reduce CVD (usually focusing on reducing the intake of saturated fat). Media campaigns are rarely implemented and evaluated on their own without complementary community based programs. One such 'media only' study was the US '1% or less' campaign promoting the consumption of low fat milk, which used paid advertising plus public relations.

**Population group/setting**

The US '1% or less' campaign targeted a relatively small US city (35,000 people) with its own newspapers and television and radio stations.

**Effectiveness**

There was good evidence of effectiveness from the US trial under certain circumstances (see 'Implementation issues'), although the sustainability of impacts was not assessed beyond six months. The mass media only campaign was estimated to be more cost-effective than the media campaign plus community based programs, because community programs are labour intensive and reach a smaller proportion of the population (around 20 per cent compared with an estimated 90 per cent reached by the mass media). At around \$1 per person, the media campaign would be costly if expanded to cover the whole population. A further consideration is that the program targeted only one food product (milk).

**Implementation issues**

The US study identified the following success factors:

- The campaign used paid advertising as well as public relations strategies.
- It focused on a simple dietary change message (whereas many healthy eating campaigns focus on whole diet or entire food groups).

- The potentially complex behaviour was broken into steps that were easier for consumers to understand, easier for consumers to follow and easier to communicate through mass media.
- The advertisements and press materials included strongly worded messages that clearly communicated the benefits of drinking low fat milk and the negative attributes of high fat milk in a memorable way (for example, the advertisements compared the saturated fat content of one glass of whole milk to that of five strips of bacon).
- The hard hitting messages were in contrast to ‘many public health campaigns, especially those run or funded by governments, that use mildly worded, vague messages to avoid upsetting anyone, including the food and other industries’ (Reger et al 1998).
- The message could be easily communicated to the public—that is, the switch to low fat milk was promoted as an easy way of cutting saturated fat intake and reducing the risk of heart disease.
- Paid advertising (in contrast to public service announcements) can be strategically placed to reach a target audience.
- The campaign received considerable publicity on television and radio, and in newspapers.
- At the time of the campaign, there was a strong link between milk, saturated fat, plasma low density lipoprotein cholesterol levels and CVD as a leading cause of death for US men and women.
- The relatively small city (35,000 people) has its own newspapers and television and radio stations.
- Community leaders and most media outlets supported and actively promoted the campaign.
- A media only approach may not be effective for some more complex nutrition messages (although thought should be given to how they can be broken down into a series of simple messages).
- The products promoted must be readily available in appropriate variety.

The US campaign used materials developed for a state-wide campaign as the basis for an intense local mass media campaign. Because the materials had already been developed, the cost was relatively low (approximately \$43,000) and compared favourably with community based programs. In the Victorian context, a local area may be able to use media campaign materials developed at the national or state level for use with local newspapers, billboards, community radio and local commercial television.

### Comments

- One mass media only campaign (paid advertising and public relations) appeared to have success similar to that of an intervention that combined mass media with community based programs (educational programs at supermarkets, schools and worksites).
- On the other hand, a paid advertising only campaign resulted in only short-term change.

- The good program reach of a paid advertising campaign is likely to be countered by the poor sustainability of both the campaign and its effects.
- Media campaigns need to be complemented with policy and environmental changes to achieve cost-effective, sustainable change.

### References

Reger et al. (1998); Reger et al. (1999); Reger et al. (2000).

## 8.6 Mass communication strategies

### Intervention description

The range of initiatives include dietary guidelines, food labelling, nutrition sign-posting and nutrition claims.

### Population group/setting

The reviewed interventions targeted the general population.

### Effectiveness

*Dietary guidelines* represent one of a number of diffuse, population-wide interventions whose impacts are difficult to measure. Social marketing campaigns promoting dietary guidelines can raise awareness, change attitudes and increase knowledge.

*Mandated nutrition information panels* appear to (1) facilitate the food choices of individuals trying to reduce their fat intake, (2) influence the food choices of a large proportion of the population and (3) have greater impact among women, higher educated people, those with greater nutrition knowledge and awareness, and those who believe in the importance of diet for reducing the risk of disease.

*Nutrition sign-posting programs* such as the 'pick the tick' program run by the National Heart Foundations in Australia and New Zealand make identifying healthier food choices simpler for consumers, are frequently used by shoppers when choosing products, and serve to encourage food manufacturers to reformulate products to meet de facto standards.

*Health and nutrition claims* are an important influence on consumers' food choices and manufacturers' formulation of food products.

### Implementation issues

Food labelling needs to be complemented by other strategies designed to influence the food choices of low income and less educated consumers.

Negative consequences of health and nutrition claims can occur when messages are misleading or misinterpreted. For some low fat products, for example, added sugar means that the energy density of the food remains unchanged, negating the impact of low fat products in preventing weight gain. It has been recommended that products with 'low fat' or 'reduced fat' claims be required to reduce or at least publicise their energy density.

Labelling regulations may need to be extended to include foods purchased from fast-food outlets (for example, the provision of nutrition information on menus and/or food wrappers).

### Comments

Health promotion practice could include:

- advocating for appropriate food labelling (nationally or locally in workplaces or fast-food outlets)
- running nutrition education programs on dietary guidelines, food labelling, nutrition sign-posting, and health and nutrition claims
- developing and implementing educational strategies appropriate for priority population groups.

### References

French et al. (2001) (narrative review); Miller and Stafford (2000) (systematic review); Swinburn et al. (2003) (narrative review).

## 8.7 Multifaceted community based initiatives

### Intervention description

Multifaceted community based initiatives have employed education, mass media and mass screening. Many have addressed nutrition as one component of an overall CVD prevention strategy. Activities have included walking clubs, aerobic exercise classes, heart healthy cooking demonstrations, community blood pressure and cholesterol screening, and CVD education programs.

The Western Australian '2 fruit 'n' 5 veg' campaign (implemented in five phases from 1990 to 1993) included television advertising and a range of supermarket, worksite, school and community activities and resources. Interventions in the US '5 a day for better health' campaign included:

- nutrition education activities in retail settings
- nutrition promotion through media and communications channels
- various community interventions, including worksite programs, a program targeting low income women, a program among rural African American church members, and a worksite plus family intervention.

### Population group/setting

Multifaceted CVD prevention programs were conducted in large communities (over 100,000 people), mostly in the United States and Europe. Some of the reviewed programs targeted minority populations in the United States. The Western Australian and US fruit and vegetable campaigns targeted the general population.

### Effectiveness

Most multifaceted community based initiatives addressing nutrition as part of an overall heart health intervention did not lead to significant changes in dietary behaviours at the population level. Overall, the US '5 A Day' campaign did not achieve significant improvements in fruit and vegetable consumption, based on nationally representative surveys. However, community programs in particular settings were effective, demonstrating that well resourced, well planned and well implemented interventions for improving fruit and vegetable intake can be effective in a range of settings.

Dietary surveys conducted in Perth in 1989 and 1994 (before and after the '2 fruit 'n' 5 veg' campaign) reported increases in the consumption of fruit (up 0.17 serves) and vegetables (up 0.72 serves). This outcome, while promising, needs to be interpreted cautiously, given possible population changes over that time.

### Implementation issues

- Generalised food messages appear unlikely to change specific nontargeted behaviours such as fruit and vegetable intake.
- To have an impact on dietary patterns at the population level, multifaceted community based nutrition promotion programs that include a mass media campaign need to have the following characteristics:
  - The messages must be simple and include a specific health link.
  - The promoted changes must be easy to make (that is, available and affordable).
  - The mass media component should include strategically placed paid advertising.
  - The campaign needs to be of sufficient duration and intensity.
- Community based programs should be developed specifically for minority and disadvantaged groups.

### Comments

Sustainable population level improvements in nutrition are more likely to be achieved if community based programs focusing on individual behaviour change are complemented with the potentially more cost-effective, passive and equitable environmental and policy interventions that reach all sectors of the population regardless of interest, circumstances and demographic characteristics.

### References

Hider (2001) (systematic review); Caliska et al. (1999) (systematic review); Miller and Stafford (2000) (systematic review).

## 8.8 Pricing and fiscal food policies

### Effectiveness

At the individual level, pricing has a strong effect on food choices. Lower pricing (10 per cent, 25 per cent or 50 per cent reductions) leads adolescents and adults to increase their purchasing of low fat snacks (9 per cent, 39 per cent and 93 per cent increases respectively) and fresh fruit and vegetables in schools and workplaces.

### Comments

At a population level, Swinburn et al. (2003) reported proposals for governments to use subsidies and taxes to influence buying patterns, but such proposals are contentious. An alternative approach described by Swinburn et al. (2003) is the application of a small tax (too small to affect sales) on high volume foods of low nutritional value, such as soft drinks, confectionary and snack foods. The tax revenue would be used to fund nutrition programs or subsidise fruit and vegetables.

Another proposal is that public health nutrition impact assessments be conducted during the formulation of fiscal food policies. Currently, these policies are driven mainly by agricultural, economic and political agendas (Swinburn and Egger 2002). The potential role of health promotion practitioners in pricing and fiscal food policies is twofold: (1) advocating for healthy public policy at the national or state level, and (2) developing intersectoral partnerships to develop and/or implement changes in policies and pricing at the local level.

## 8.9 Specific population groups

### Indigenous Australians

The health status of Australia's Indigenous people remains the worst of any subgroup in the population (Shannon 2002). Indigenous life expectancy is 15–20 years less than that of non-Indigenous Australians, with twice the rate of mortality from heart disease and 17 times the rate of mortality from diabetes (Shannon 2002). Indigenous Australians are less likely to eat a diet consistent with dietary guidelines and more likely to suffer from both overnutrition and undernutrition. The impact of past policies and practices, economic disadvantage and the 'introduced' diet are major causes of these poor health outcomes.

The National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINSAP)—developed by the National Aboriginal and Torres Strait Islander Nutrition Working Party as part of the national public health nutrition strategy, Eat Well Australia—summarised the findings of an unpublished review (Butlin et al. 1997) of food supply and nutrition programs for Aboriginal and Torres Strait Islander people. The review noted that few programs had been adequately evaluated, but indications of good practice included:

- ensuring community involvement and support in all stages of the project
- empowering the community rather than imposing priorities
- using multifaceted interventions

- monitoring and providing feedback to participants
- modifying strategies according to need (National Public Health Partnership 2001 c).

These principles of good practice were evident in the GutBusters waist loss program implemented in Torres Strait Islander communities (Egger et al. 1999) (see chapter 6). In addition, successful nutrition promotion programs with African American populations (Wilcox et al. 2001) have shown similar sensitivity to the needs and interests of minority population groups (see chapter 4).

The NATSINSAP identified the following seven areas for action to improve nutrition in Indigenous populations:

- food supply in remote and rural communities
- food security and socioeconomic status
- family focused nutrition promotion (for resourcing programs and disseminating and communicating good practice)
- nutrition issues in urban areas
- the environment and household infrastructure
- an Aboriginal and Torres Strait Islander nutrition workforce
- national food and nutrition information systems (National Public Health Partnership 2001 c).

### **Other priority groups**

In the United Kingdom, a large number of small scale community development initiatives have been implemented in low income areas to help address problems of physical and economic access to healthy foods, commonly fruit and vegetables. The aim of these community food projects is to improve food awareness, access and availability for people on a low income. They include food co-ops, community cafes, cooking clubs and community allotments. Besides improving access to food, the projects aim to enhance cooking skills, increase confidence, offer social support and provide common ground for local people and professionals to work together in innovative ways (McGlone et al. 1999). The UK Health Education Authority and the National Food Alliance established a food poverty database that contains details of about 150 community food projects, including how each project is managed, how it is funded, how to make contact, whether the project has been evaluated and the project's main achievements and difficulties. The searchable database ([www.foodpovertyprojects.org.uk/jointdatabase](http://www.foodpovertyprojects.org.uk/jointdatabase)) enables searches by project type and population group.

Case studies of two recent community food insecurity demonstration projects in Victoria (Maribyrnong and Yarra) are available from VicHealth (<http://www.vichealth.vic.gov.au>).

A review of 25 food projects conducted in the UK for the Joseph Rowntree Foundation (McGlone et al. (1999) had the following findings:

- Local food projects can do many things: improve access to food, enhance cooking skills, increase confidence and offer social support. They provide common ground for local people and professionals to work together in innovative ways.

- There are many different types of food projects, yet none was found to be more sustainable than another. Two key factors influencing sustainability were funding and community involvement. Also critical were professional support, the ability to reconcile differing agendas, shared ownership, credibility, the presence of dynamic workers and the project's capacity to respond to the needs of all those involved.
- Setting up a food project takes considerable time and effort. Most of the projects studied took up to two years to become established and integrated into a community.
- While short term and one-off funding are essential to the set-up of projects, funding structures mean that projects struggle to find ongoing running costs. Many of those reviewed either tried to reinvent themselves to meet new funding criteria or devoted significant time and energy to chasing small sums of money. Insecure funding also led to difficulties in planning and development.
- Both volunteers and professionals involved need support and training because many are working in new and challenging fields.

The researchers reached the following conclusions:

- Social gains for individuals and communities are intrinsic to projects achieving nutritional and health benefits. Projects should be evaluated on the increase in skills and confidence, the changes to shopping and eating behaviour, and longer term nutritional and health outcomes.
- Food projects are only part of the solution to health inequalities. They do not provide comprehensive coverage or integrated solutions, and they are often confined to the periphery of regeneration initiatives.

A review of community food initiatives concluded that 'food projects are clearly not the only way to answer health inequalities, but they can be part of a wider strategy' (Caraher and Anderson 2003). The small scale nature of many projects limits their potential to have an impact on the nutritional status of disadvantaged groups at the population level. Caraher and Anderson (2003) concluded that 'fruit and vegetable based schemes need to be encouraged and supported, but there is also a need to place them within broader public health agendas that address the commercial and ecological aspects of food policy'.

## 8.10 Future directions for promoting healthy eating

Australia's national public health nutrition strategy, *Eat Well Australia*, guides government agencies and other organisations in undertaking activities to improve the nutritional health of the population (National Public Health Partnership 2001b). The strategy identified six strategic directions for achieving health gain: (1) promoting fruit and vegetable consumption; (2) promoting healthy weight; (3) promoting good nutrition for mothers and infants; (4) promoting good nutrition for school-aged children; (5) improving nutrition for vulnerable groups; and (6) addressing structural barriers to safe and healthy food.

The strategy also identified and described 26 *action areas*, with associated rationales, key objectives, potential partners, capacity requirements, performance indicators, operational links, funding implications and risks (National Public Health Partnership 2001b).

In support of these objectives, a *national portfolio approach to increasing fruit and vegetable consumption* has been proposed. This approach includes social marketing, food supply approaches, and health sector, community and school interventions (National Public Health Partnership 2000b).

### 8.11 Resources

- Eat Well Australia (<http://www.health.gov.au/pubhealth/strateg/food/nphp.htm>) Australia's national public health nutrition strategy
- The national portfolio approach to increasing fruit and vegetable consumption (<http://www.nphp.gov.au/publications/signal/faet>)
- Case studies of two community food insecurity demonstration projects in Victoria (Maribyrnong and Yarra) (<http://www.vichealth.vic.gov.au>)
- The *FoodCent\$* project, which began in Western Australia in 1992, aimed to show people on low incomes how to select and prepare healthy, nutritious meals and keep within their budgets. Participants in the program were taught about healthy foods using the healthy diet pyramid. Participants also learned practical food selection skills on supervised supermarket trips and had cooking lessons and demonstrations. The *FoodCent\$* program, with some modifications the program has been used with Vietnamese and Aboriginal communities.
- The US Centres for Disease Control and Prevention *Resource guide for nutrition and physical activity interventions to prevent obesity and other chronic diseases* (<http://www.cdc.gov/nccdphp/dnpa/physical/index.htm>)
- The UK Health Education Authority and the National Food Alliance food poverty database ([www.foodpovertyprojects.org.uk/jointdatabase](http://www.foodpovertyprojects.org.uk/jointdatabase))—a searchable database (which can be searched by project type or population group) that contains details of about 150 community food projects, including how each project is managed, how it is funded, how to make contact, whether the project has been evaluated and the project's main achievements and difficulties.

## 9 Reducing tobacco use

### 9.1 Background

Smoking prevalence in Australia is now among the lowest in the world. Nevertheless, tobacco smoking in Australia remains the leading cause of preventable death. It is estimated that approximately 19,000 people died as a result of smoking in Australia in 1998 (Ridolfo and Stevenson 2001). Smoking was responsible for 13 per cent of cardiovascular deaths in Australia in 1996 (AIHW 2000). Smoking is also associated with increased risk of lung cancer and respiratory diseases such as bronchitis and emphysema. Declining rates of smoking among men over the last four decades have contributed to reduced rates of cardiovascular disease among men (AIHW 2002a).

#### Smoking levels and trends

The proportion of the adult population who smoke declined from 37 per cent in 1977 to 24 per cent in 2001 (ABS 2002b). The decline in the number of smokers between 1995 and 2001 was mainly due to reductions in smoking among older age groups. In 2001, smoking rates were highest among 25-34 year olds (32 per cent), declining to 11 per cent among 65-74 year olds, and 6 per cent among people aged 75 years and over. Smoking rates remain higher among men (27 per cent) than women (21 per cent), but over the period 1998-90 to 2001 the decline in smoking has been greater among men than women (ABS 2002b).

Rates of smoking among Indigenous men (49 per cent) and women (50 per cent) are more than twice the rate for all Australian men and women (AIHW 2003b). Tobacco use accounts for a substantial proportion of morbidity and premature mortality among Indigenous Australians (Ivers 2003).

People from the most disadvantaged socioeconomic areas in Australia are twice as likely to smoke than people from the least disadvantaged areas. Similarly, smoking is more prevalent among unemployed adults and people without a tertiary qualification. Up until the mid 1980s the Socioeconomic Status (SES) disparity in smoking rates increased, but since the mid 1980s smoking rates in all SES groups have declined at similar rates. Most of the SES differences are due to higher smoking commencement rates among lower SES groups, rather than differences in cessation rates (Borland and Balmford 2004).

#### Who is more likely to smoke?

- Men
- Young adults
- People with low socioeconomic status
- Unemployed adults
- People with lower levels of education
- Indigenous Australians

## Costs of smoking

Tobacco use is responsible for around 12 per cent of the total burden of disease in males and seven per cent in females (Mathers et al. 1999). Direct health care costs attributable to tobacco in 1998–9 were estimated to be \$1.1 billion (Collins and Lapsley 2002).

## Reducing tobacco use

Reductions in smoking rates in Australia in recent decades have been achieved by a range of individual focused and population-wide interventions designed to reduce tobacco use initiation, increase tobacco use cessation, and reduce exposure to environmental tobacco smoke (ETS). Mercer et al (2003) listed five key elements of effective tobacco control as: (1) clinical intervention and management, (2) educational strategies, (3) regulatory efforts, (4) economic approaches, and (5) comprehensive programs that combine all of these elements.

## Overview of evidence reviewed

Comprehensive tobacco control strategies incorporate a range of interventions. Evidence for the effectiveness of interventions to reduce tobacco use is described in the following areas:

- Educational strategies
  - Counselling
  - Counselling plus exercise
  - Interventions targeting smoking cessation during pregnancy
  - Mass media campaigns and mass media combined with other interventions
  - Population-based interventions that involve incentives
  - Multi-strategy community based interventions
- Regulatory efforts
  - Interventions for preventing smoking in public places
- Economic approaches
  - Increase in cigarette prices
- Statewide comprehensive tobacco control programs
- Tobacco cessation interventions for Indigenous Australians

## 9.2 Educational strategies (counselling)

### Intervention description

Telephone counselling, group counselling and individual face-to-face counselling.

### Population group/setting

Tobacco smokers in the general population.

**Effectiveness**

Good evidence that proactive telephone counselling, group counselling, and individual counselling are effective in smoking cessation. Reactive support (client initiates all contact) was less effective than proactive support (contact or follow-up initiated by a clinician or counsellor). A review of studies that included partner support as part of the smoking cessation program found that partner support did not lead to improved smoking cessation rates (Park et al. 2003). Group behaviour therapy programs are more effective than self-help and other less intensive interventions, but there is insufficient evidence on their effectiveness compared to intensive individual counselling.

**Comments**

Reviews that focused only on advice and resources provided by health care practitioners (principally doctors and nurses) to patients to quit smoking has been excluded from this review because it involves individual consultations in clinical settings. These interventions have been reviewed by Rice and Stead (2003) for advice provided by nurses, and Miller and Wood (2003) for advice and resources provided by health care providers in clinical and hospital settings. These reviews found good evidence that these interventions can be effective, but commented that barriers to implementation need to be addressed. There is insufficient evidence for the effectiveness of practitioner advice in the absence of patient education materials.

**Reference**

Stead and Lancaster (2000).

**9.3 Educational strategies (counselling plus exercise)****Intervention description**

Cardiovascular activity in a group, or as individuals, in a facility or at home, 1-5 times per week, for 15-45 minutes at 70-85 per cent of maximal heart rate (vigorous intensity) for 4-24 weeks, plus a smoking cessation program.

**Population group/setting**

Adults wishing to quit smoking. All eight studies included were from north America.

**Effectiveness**

Most studies had methodological limitations. Only one study was able to provide substantial evidence for exercise aiding smoking cessation. Post-treatment follow-up varied from six to sixteen months. As all studies included both group and individual exercise, it is difficult to determine if one approach is more successful than the other.

**Implementation issues**

Compliance with the exercise program was high in most studies, but exercise participation was not monitored after the formal, supervised program ended. Studies with exercise programs of less than six weeks may be too short to encourage long-term exercise participation.

### Comments

- Most studies used vigorous-intensity exercise. Short and frequent bouts of moderate intensity activity may be preferable for improving both psychological and physical wellbeing.
- Further trials are needed with larger sample sizes, control groups that have equal contact time, tailored and lifestyle exercise programs, and measures of exercise adherence.

### Reference

Ussher et al. (2000) (systematic review).

## 9.4 Educational strategies (interventions targeting smoking cessation during pregnancy)

### Intervention description

Strategies included information about the risks of continued smoking, advice to quit, more intensive advice or individual counselling, group counselling, self-help manuals on strategies for quitting, peer support, telephone follow-up, rewards or incentives.

### Population group/setting

Women who were pregnant in any health care setting, commonly hospital or community antenatal clinic. Studies were conducted in the US, UK, Norway, South America, Australia and New Zealand, with most studies conducted in the US. A small number of studies focused on disadvantaged or minority populations, but impacts were not reported separately for these populations.

### Effectiveness

The principal outcome measure was continued smoking in late pregnancy. Smoking cessation programs in pregnancy appear to reduce smoking, low birthweight and preterm birth. No effect was found for very low birthweight or perinatal mortality. The summary finding was that of 100 women still smoking at the time of recruitment into the study (usually at the first antenatal visit) about 10 will stop smoking with 'usual care' and a further six or seven will stop as a result of a formal smoking cessation program. The authors recommended that smoking cessation programs should be implemented in all maternity care settings. *Reach* is potentially high, as the majority of Australian women who are pregnant receive antenatal care. *Sustainability* of smoking cessation postpartum is generally poor.

### Implementation issues

- Transfer of an intervention from one setting to another may reduce its effectiveness if the program is changed, or some aspects of the materials are culturally inappropriate.
- Local piloting is recommended for programs developed elsewhere.
- Interventions involving group sessions (in addition to individual counselling) during pregnancy are poorly attended and should be abandoned.

- To avoid ‘victim-blaming’, or the perception of victim-blaming, programs need to take account of women’s concerns about negative impacts of stopping smoking (for example, loss of a means of stress management and coping, and perceived advantages of smaller babies).

#### **Comments**

- There was substantial variation in the intensity of the intervention and extent of reminders and reinforcement through pregnancy.
- Priority groups were not discussed, but the authors noted that programs may not be transferable across culturally diverse groups.

#### **References**

Lumley et al. (2002) (systematic review).

## **9.5 Educational strategies (mass media campaigns and mass media combined with other interventions)**

### **Intervention description**

Paid advertising campaigns using television, radio or print media to promote anti-tobacco and quit smoking messages. Other interventions included price increases, community education, and school-based education.

### **Population group/setting**

Non-smokers (aimed at reducing tobacco use initiation) and smokers (aimed at increasing tobacco use cessation). One review focused on adolescents and young adults. Studies were conducted in the US, Norway and Finland.

### **Effectiveness**

Long duration, high intensity mass media interventions when combined with other interventions were effective in reducing tobacco use initiation and increasing tobacco use cessation. The evidence for short-term, mass media campaigns alone is less convincing one review concluded that there is insufficient evidence, while another review found that mass media campaigns of moderate intensity generally produced modest effects. The review of nine studies focusing on adolescents and young adults found that mass media interventions of two or more years duration accompanied by other interventions were effective in reducing tobacco use. Mass media campaigns have high population *reach*. Campaigns require on-going funding for sustainability. *Sustainability* of impact is likely to be high in the case of the prevention of tobacco uptake among young people, as, if adolescents are kept tobacco-free, most will never start using tobacco.

**Implementation issues**

- The main barrier to implementation of mass media campaigns is the cost of purchasing broadcast time.
- The costs of developing and testing media messages can be offset by using existing resources.

**References**

Hopkins et al. (2001a); Hopkins et al. (2001b).

## 9.6 Educational strategies (population-based interventions that involve incentives)

**Intervention description**

Community-based, statewide or national smoking cessation programs that involved incentives (cash incentives, cash and holiday prizes). Community-based programs generally used a contest approach ('quit and win' contests).

**Population group/setting**

Tobacco smokers in the general population aged at least 16 years.

**Effectiveness**

Quit rates ranged from 13 per cent to 45 per cent depending partly on length of follow-up, with longer length of follow-up resulting in lower quit rates. Program *reach*: interventions generally attracted one to two per cent of the target population and might only attract smokers who are already motivated to quit. *Sustainability*: follow-up periods ranged from one month to one year and quit rates declined over time. Estimates of the *cost* per quitter ranged from less than \$20 to over \$400.

**Implementation issues**

Participation rates and quit rates were not dependent on the type of incentive, but the size of the incentive was important.

**References**

Bains et al. (1998).

## 9.7 Educational strategies (multi-strategy community based interventions)

**Intervention description**

Community interventions consisting of coordinated, multidimensional programs aimed at changing adult smoking behaviour, often in the wider context of CVD risk factor reduction. Components included mass media, counselling, self-help materials, support groups, audiotapes, videotapes, quit lines and policy advocacy. Interventions were conducted in a defined geographical area such as a town, city, county or other administrative district.

Interventions were based on social cognitive theory, communication theory, diffusion of innovation theory and community participation. Processes of community involvement included coalitions of planning groups, employment of local community staff and task forces.

### **Population group/setting**

Studies involved men and women over 18 years of age. Studies were conducted in Europe, north America, Australia, South Africa and India in urban and rural communities. Three studies targeted African Americans and two focused on Vietnamese men. The population size varied from a few thousand to hundreds of thousands of people.

### **Effectiveness**

Limited evidence of an effect on smoking prevalence (ie smoking levels at the population level). A number of studies found an overall trend in favour of a program effect, that was not statistically significant. The most successful methods of program delivery appeared to be mass media interventions and smoking cessation referral services and resources. High program *reach* is necessary to achieve an impact at the population level - community awareness or program participation rates of approximately 30 per cent were associated with positive program outcomes at the population level. In terms of *sustainability* of impacts, interventions lasting for at least two years appeared to be as effective as programs lasting longer (2-5 years). Program sustainability (evidence of continuation of program components) was found for 31 per cent of studies. *Cost-effectiveness* or cost-benefit ratios were favourable.

### **Implementation issues**

- Smoking needs to be recognised by the community as an important issue.
- Community organisation, assessment of community capacity, and the identification of individuals and organisations interested in supporting smoking interventions are important during project development.
- Community members and staff need skills in working with diverse groups and in health education.
- Coalitions need several months to form, and a year or more to become effective change agents in their community.
- Resources for smoking cessation and support for remaining a non-smoker should be readily available throughout the community.
- The use of mass media (print, radio, television) is especially useful for modelling behaviour change, and for changing community norms about smoking.

### **Comments**

- One Australian study found a significantly greater quit rate in men but not in women. This was attributed to targeting more male-oriented settings (for example, workplaces, community organisations, clubs and hotels).

- This study recommended that community-based programs target already motivated communities rather than attempting to motivate less interested communities.

### References

Secker-Walker et al. (2003).

## 9.8 Interventions for preventing smoking in public places

### Intervention description

Bans or restrictions on smoking in enclosed public spaces such as health centres, workplaces, educational institutions, restaurants, shops and public transport. Commonly comprises an internal no-smoking policy, that may include a total ban on smoking, or restrictions with signs warning of restrictions and clearly marked areas specifically for smokers. Smoking bans and restrictions can be implemented with additional interventions such as education and tobacco use treatment programs.

### Population group/setting

Users of public places where restrictions or bans on smoking were implemented. Most studies were conducted in the United States.

### Effectiveness

Good evidence that smoking bans or restrictions in workplaces produce small to moderate reductions in the prevalence of smoking and cigarette consumption. Totally smoke-free workplaces were about twice as effective in reducing smoking prevalence as policies that allowed smoking in some areas. Passive smoking in workplaces was eliminated. Smoking bans supported by multicomponent implementation strategies are effective, but there is little effect from regulation or signage not supported by other measures (for example, educational and enforcement strategies promoting compliance with a non-smoking policy).

### Implementation issues

Compliance with both voluntary restrictions and regulations is dependent on changes in public attitudes to smoking.

A major barrier to the adoption of local, state and national smoking bans is political opposition by smokers, businesses concerned about possible loss of revenue, and tobacco industry sponsored groups.

### Comments

These findings might not apply in countries with different attitudes to tobacco use, but are likely to apply to most public settings in Australia.

### References

Fichtenberg (2002) (systematic review); Hopkins et al (2001a); Serra et al. (2003).

## 9.9 Economic approaches: Increase in cigarette prices

### Intervention description

Government legislation to increase the excise tax on cigarettes.

### Population group/setting

The general population.

### Effectiveness

An increase in cigarette prices is an effective method for reducing tobacco use prevalence and consumption among adolescents and young adults, and for increasing tobacco use cessation. One review estimated that a 10 per cent increase would reduce consumption by 10 per cent. Another review estimated that a \$2 increase is the single most effective method of reducing tobacco consumption. A review of eight studies of adolescents and young adults concluded that higher tobacco product prices were associated with lower levels of tobacco use. Some studies have reported evidence of effectiveness among whites, blacks and Hispanics.

### Comments

- Increasing the price of tobacco products is effective with or without other interventions such as mass media campaigns.
- Increasing the price of tobacco products is effective in reducing population consumption of tobacco.
- Some studies demonstrated effectiveness among Caucasians, African Americans and Hispanics.
- Two studies found that interventions were more effective in males than females.
- Findings are likely to be generalisable to most adolescents and young adults in the US and similar countries.

### References

Hopkins et al 2001a; Hopkins et al 2001b.

## 9.10 Statewide comprehensive tobacco control programs

### Intervention description

Mercer et al. (2003) describe comprehensive tobacco control programs as encompassing clinical intervention and management, educational strategies, regulatory efforts, and economic approaches. This approach to comprehensive tobacco control includes regulatory and economic measures that can only be implemented at national, state or regional levels. Consequently, the impact of a comprehensive strategy cannot be measured using randomised controlled trials, because whole countries or states cannot be randomised into 'treatment' and 'control' groups. However, evidence of the effectiveness of comprehensive tobacco control programs at the population levels is available from study

designs more suited to the evaluation of policy, regulatory and environmental interventions that reach the whole population. This section describes this evidence.

### **Population group/setting**

The general population.

### **Effectiveness**

Biener et al. (2000) assessed the impact of the Massachusetts tobacco control program which commenced in 1993 funded by an extra tax of 25 cents per pack of cigarettes. Population based trend analysis of adult smoking prevalence in Massachusetts compared with the remaining 48 US states (excluding California) demonstrated that a strongly implemented, comprehensive tobacco control program can significantly reduce tobacco use.

### **Implementation issues**

- The program was implemented at a cost of about \$39m per year, representing an annual expenditure of about \$6.50 per person – the ‘highest per capita expenditure for tobacco control in the world.’ (Biener et al. 2000).
- The cost of the program (\$39m per year) compared favourably with the estimated smoking related health care cost to the state of \$2.4 billion per year.

### **Reference:**

Biener et al. (2000).

## **9.11 Tobacco cessation interventions for Indigenous Australians**

A recent review identified only four reports of evaluations of tobacco interventions for Indigenous Australians. None of the studies measured smoking cessation as an outcome, and three out of four used qualitative methods only (Ivers 2003).

### **Effectiveness**

Out of the four studies, two were unable to conclusively show any effect of the interventions. A program that trained health professionals to give advice on smoking resulted in some changes to practice; and the evaluation of a mainstream advertising campaign showed an increase in knowledge about tobacco.

### **Implementation issues**

- Many Indigenous health workers and community workers are smokers, and do not always feel comfortable delivering advice to smokers in their community.
- Smoking advice was not always accepted, and culturally appropriate.
- Non-coercive methods of counselling were advocated.
- Up to seven per cent of pregnant Indigenous women smoke, and Indigenous people often see programs for pregnant women as a priority.

- Indigenous people believed that media campaigns needed to be locally developed, should involve elders and significant community members in their design and delivery, and that they must have a broad community focus.
- Indigenous health promotion materials have been developed to help smokers quit. They include poster, videos, pamphlets, flip charts, felt boards, CD-ROM, stickers and T-shirts. The use of these materials may help smokers to quit, but the evidence is unclear (Ivers 2003).

A recent report of the National Aboriginal and Torres Strait Islander Tobacco Control Project, funded under the National Tobacco Strategy (Lindorff 2002), reported that requirements for effective programs included:

- tobacco programs must be holistic
- tobacco programs must be comprehensive
- tobacco must be given a higher priority – specific programs
- tobacco must be given a higher priority – across all programs
- tobacco programs must be long term and adequately funded
- training for tobacco control must be improved
- tobacco programs must effectively address stress.

The report also outlined specific commendations for tobacco control within Indigenous communities, together with the following four overarching principles as a guide for future work in this area:

1. Aboriginal and Torres Strait Islander tobacco control programs should seek to maximise community control.
2. All individuals and organisations working on programs in Aboriginal and Torres Strait Islander tobacco control should understand and respect the social context in which Aboriginal peoples and Torres Islanders live their lives and programs should reflect this understanding.
3. Tobacco control programs for Aboriginal and Torres Strait Islander communities should be holistic in nature and consider the social determinants of health.
4. Tobacco control programs for Aboriginal and Torres Strait Islander communities should be as comprehensive as possible within given resources.

(Lindorff 2002)

## 9.12 Resources

- Victorian tobacco action plan (2002) (<http://www.tobaccoreforms.vic.gov.au/actionplan.htm>)
- Quit Victoria (<http://www.quit.org.au/>)
- VicHealth Position Statement on Tobacco Control (<http://www.vichealth.vic.gov.au/>)

## 10 Improving socioenvironmental conditions and psychosocial factors

### 10.1 Background

Socioenvironmental and psychosocial factors are important risk factors for CVD and diabetes. There is good evidence that:

- People at the lower levels of the socioeconomic hierarchy have significantly worse health status.
- The effects of economic disadvantage are cumulative, so sustained hardship over time produces greatest risk of poor mental and physical health (Puska & Vartiainen 1999; Marmot 2000).
- Heart disease is a common condition associated with low income and poverty.
- People in the lowest income groups and poorest neighbourhoods have higher death rates for CVD and diabetes (as well as cancer and respiratory diseases) (Puska & Vartiainen 1999; Marmot 2000).
- Adverse (or less than optimal) early childhood experiences are reliable predictors of heart disease in adult life, regardless of one's adult income status.
- Rising rates of obesity, diabetes, depression and CVD are associated with increasing social inequality (Wilkinson 1996; Turrell et al. 1999; Everson et al. 2002).

There is strong evidence that CVD is the major contributor to inequality in health (Puska & Vartiainen 1999; Marmot 2000). There is also emerging evidence that inequalities in social and material environments and levels of economic participation are determinants of CVD and diabetes (Raphael et al. 2003; Raphael and Farrell 2002). Government policy must find solutions for inequalities<sup>6</sup> if rates of CVD and diabetes are to be substantially reduced. Nonetheless, many effective health promotion interventions can be implemented at local levels. To address inequalities, interventions must identify and target social, economic and environmental factors leading to CVD and diabetes. Local services need to distribute their resources in relation to the health needs of different groups, so as to reduce avoidable health inequalities and promote equitable access to the determinants of good health.

#### Psychosocial factors

Psychosocial factors that have an independent and causal association with CVD include depression, lack of quality social support and social isolation. Association between social isolation and CVD exists for men and women across cultures and age groups, with numerous studies showing associations between social networks and support and mortality (Bunker et al 2003). People who are socially isolated or disconnected have two to five times the risk of dying from all causes, compared with those who maintain strong ties to friends, family and community (Zimmet and Alberti 1997). Intervention approaches are focused from downstream to midstream.

#### Socioenvironmental factors

There is a recognised need to promote healthy social environments that are supportive of heart health. Social environments provide 'the substrate' on which psychosocial factors operate, such as in smoking rates (Marmot 2000). Although there is as much literature

<sup>6</sup> 'Health inequality is a generic term used to designate the [measurable] differences, variations, and disparities in the health achievements of individuals and groups [whereas] health inequity refers to those inequalities in health that are deemed to be unfair or stemming from some form of injustice' (Kawachi et al. 2002, p 1-2).

about inequality and poverty as about the determinants of health in general, less is known about the specific effect on CVD and diabetes. Social environments with deficient resources—in the areas of food, safety, housing, access to health services, educational infrastructure, early childhood services, social networks, wages and jobs—place citizens at the highest risk of poor health and premature mortality (Wilkinson 1996; Puska and Vartiainen 1999; Marmot 2000).

While this guide focuses on adult health, development through childhood is a powerful determinant of health in later life (Marmot and Wilkinson 1999; Raphael 2002). Programs such as the Department of Human Services Best Start program are platforms for integrated health promotion interventions that seek to enhance early child development and wellbeing. There is strong evidence that early childhood centres, for example, improve mental health through education, social support and social connectedness for mothers and children. The characteristics of these childhood programs include:

- access to high quality, centre based preschool/early childhood centres
- assistance for low income families who have insecure housing and/or who rely on public transport
- a focus on building parenting skills
- the availability and quality of parenting support and programs
- the quality of housing and safety within families and neighbourhoods
- household income and levels of employment
- social capital (Marmot and Wilkinson 1999; Raphael 2002).

To better understand the influence of social environments on health, there has been renewed interest in localities and neighbourhoods. Led by ‘area’ or ‘place’ theorists, this research uses socioecological approaches to link psychosocial risk factors (for example, social support, social isolation and depression) to socioenvironmental factors (for example, housing, transport and safety). It is argued that the contexts influence health more so than do the characteristics of the people in those communities (NHS 1997; Macintyre and Ellaway 2002; Kawachi and Berkman 2003). The context in which people live and work produces factors that interact in a range of different ways and these local differences should influence the selection of health promotion strategies.

Criteria are still being developed for quality outcome measures of community-wide interventions to influence the social environments and psychosocial factors associated with CVD and diabetes. Nonetheless, evidence indicates that the interventions with the greatest potential are intersectoral, community-wide approaches that use integrated, multilevel strategies. Broader environmental, regulatory and institutional policies have an impact on and shape patterns of heart health and diabetes, so there is much potential for advocacy to influence policy makers at all levels.

Table 2 provides a useful summary of core social and ecological principles for health promotion, as well as guidelines for designing and implementing interventions. These guidelines underpin the interventions that are reviewed following the table.

**Table 2: Socioecological approach for community interventions**

Core social and ecological principles	Operating guidelines for intervention and design implementation
Physical, mental and social wellbeing are influenced by a variety of environmental factors.	Encompass multiple settings and life domains. Reinforce health promoting social norms through existing social networks.
Personal characteristics and environmental conditions often have interactive as well as direct effects on wellbeing.	Target changes in the community or organisational environment, as well as in individual behaviours.
The degree of fit between people's biological, behavioural and sociocultural needs and the environmental resources available to them is a key determinant of wellbeing.	Tailor programs to fit the setting via the participation of the community and target audience. Empower individuals to make changes.
Within the context of structured community settings, certain behaviours and roles exert pivotal influences on wellbeing.	Identify influential points in the community for promoting health. Use multiple delivery points and methods over an extended period.
It is important to examine (1) the links between physical and social conditions within particular settings and (2) the joint influences of multiple settings and life domains on health over extended periods.	Address social conditions and recognise the social context of health behaviours in interventions. Implement coordinated interventions across multiple life domains.
Interdisciplinary research—linking the perspectives of public health, medicine, behavioural and social sciences, and policy—is essential for developing comprehensive and effective health promotion programs.	Establish a collaborative, interdisciplinary research team. Link the results of epidemiological research, intervention research and policy analysis.

Source: Sorenson et al. (1998).

### Overview of evidence reviewed

Interventions to address psychosocial and socioenvironmental factors have been conducted largely in relation to CVD rather than diabetes. This section summarises the evidence for the effectiveness of:

- health education
- work conditions
- social support and networks
- community based and neighbourhood programs
- culturally competent health services.

## 10.2 Health education

### Intervention description

Health education programs are intended to enable people to play active roles in achieving, protecting and sustaining health through the provision of information.

### Specific Population group/setting

The reviewed interventions targeted individuals, families, groups, organisations and communities. Health education at an individual level has commonly been combined with screening and used for both CVD and diabetes awareness raising.

### Effectiveness

Health education interventions have frequently concentrated on the ‘soft target’ behavioural risk factors of weight control, nutrition, chronic disease management, physical activity and smoking, by targeting the modification of behaviours related to diet, smoking, alcohol, physical activity, self-harm/addictive behaviours and chronic disease management. Health education interventions targeted at these risk factors have produced generally unimpressive effects, including general practitioner behavioural health education. Individual health counselling has by itself, had little, if any, effect for more than the short term (Taub 2001).

Evidence of the effectiveness of health education combined with screening is inconclusive. There is promising evidence, however, that community level health education can achieve effectiveness through multifaceted intervention strategies. Health education should thus be (1) based on a thorough understanding of the social and economic determinants of the population’s health and (2) just one strategy in an integrated health promotion plan.

### Implementation issues

The effectiveness of health education is modified by people’s understandable preoccupation with day-to-day survival issues, particularly people in low income groups. In general, people facing challenging life circumstances tend not be concerned with the possibility of developing a longer term chronic disease. The focus of health education, therefore, should be on changing capacity, social support and control over decision making, and the provision of resources at the individual, network, organisation, community and political levels. Goals and objectives should define how to involve and reach low income groups, rather than just using broad approaches to screening and health education.

### References

Davey-Smith (2003); Huibers et al. (2002); Taub (2001).

## 10.3 Work conditions

### Intervention description 1

These interventions relate to establishing work settings for organisation based heart health programs and to improving poor work conditions, including occupational health and safety.

### Specific Population group/setting

The reviewed interventions targeted workplaces, low income settings and local communities, focusing on working aged adult males with a low socioeconomic status.

### Effectiveness

- Healthy workplaces have been shown to have an impact on a range of health conditions.
- Regulating work hazards has been shown to reduce injury and stress by promoting better physical work conditions, with impacts on health.
- Low income over time is a predictor of stress and poor access to health services, and an adequate wage through life prevents CVD in the longer term.
- Employment programs that put people into low income jobs with poor work conditions have shown little effect on positive improvements in health.
- Workplace settings are effective for health programs that increase an understanding of health issues by taking a more integrated approach to health promotion than just focusing on behavioural risk factors.
- Social marketing and the monitoring of workplace compliance with occupational health and safety have been effective.
- Programs should seek to increase local democracy and be evaluated for a wide range of outcomes, including changing capacity, social support and control over decision making and resources at the individual, network, organisation and community levels.

### Implementation issues

- Top-down management support for workplace programs should be negotiated with bottom-up inclusion of staff in decision making.
- Goals and objectives should target low income workers.
- Staff should gain an understanding of the particular social, environmental and economic determinants of their health, particularly in workplaces where low income jobs are clustered.
- Health promotion programs should target low income workers and be based on a sound understanding of the determinants of health for those people in their own context.

**Intervention description 2**

Interventions can take the form of advocacy for getting people into jobs, employment programs and for income equity through employment programs. Income equity issues can be addressed at the local level via efforts to ensure local employment programs are creating healthy jobs, not health damaging jobs.

**Population group/setting**

The reviewed interventions targeted local employment programs.

**Effectiveness**

There is good evidence that a low income over time is a predictor of stress and poor access to health services, and that an adequate wage through life prevents CVD in the longer term. Employment programs that place people into low income jobs with poor work conditions show little evidence of a positive improvement in health.

**Implementation issues**

Health promotion agencies should work with local employment programs to ensure they are health promoting and not health damaging. They should design evaluations of the impact of employment programs.

**References**

Bosma and Marmot (1997); Cave et al. (2001).

**10.4 Social support and networks****Intervention description 1**

Social support can be provided through one-to-one counselling and through work-based group interventions that connect people to each other and to larger networks. Social support and social connectedness programs often have a health education component.

**Population group/setting**

The reviewed interventions targeted groups at risk of CVD or diabetes in work places and in social settings such as neighbourhood houses.

**Effectiveness**

One-to-one interventions lack good evidence of their health outcomes. The evidence is more promising for the provision of social support for low income groups when that support is combined with efforts to build problem solving skills.

**Implementation issues**

Social support and networks should use a settings approach and combine with multilevel, integrated health promotion interventions. They should avoid top-down ownership of group processes and foster local governance and empowerment.

### **Intervention description 2**

Social support and social connectedness programs have been run specifically for carers.

### **Population group/setting**

The reviewed interventions targeted carer support groups, sometimes combining with respite care facilities and programs.

### **Effectiveness**

There is good evidence that social support and relief from caring responsibilities promotes mental health and general wellbeing through social support and social connectedness, which reduce isolation.

### **Implementation issues**

Social support should be combined with a health education component. Programs should ensure they reach less mobile and low income carers.

### **References**

Cattan and White (1998); National Health Service Centre for Reviews and Dissemination (1997); Jackson et al. (2001).

## **10.5 Community based and neighbourhood programs**

### **Intervention description 1**

Community-wide, multilevel, intersectoral, integrated health promotion programs focussing on one or more issues.

### **Population group/setting**

The reviewed interventions targeted communities, particularly low income communities and those disadvantaged by geography, lack of public transport, cultural diversity and low levels of employment.

### **Effectiveness**

There is good evidence that community programs, with a high degree of information diffusion, have potential to encourage community mobilisation to influence health. Local programs that combine health promotion approaches can influence environmental, regulatory and institutional policies. Effectiveness is much improved if communities are involved in defining priority issues.

### **Implementation issues**

Community programs should focus on the determinants of CVD and diabetes, and ensure those determinants are a focus of strategies and evaluation. These programs should also ensure their goals and objectives define populations of interest and evaluate for reach.

**Intervention description 2**

Area regeneration and neighbourhood renewal programs.

**Population group/setting**

The reviewed interventions targeted the renewal of rundown, disadvantaged neighbourhoods in the United Kingdom and the United States.

**Effectiveness**

There is strong evidence that area regeneration and neighbourhood renewal programs increase social network development which has an impact on health by reducing of social isolation and increasing social connectedness.

**Implementation issues**

Neighbourhood renewal programs in Australia provide a platform for integrating a wide range of health promotion opportunities. As long as practitioners work cooperatively and across sectors with multilevel strategies, these programs have the potential to reduce inequality by lifting employment and training, improving personal safety, enhancing housing and environments, developing partnerships between agencies and communities, and with local business and service agencies, and increasing local leadership. The programs should ensure their goals and objectives define populations of interest and evaluate for reach.

**Intervention description 3**

Physical improvements to public housing and local environments are the focus of area regeneration and similar neighbourhood programs. In these interventions, housing repairs and the creation of safer areas for public housing tenants are conducted in consultation with local residents, who are involved in planning, decision making and strategy development.

**Population group/setting**

The reviewed interventions targeted public housing and low income groups.

**Effectiveness**

There is good evidence that housing renewal programs improve mental health and general wellbeing.

**Implementation issues**

Housing interventions need to be localised so they are context specific.

**References**

Hamer et al. (2003); National Health Service Centre for Reviews and Dissemination (1997); O'Loughlin et al. (1999); Sorenson et al. (1998); Task Force on Community Preventive Services (2003); Thomson et al. (2002).

## 10.6 Culturally competent health services

### Intervention description

Access to quality health services for all people is essential, while culturally competent health services are a determinant of health. Strategies include:

- cultural diversity training
- culturally accommodating settings for the delivery of health services
- interpreter services and linguistically proficient staff
- the development of culturally appropriate health education materials
- recruitment and retention programs for multicultural staff.

### Population group/setting

The reviewed interventions targeted groups experiencing disadvantaged health and social status or vulnerability. Some interventions dealt with health providers and health services.

### Effectiveness

There is good evidence that strategies to address access to services—particularly culturally competent services for defined populations—are worthwhile. There is strong evidence that access to effective services is a major determinant of health.

### Implementation issues

It is important to examine how local health and social institutions (including health services) treat people from diverse cultures differently to focus interventions for local contexts.

### Reference

Task Force on Community Preventive Services (2003).

## 10.7 Future directions

The effectiveness of health promotion program planning and implementation is significantly increased if based on a sound understanding of the determinants of health. Both CVD and diabetes are strongly associated with inequalities, low incomes and lack of access to appropriate health services. These upstream determinants influence psychosocial factors and people's behaviour. The literature emphasises the need for heart health and diabetes prevention to focus on upstream social determinants and inequalities, particularly through community based, integrated, multilevel, intersectoral intervention programs. For individual health promotion practitioners, this means that single agency, single level interventions will be more effective if part of a wider planned program of interventions involving partners from other agencies (and preferably involving sectors outside of health). There is much potential for local practitioners to engage in intersectoral projects—based on platforms such as the Neighbourhood Renewal and Best Start programs—to value add with collaborative interventions.

## 10.8 Resources (links, evaluation, case studies)

- Department of Human Services Neighbourhood Renewal Program (<http://www.dhs.vic.gov.au/dhsplan/dhsplan2004/part3/statements/strengthening3/htm>)—an overview of the strategy, details of specific sites for the program rollout, key targets and milestones, and the department’s approach to community building.
- Department of Human Services Best Start Program (<http://www.dhs.vic.gov.au/>)
- *The equity gauge: concepts, principles, and guidelines* ([http://www.gega.org.za/download/gega\\_gauge.pdf](http://www.gega.org.za/download/gega_gauge.pdf))—an overview of the Equity Gauge Strategy, which supports policy and action for health equity using a three-pronged approach of assessment and monitoring, advocacy and community empowerment.
- Social Justice (<http://www.socialjustice.org>)—a wealth of information about social determinants of health and the Toronto Charter for a Healthy Canada (a charter that is based on evidence that the root sources of health and the causes of illness are social and economic and that urges funding for social housing and childcare among measures to progress on population health).
- *Guide to community preventative services* (<http://www.thecommunityguide.org>)

## 11 Planning model: Translating evidence into practice

### 11.1 Introduction

Current policies and recommendations suggest that practitioners draw on both scientific evidence of effectiveness and information about which interventions have the *potential* to be effective when planning local interventions (Bauman et al. 2002, Salmon et al. 2000). The interventions selected should be those best suited to local population characteristics and settings; local needs, resources, capabilities and administrative structures; and the economic and social environments of organisations, practitioners and communities (Kahn et al. 2002).

Integrated health promotion involves a range of agencies and community groups within a catchment working together using a mix of health promotion interventions and capacity building strategies to address priority health issues (Department of Human Services 2003). Time spent in the planning stages will increase the quality and effectiveness of the intervention program.

An evaluation planning framework is described in chapter 12, however, it is important that program planning and evaluation planning occur together. This can help ensure that the program plan is appropriate and feasible, and that the most appropriate evaluation design can be implemented, if necessary, *before* the program commences.

Good planning:

- reduces duplication
- enables efficient use of resources
- increases the likelihood that the program will reach its target audience and achieve its goals and objectives
- helps ensure the program is implemented and evaluated effectively
- provides opportunities to involve the community and ensure the program is inclusive (in terms of gender and culture) and addresses social equity issues
- maximises the likelihood that the program will become sustainable.

### 11.2 Overview of program planning and evaluation

This section provides a brief overview of planning and evaluation to assist with integrated health promotion programs. Further information can be found in sections 4, 5 and 6 of the Integrated Health Promotion Resource Kit (Department of Human Services 2003).

Planning for integrated health promotion involves:

- vision setting
- priority setting and problem definition
- solution generation
- capacity building: support and resources
- planning for evaluation and dissemination.

## Vision setting

The vision statement should articulate where the partnership or agency wants to be in terms of its health promotion response within a defined period of time. Setting the vision is an essential part of the strategic planning process, both at the partnership level and the individual agency level. The guiding principles for integrated health promotion (as described in chapter 2) should guide the formation of the vision statement. However, there is also ample scope for incorporating local perspectives and priorities.

The processes for developing the vision need to:

- involve all key stakeholders
- ensure all key stakeholders have access to this information and are involved in the implementation process
- link to the broader corporate and strategic planning processes.

### Checklist: vision setting

- What are the partnership's and individual agency's overall beliefs in relation to integrated health promotion?
- Is there a clear link between the vision for integrated health promotion and the overall organisational/strategic/corporate plan?
- Does the vision reflect the guiding principles for integrated health promotion?
- What are the governance/management arrangements and organisational structure supporting, driving and resourcing the achievement of the vision? This question links to capacity building (see below).

## Priority setting and problem definition

Planning for integrated health promotion action must begin with being clear about broad priorities and using these priorities to develop program goals and objectives. Collectively, the priority setting and problem definition processes are also known as a needs assessment.

### Priority setting

From the outset, it is essential to identify the priority issues related to a defined population group. The community health planning process identifies priority issues (such as CVD and diabetes) and population groups, and articulates the integrated health promotion strategy for the Primary Care Partnership catchment. Member agencies within each Primary Care Partnership need to develop organisational health promotion plans, which should reflect and link to the priority issues.

Sources of data for informing the process of setting priorities include:

- information from ongoing demographic, health surveillance and service data collections (see box below)
- behavioural and social research on the determinants of health
- community consultation processes

- previous local needs assessments
- information collated in regional health promotion plans, municipal public health plans and Divisions of General Practice plans
- state-wide and national health priority areas.

It is a good idea to identify state and federal government policies affecting the priority areas. Using these policies to inform planning increases the likelihood that the intervention program will garner political support and funding. Smaller, local programs can also tap into the resources, communication and social marketing campaigns associated with larger scale interventions. Appendix D lists potentially useful existing policies.

#### Sources of localised data

Information from ongoing demographic, health surveillance and service data collections is available from sources such as PCP community health plans, municipal public health plans, national health priority areas, Victorian burden of disease data, planning data, Australian Bureau of Statistics population statistics.

#### Checklist: priority setting

- What are population health data sources?
- What issues are important in the community? How is it known that these are important?
- Are additional health and disease issues arising from other types of need identification? Who in the community would these issues most affect? Have the needs of all groups been considered?
- What can the agency influence? With which other agencies and community members does it need to work?
- Does the agency have the resources (human, financial, information, technology)? If not, can it get them?
- Who else is doing something about these issues? Is there a gap that the agency can fill? How could a combined effort enhance work on this issue?
- Would the agency have to drop other work to focus on this health issues? If so, what changes are needed?

Based on this checklist, decide which health issues and population groups are priorities. Document and justify these priorities to all stakeholders.

The document *Deciding and specifying an intervention portfolio* (National Public Health Partnership 2002) (<http://www.nphp.gov.au/workprog/phpractice/improvttools.htm>) outlines the priority setting process in more detail and includes other references and sources of advice.

#### Problem definition

Setting priorities and defining problems enables the development of program goals and objectives. *Program goals* are statements about long term outcomes. These are broad

statements related to improving health and wellbeing status, through changes in mortality and morbidity, disability, quality of life and equity. They are evaluated in the outcome evaluation. *Program objectives* elaborate on and restate the goals in operational terms—that is, what the program is meant to achieve immediately after its completion. They are evaluated in the impact evaluation. Objectives should be SMART:

- *specific* to a health determinant, population group or setting
- *measurable* in evaluation terms
- *achievable* given the resources and capacities
- *realistic* (that is, sensible and practical)
- *time limited*, showing a length of time for the intervention and planned change.

#### **Checklist: problem definition—focusing on each of the priority issues**

- What does the agency already know about this issue? Who is affected?
- What are the broader determinants of health that contribute to this issue? (See chapter 2.) What does the published evidence reveal? What are the issues for specific population groups? Has the agency fully consulted with these groups, even hard-to-reach groups?
- What could be changed in relation to this issue (broadly, in terms of a goal and, more specifically, through a set of objectives)? How will this process be documented?
- How will the agency determine if the program has made a difference? What are the evaluation outcome and impact measures? (See chapter 12.)

### **Solution generation**

Quality integrated health promotion program delivery involves implementing a mix of health promotion interventions (balancing individual focused and population-wide interventions) that contribute to achieving the goals and objectives stated for the priority issue. These interventions need to be supported by evidence based capacity building strategies.

The CVD–Diabetes Prevention Health Promotion Interventions Framework (figure 2) identifies five categories of health promotion interventions along a continuum from individual focused to population-wide approaches:

- screening, individual risk factor assessment and immunisation
- health education and skill development
- social marketing and health information
- community action
- settings and supportive environments.

When developing integrated health promotion programs, working with partner agencies is recommended for brainstorming potential activities that may be required to achieve the objectives.

- Consider opportunities for working cooperatively with other agencies to either build on or enhance investments already being made towards achieving the program goal.

- Ensure a mix of upstream and downstream approaches. Include a mix of strategies that address the broad determinants of CVD/diabetes (population focused) and that focus on identified target group(s) (a high risk approach).
- Categorise these activities under the health promotion interventions identified in the CVD–Diabetes Prevention Health Promotion Intervention Framework (figure 2).
- Identify financial and human resources required to successfully implement the interventions.

Chapters 4 to 10 provide extensive information about the broad range of interventions for each risk factor for CVD and diabetes. The following checklist provides a guide for selecting intervention strategies.

#### **Checklist: selecting and designing the interventions**

- What interventions will address the specific priority issues and the program goal and objectives?
- Which mix of interventions (balancing individual focused and population-wide interventions) has proved to be effective in achieving the desired outcomes in terms of the program goal and objectives?
- How will the agency involve community members in selecting strategies and then planning, implementing and evaluating the interventions? What factors help or hinder people becoming involved? Can these be addressed?
- Which mix of interventions addresses the broad determinants of the issue? Which groups are at special risk? How will their needs be met?
- How will other key agencies be involved in the process?
- How can the agency complement the work being undertaken by other agencies?

#### **Capacity building: support and resources**

Failure to give sufficient time and attention to the capacity building phase is the most frequent reason for an intervention's failure to achieve or maintain health and wellbeing improvements. Capacity building creates optimal conditions for success. This phase is concerned with obtaining the resources (such as funds, materials and people) and organisational support required to implement and sustain an intervention. Key actions areas for building capacity include:

- organisational development
- partnerships
- workforce development
- leadership
- resources.

Work with partner agencies to brainstorm potential capacity building strategies for creating the optimal conditions to achieve program sustainability and the program goal. Where there are limited resources or limited community and political support, it may be necessary

to change the program objectives to better fit the available resources. It is also useful to clarify the types of action required to secure greater community and political support. Section 5.3 of the Integrated Health Promotion Resource Kit (Department of Human Services 2003) provides further information about capacity building strategies.

#### **Checklist: capacity building**

- What are the individual and collective skills and knowledge of the key partners in the program? Do staff need further skill development?
- Does the agency have other necessary resources, including time, infrastructure, personnel and community participation? If not, does it need to create them? Or should it adopt different interventions, objectives and even program goals?
- Specifically related to the budget, have financial resources been transparently allocated to the program?
- Are the roles and responsibilities of the key partner agencies clearly defined?
- Have all key partners agreed and signed off on the integrated health promotion strategy or organisational plan?
- How could the agency generate support and leadership from senior managers, boards and governance committees for the delivery of quality integrated health promotion services?

#### **Planning for evaluation and dissemination**

It is important to begin planning evaluation, dissemination and sustainability strategies early in the program management cycle and not at the end of implementation. Dissemination of the program findings is one of the most important ways of building the evidence base of which interventions are most effective, for which groups and under which conditions. Dissemination enables the key lessons learned from the program to be shared with other practitioners. Chapter 12 sets out a stepwise process for planning and conducting program evaluation and dissemination.

### **11.3 Example planning grid**

As a reference point for practitioners, figure 3 provides a worked example of a summary planning grid. It concerns the hypothetical '*Healthy people, healthy places*' program, which aims to reduce the prevalence of CVD and type 2 diabetes among residents in a fictitious community, Banksia Bay.

The local government area (LGA) of Banksia Bay has a total population of 45,670, is 25km from the city centre and is on the urban fringes of the city. The community is part of the fastest growing LGA in the state, and 84 per cent of the population is under 45 years old. Ten per cent of the population live in a rural area. There are many growth corridors within the community where house and land packages are being sold by developers for prices between \$230,000 – \$300,000. Twenty per cent of children live in single parent families, and 11 per cent of older people over 65 years live alone. Resources available for the program include a Community Health Centre on four sites across the LGA, and an active Primary Care Partnership that links various agencies. Physical activity promotion is a priority strategy in the municipal public health plan.

**Figure 3: Health promotion planning grid**

Program goal	To reduce the prevalence of CVD and diabetes among residents of Banksia Bay
Population target group(s)	Adults aged over 25 years and their families
Objective 1	To increase the number of adults using walking or cycling for short journeys (less than 2 kilometres) (e.g. walking children to school, visiting friends, shopping) by 20 per cent in one year
Estimated impacts (qualitative and/or quantitative) for objective 1	<i>Indicators:</i> number of active transport trips per week <i>Data collection methods:</i> Pre- and post-survey

Health promotion interventions and capacity building strategies	Estimated reach	Timelines and by whom	Estimated budget	OPTIONAL Estimated other funding sources
<i>Screening, individual risk assessment and immunisation</i>	Nil	Nil	Nil	Nil
<p><i>Social marketing and health information</i></p> <p>An advertising campaign about the health and environmental benefits of active transport, in local papers, newsletters and local radio</p> <p>The development and provision of information (access maps, safe walking routes etc.)</p>	80% of adult population	<p>Project facilitator in partnership with local government</p> <p>Three month campaign</p> <p>(Dates)</p>	40 hours plus the production and printing of walking route maps	<p>Public transport</p> <p>Private bus lines</p> <p>Walking groups</p>
<p><i>Health education and skill development</i></p> <p>Community based information sessions about the benefits of, and opportunities for, using alternative forms of transport</p> <p>Tailored skill development/ social support programs at local community houses for groups most at risk of inactivity</p>	Specific groups, such as women with young children, older women, non-English speaking women, low income groups	<p>Community health centre staff</p> <p>Fitness and recreation leaders</p> <p>(Dates)</p>	0.4 equivalent full time	<p>Subsidies or discounts may be available from:</p> <p>Local TAFE college</p> <p>Local government fitness and recreation services</p> <p>Public transport staff</p>

Health promotion interventions and capacity building strategies	Estimated reach	Timelines and by whom	Estimated budget	OPTIONAL Estimated other funding sources
<p><i>Community action</i></p> <p>A 'walkability' audit by community groups of their local areas; feedback to a council action group</p> <p>OR</p> <p>A community event such as 'Ride to work day'</p>	<p>Specific groups, such as women with young children, older women, non-English speaking women, low income groups</p>	<p>Project facilitator to coordinate feedback</p> <p>(Dates)</p>	<p>Photocopying and mailout of audit tool</p>	<p>Rotary and other clubs</p>
<p><i>Settings and supportive environments</i></p> <p>Intersectorial partnership to increase the percentage of workplaces with policies to improve facilities (e.g. showers, bike parking, the use of pooled bicycles)</p>	<p>Management and employees at the workplace</p>	<p>Agency staff, management</p> <p>Local government staff/management</p>		
<p><i>Organisational development</i></p> <p>Collaborative, interdisciplinary working group (coordinated by the local government area) to address issues for safe cycling and walking</p>	<p>The population in general will benefit from improved environments for active transport</p>	<p>Agency staff, management</p> <p>Local government staff/management</p>	<p>0.2 equivalent full time</p>	<p>Local government, for example</p>
<p><i>Workforce development</i></p> <p>Staff training on active transport (benefits for health, environment, productivity, corporate image, obstacles, opportunities to increase participation)</p>	<p>Staff delivering the program</p> <p>Management</p>			
<p><i>Resources</i></p> <p>Identification of opportunities for pooling resources with partner agencies to support the proportion of social marketing strategies and community based sessions and potential for a peer education program</p>				
<p>Total budget per objective =</p> <p>Total budget per program goal =</p>				

## 11.4 Resources

There are plenty of resources to help with health promotion program work. This chapter has been informed by:

- the Department of Human Services Integrated Health Promotion Resource Kit (<http://dhs.vic.gov.au/phkb>)
- the information and resources of The Health Communication Unit (<http://www.thcu.ca>)
- a planning and evaluation wizard of the South Australian Community Health Unit (<http://sachru.sa.gov.au>)
- the National Public Health Partnership guidelines for deciding and specifying an intervention portfolio (<http://www.nphp.gov.au/workprog/phpractice/improvtools.htm>)
- NSW Health indicators to help with capacity building in health promotion (<http://www.health.nsw.gov.au>).

## 12 Evaluation framework

### 12.1 Introduction

Evaluation is an important component of health promotion activities aimed at reducing the incidence of CVD and type 2 diabetes. Evaluation enables us to learn about the effectiveness of activities, as well as the reasons why programs achieve or fail to achieve their objectives. This information provides a valuable knowledge base for planning and implementing future activities. In addition, evaluation enables practitioners to meet accountability requirements and to more systematically document, disseminate and promote effective practice.

As described in this guide, the evidence base for health promotion interventions to reduce CVD and diabetes is dominated by relatively large intervention trials conducted by universities and other research organisations. Smaller, community based initiatives can be very effective, but are rarely included in the published evaluation literature. Evaluation and documentation of these interventions will help to provide a more balanced evidence base for effective action to improve efforts to reduce the incidence of CVD and diabetes.

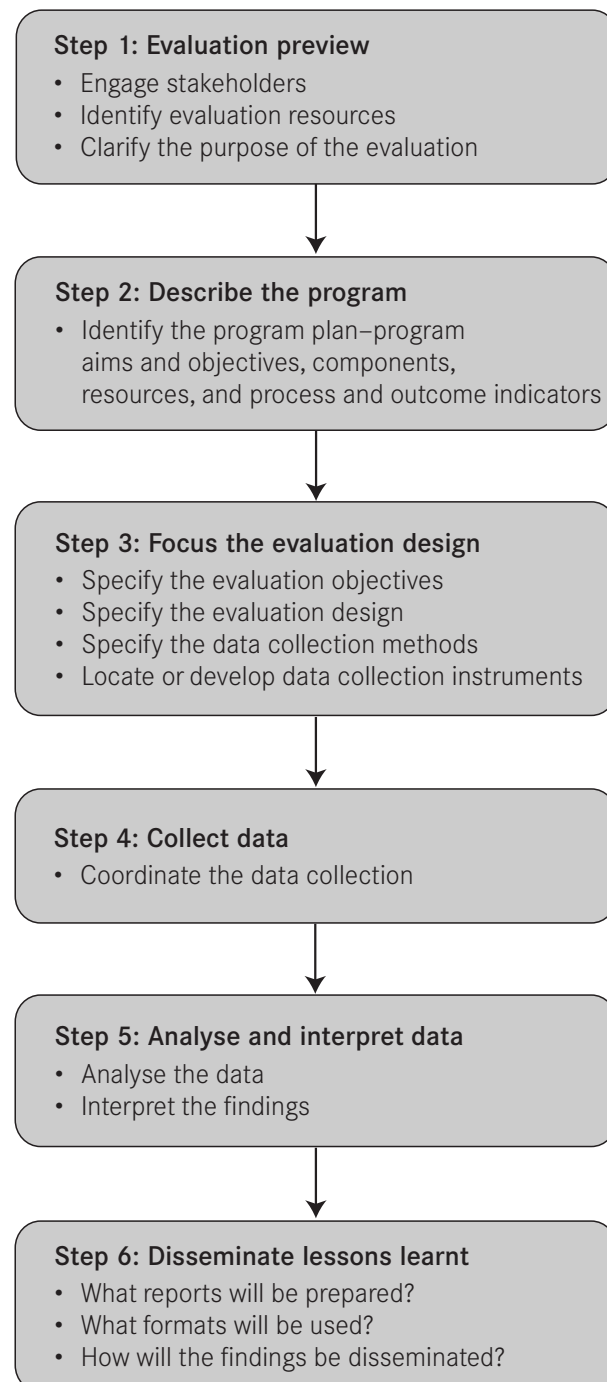
The evaluation planning guide described below sets out a stepwise process for planning and conducting a program evaluation. The following characteristics are necessary for achieving optimum benefits from evaluation:

- Evaluation planning is conducted **in parallel with program planning**. This interaction improves both the program and the evaluation.
- Evaluation planning is realistic and strategic. Many evaluation plans simply list an evaluation activity for every program activity. This approach dilutes the value and impact of the evaluation; it is better to invest limited evaluation resources where they will be most useful. Answering the question ‘What do we really need to know from this evaluation?’ is a key component of evaluation planning.
- Some aspects of data collection are standardised. The use of standardised measures of dietary intake, physical activity and tobacco use, for example, will allow comparisons to be made over time, across programs and between national and state data. These comparisons will contribute to the new generation of health promotion evaluation, which is seeking to build an evidence base around what program–context–population group combinations are most effective.

A summary of the evaluation planning guide is in figure 4. This is followed by a more detailed description of the evaluation planning process, and a worked example of an evaluation plan.

Other useful evaluation planning resources include ‘Measuring health promotion impacts: a guide to impact evaluation in intergrated health promotion’ (<http://hnb.dhs.vic.gov.au/rrhacs/phkb/>)

Figure 4: Evaluation planning guide



## 12.2 Evaluation planning guide

### Step 1: Evaluation preview

- *Engage stakeholders.* Seek the opinions and participation of people and organisations involved in the program who are in a position to shape and support the evaluation and to act on the evaluation findings.
- *Identify evaluation resources.* The nature and scope of an evaluation depends on the human and financial resources available. In general, larger programs are expected to require more comprehensive evaluations, which usually require about 10–15 per cent of the total program budget. Identify who will coordinate the evaluation and whether the appropriate skills are available.
- *Clarify the purpose of the evaluation.* Why is the evaluation being conducted? To meet the accountability requirements of funding bodies and program management? To improve practice? To assess program effectiveness? To determine program sustainability? And/or to document, disseminate or promote the program?

### Step 2: Describe the program

- *Identify the program plan.* A clear statement of program aims and objectives, components, resources, and process and outcome indicators provides the basis for evaluation planning. Program logic models provide an excellent framework for both program development and evaluation planning.

### Step 3: Focus the evaluation design

Based on the information collected in steps 1 and 2:

- *Specify the evaluation objectives*
  - Program plans should specify program goals and objectives (that is, what the program aims to *achieve*) and program strategies (that is, what the program aims to *do* to achieve its goals and objectives).
  - Impact/outcome evaluation involves assessing the extent to which the program has achieved its goals and objectives, while process evaluation involves assessing to what extent and how well the planned activities have been implemented.
  - Evaluation objectives often include both impact and process evaluation questions.
  - Long term outcomes (outcome measures) can include changes in health status, such as reduced mortality, morbidity or disability, and improved quality of life).
  - Short or intermediate term outcomes (impact measures) can include changes in awareness, knowledge, attitudes, behaviours, policies, environments, services, networks and community participation/action.

- *Specify the evaluation design.*
  - Evaluation designs include quantitative designs (for example, pre/post design with or without a comparison group, trend analysis) and qualitative designs (for example, case study, participatory action research and evaluation).
  - Quantitative designs are usually used to measure impacts, while qualitative designs are useful within process evaluation, but this distinction is not definitive.
  - Case studies, for example, can be used to qualitatively detect (rather than quantitatively measure) program impacts.
  - Similarly, qualitative designs can be used to help understand why certain (quantitatively measured) impacts have occurred.
- *Specify the data collection methods* (sample/participants, data collection instruments, data collection procedures).
  - Data collection methods are usually categorised into quantitative methods (data in the form of numbers) and qualitative methods (data in the form of words, pictures and so on).
  - Quantitative data collection methods commonly used in health promotion evaluation include surveys, structured observation, health statistics or other record analysis, environmental audits and quantitative content analysis (for example, analysis of policies).
  - Qualitative data collection methods commonly used in health promotion evaluation include individual interviews, focus group discussions, participant observation, and qualitative document and record analysis.
  - Regardless of whether quantitative or qualitative data collection methods are used, each method should specify the *sample* (for example, people, documents, observation times), the *instrument* (for example, questionnaire, interview format) and the *procedures* (for example, how, when and where data will be collected, ethical procedures).
  - See appendix E for a summary of data collection methods commonly used in health promotion evaluation.

Also refer to 'Measuring health promotion impacts: a guide to impact evaluation in intergrated health promotion' (<http://hnb.dhs.vic.gov.au/rrhacs/phkb/>)

- *Locate or develop data collection instruments.* If appropriate, it is desirable to use standardised, widely used instruments for data collection to facilitate comparisons across programs and over time. Questionnaire items assessing dietary intake, physical activity and tobacco use have been developed and widely used in Australia. The publication *Monitoring food habits in the Australian population using short questions* (Marks et al. 2001), for example, lists:
  - questions about fruit and vegetable intake
  - questions about foods that contribute to fat intake
  - questions about cereals and cereal foods

- proposed indicators for monitoring key aspects of breastfeeding in Australia
- questions about food security.

See section 7.8 for evaluation tools used in physical activity promotion.

#### Step 4: Collect data

Coordinate data collection by specifying:

- what tasks need to be done
- who should undertake the tasks
- when task should be undertaken
- the required resources.

#### Step 5: Analyse and interpret data

- *Analysing the data.* This step involves calculating descriptive statistics (such as frequencies and means) for quantitative data, and identifying and describing key themes in qualitative data.
- *Interpreting the findings.* This step involves comparing the findings with other evaluation findings; comparing them with standards and similar programs; making judgements and recommendations; and using the lessons learned for the ongoing development of the knowledge and evidence base for health promotion practice.

#### Step 6: Disseminate lessons learned

Deliberate effort is required to ensure evaluation findings are disseminated and used to inform decision making and guide appropriate action. Lessons learned from the evaluation should be communicated to relevant audiences in a timely, unbiased and consistent way.

This step requires specifying:

- the reports that will be prepared
- the formats that will be used
- how the lessons learned will be disseminated.

### 12.3 'Healthy people, healthy places' program evaluation plan—an example

Planning steps	Decision making process/options to consider	Evaluation plan
<i>Step 1: Evaluation preview</i>		
Engage stakeholders Clarify purpose of the evaluation. Identify evaluation resources.	Conduct a focus group discussion with program stakeholders aimed at answering the question 'What do we need to know from the evaluation?'.  Match resources with evaluation information needs and priorities identified in focus group discussion.	<p><i>Stakeholders</i></p> <ul style="list-style-type: none"> <li>• Program funding body</li> <li>• Program manager</li> <li>• Project officer</li> <li>• Collaborating partners</li> </ul> <p><i>Goals of evaluation</i></p> <ul style="list-style-type: none"> <li>• Meet accountability requirements.</li> <li>• Contribute to the evidence base regarding what works.</li> <li>• Add to knowledge about critical success factors.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• Project officer</li> <li>• Evaluation consultant</li> <li>• Casual data collection assistant</li> <li>• Evaluation budget of \$10,000</li> </ul>
<i>Step 2: Describe the program</i>		
	Clarify with program staff that the program was/is to be implemented as documented, because many programs evolve and change over time.  Summarise the program.	<p><i>Program:</i> Healthy people, healthy places</p> <p><i>Goal:</i> To reduce the incidence of cardiovascular disease and diabetes in Banksia Bay.</p> <p><i>Outcome objectives</i></p> <ol style="list-style-type: none"> <li>1. To increase fruit and vegetable consumption among Banksia Bay residents by 20%.</li> <li>2. To increase the number of adults using walking or cycling for short journeys (less than 2 kilometres) by 20%.</li> </ol> <p><i>Strategies</i></p> <ol style="list-style-type: none"> <li>1. Assist all organisations and settings that provide food within Banksia Bay to promote fruit and vegetable consumption through increased availability, access, variety, quality and favourable pricing.</li> </ol>

Planning steps	Decision making process/options to consider	Evaluation plan
		2. Assist workplaces to promote active commuting and provide facilities (e.g. showers, bike parking)
<i>Step 3: Focus the evaluation design</i>		
Evaluation objectives Evaluation design Data collection methods Sample (who?) Instrument (what?) Procedures (how?)	Develop evaluation objectives based on consultation, setting priorities and resources available as described in above steps.  Decide on the most rigorous, practical design to meet the evaluation objectives.  Usually, use probability sampling (e.g. random sampling) for quantitative measurement. Nonprobability sampling suits qualitative assessment.  Review existing instruments or develop your own if necessary.  Obtain ethical approval. Specify when, where and how data collection will take place.	<i>Evaluation objectives</i> 1. To assess whether program has led to increased fruit and vegetable consumption and active transport in Banksia Bay. 2. To document critical success factors and barriers to successful program implementation.  <i>Data collection</i> 1. Pre and post mailed survey of Banksia Bay residents and a comparison community. 2. Post-program qualitative interviews with all stakeholders.  <i>Sample</i> 1. Random sample of 500 residents in each community obtained from the electoral role. 2. Key stakeholders in the program.  <i>Instrument</i> 1. Standardised questions about fruit and vegetable intake and modes of transport. 2. Key informant interview format focusing on what did and didn't work and why.  <i>Procedure</i> 1. Mail self-complete questionnaire to a random sample of 500 adult residents in each community, followed by two reminder letters. 2. Conduct audio-tape recorded key informant interviews at end of project.

Planning steps	Decision making process/options to consider	Evaluation plan
<i>Step 4: Collect data</i>		
	What tasks need to be done? By whom? When? What resources are required?	Develop a timeline and detailed budget, and allocate tasks.
<i>Step 5: Analyse and interpret data</i>		
Analyse data Interpret what the findings mean		1. Summary of quantitative data using descriptive statistics such as frequencies and means 2. Key themes identified from qualitative data Has the program had the desired impacts? Why? What key lessons have been learned? What are the critical success factors? What are the barriers? What should be done differently in future?
<i>Step 6: Disseminate lessons learned</i>		
	What reports will be produced? What formats will be used? How will the lessons learned be disseminated?	Print the executive summary and full report and send them to key stakeholders. Post the report on the website. Present the findings at management meeting. Present a paper at a professional association annual conference.

## 12.4 Resources

Health promotion and public health evaluation planning guidelines:

- ‘Measuring Health Promotion Impacts: A Guide To Impact Evaluation In Integrated Health Promotion’. <http://www.hnb.dhs.vic.gov.au/rrhacs/phkb/>
- Guide to Evaluating Drug Prevention Projects in Victoria.  
<http://www.dhs.vic.gov.au/phd/pdpc/publication.htm>  
This link is for an award winning resource that shows a simple setout for planning evaluation.
- The US Centres for Disease Control and Prevention ‘Evaluation framework for public health interventions’
- The US Centres for Disease Control and Prevention ‘Evaluation framework for physical activity promotion activities’
- Central Sydney Area Health Service ‘Program Management Guidelines for Health Promotion’ NSW Health, Sydney.

Data collection methods

- Neuman W, L 2003, *Social research methods: qualitative and quantitative approaches*, Allyn and Bacon, Boston. Provides a comprehensive description of a wide range of research designs and methods applicable to health promotion evaluation.
- Robson, C 2002, *Real world research*, Blackwell Publishers, Oxford. Provides a very user friendly overview of designs and methods suitable for health promotion evaluation.
- Hawe, P, Degeling, & Hall, J 1990. *Evaluating health promotion: A practitioners’ guide*. McLelland & Petty: Sydney. A practical guide to planning and conducting evaluations of health promotion programs.

See Appendix E for a summary of commonly used data collection methods.

Indicators and measures

- *Monitoring food habits in the Australian population using short questions* (Marks et al. 2001), which lists:
  - questions about fruit and vegetable intake
  - questions about foods that contribute to fat intake
  - questions about cereals and cereal foods
  - proposed indicators for monitoring key aspects of breastfeeding in Australia
  - questions about food security
- Measures of physical activity (see chapter 7 – Resources)

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## Appendix A: Project team

### Project team

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### Focus group participants

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Debbie Mitchell, *DHS*  
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Michael Rowell, *Wellington Shire Council*

## Appendix B: Glossary of diabetes related terms

**Diabetes mellitus** is a condition in which blood glucose levels are higher than normal, due to defects in insulin secretion, insulin action or both. There are three main types of diabetes:

*Type 1 diabetes mellitus (type 1 diabetes)* is due to the autoimmune destruction of the cells of the pancreas that produce insulin. People with type 1 diabetes require insulin to survive. Although it can develop at any age, type 1 diabetes usually appears before the age of 40 years and accounts for about 10-15 per cent of people with diabetes in Australia. At present, type 1 diabetes cannot be prevented or cured.

*Type 2 diabetes mellitus (type 2 diabetes)* occurs when the body's cells cannot use insulin and insufficient insulin is produced to control blood glucose levels—either of these may predominate. Type 2 diabetes usually develops in people over the age of 40 years, particularly those with a family history of diabetes, but is increasingly being seen in younger people. Type 2 diabetes accounts for about 85-90 per cent of people with diabetes, and there is currently no cure, however it is considered to be preventable. Modifiable lifestyle risk factors include overweight/obesity; physical inactivity; inappropriate diet; high blood pressure and blood fats and smoking.

*Gestational diabetes mellitus (gestational diabetes or GDM)* develops in about 3-8 per cent of women during pregnancy and usually disappears after the baby is born. Women who develop GDM are at increased risk of developing type 2 diabetes later in life.

**Impaired fasting glucose (IFG):** diagnosed when fasting blood glucose levels are higher than normal, but after an Oral Glucose Tolerance Test (or OGTT, in which blood glucose levels are monitored after a glucose drink), blood glucose levels are not sufficiently high for a diagnosis of type 2 diabetes. People with IFG are at increased risk of developing type 2 diabetes.

**Impaired glucose tolerance (IGT):** diagnosed when the fasting blood glucose level is higher than normal, even higher after the OGTT (see Impaired fasting glucose above), but still not high enough for a diagnosis of type 2 diabetes.

**Insulin resistance:** a condition in which the pancreas is producing insulin, but the insulin is not effective in controlling blood glucose levels. Over time the amount of insulin produced increases, but eventually the pancreas cannot produce sufficient to maintain normal blood glucose levels.

**Pre-diabetes:** a condition in which blood glucose levels are higher than normal but not high enough for a diagnosis of type 2 diabetes. People with pre-diabetes are at increased risk of developing type 2 diabetes. Impaired fasting glucose and impaired glucose tolerance are both considered to be pre-diabetic conditions.

## Appendix C: Review methods

### Sources of information

The review focused on population-wide and community based approaches to prevention; it excluded individual focused interventions such as risk factor assessment, screening, clinical management and pharmacological interventions. One-on-one counselling (such as in health care settings) was included only where it was part of an intervention with other community based components. The search targeted systematic reviews and recent intervention trials or key program evaluations not contained in the reviews. Inclusion criteria included English language articles published between 1998 and 2003 that evaluated interventions focused on either (1) the primary prevention of CVD or diabetes using multi-risk factor approaches or (2) the reduction of individual risk factors (obesity, physical inactivity, poor nutrition, smoking or socioenvironmental and psychosocial factors). A search was also conducted for evidence related to disadvantaged groups.

### Limitations of the review

The review included only interventions that targeted adults. While the evidence is irrefutable that effective prevention strategies must include children and youth, the selection of evidence based strategies targeting adults acknowledges that social, physical, economic and policy environments are shaped by decisions made primarily by adults. Further, the focus on adults recognises their pivotal role in modelling healthy lifestyle choices for young people and creating family environments to support these choices.

### How the evidence was identified and located

Sources of evidence included: systematic and narrative reviews; meta-analyses, 'grey' literature such as government reviews, reports and position papers; journal commentaries and editorials; and recent intervention trials and program evaluations not yet incorporated into reviews. The review team hand searched key recent journal contents and the reference lists of landmark reviews. It also consulted with key professional organisations and individual experts throughout the review process.

For each risk factor, the review team conducted a separate search of several electronic databases. The search yielded over 1400 systematic reviews and journal articles. After applying the selection criteria, the team reduced this list to approximately 100 systematic and narrative reviews and over 80 recent individual studies. For a detailed description of the search methods, see the complete narrative review (<http://www.dhs.vic.gov.au/phd/ebhp/>).

### Quality and strength of the evidence

Evidence for this review was selected using a pragmatic approach that sought to obtain the best available evidence for practical decision making. For many health promotion interventions, evidence from randomised controlled trials is not available. Consequently, the review included randomised controlled trials, quasi-experimental designs and observational and qualitative studies.

## Summarising the evidence

Many evidence based reviews conclude with a summative statement that classifies each intervention as having good, promising or poor evidence of effectiveness. Others use assessments such as recommended, promising or not recommended. This review attempted to use such a classification, but found it over-simplistic. Interventions are rarely effective for all population groups in all contexts and settings. Systematic reviews in the health promotion area frequently include programs that appear similar, but differ markedly in practice. This often renders summative statements such as 'good' or 'poor' evidence misleading because some interventions were effective and others were not. By convention, variability in program effectiveness usually leads to an overall assessment of 'poor evidence' of effectiveness (due, in scientific terms, to 'lack of replicability'). However, more recent evaluation models recognise the importance of understanding program variability, that is, assessing what works for whom, in what settings and contexts (Pawson and Tilley 1997). This points to the importance of including both implementation and effectiveness data. Where possible, this review has attempted to do this. Therefore, summaries of evidence in this guide are descriptive and qualified rather than definitive.

## Appendix D: Summary of national and state policies for cardiovascular disease and diabetes, 1998–2003

	Victorian Government	Australian Government
2003	<p><i>Integrated health promotion: a practice guide for service providers</i>  <a href="http://www.dhs.vic.gov.au/phd/nutrition/ea/twellvic.htm">http://www.dhs.vic.gov.au/phd/nutrition/ea/twellvic.htm</a></p> <p><i>Well for life: improving nutrition and physical activity for residents of aged care facilities</i>  <a href="http://www.dhs.vic.gov.au/phd/nutrition/wellforlife.htm">http://www.dhs.vic.gov.au/phd/nutrition/wellforlife.htm</a></p>	<p>National Alcohol Campaign: 'Alcohol and your health' fact sheets  <a href="http://www.health.gov.au/pubhlth/publicat/alcohol.htm">http://www.health.gov.au/pubhlth/publicat/alcohol.htm</a></p>
2002	<p>Victorian Women's Health and Wellbeing Strategy  <a href="http://hnb.dhs.vic.gov.au/rrhacs/phkb/">http://hnb.dhs.vic.gov.au/rrhacs/phkb/</a></p> <p>Neighbourhood Renewal Program  <a href="http://www.neighbourhoodrenewal.vic.gov.au/ooh/web/nrwsite.nsf">http://www.neighbourhoodrenewal.vic.gov.au/ooh/web/nrwsite.nsf</a></p>	<p>National Alcohol Campaign: 'Alcohol and your health' fact sheets  <a href="http://www.health.gov.au/pubhlth/publicat/alcohol.htm">http://www.health.gov.au/pubhlth/publicat/alcohol.htm</a></p> <p><i>Environmental tobacco smoke in Australia</i>  <a href="http://www.health.gov.au/pubhlth/strateg/drugs/tobacco/overview.htm">http://www.health.gov.au/pubhlth/strateg/drugs/tobacco/overview.htm</a></p>
2001	<p><i>Stronger citizens stronger families stronger communities: partnerships in community care</i>  <a href="http://www.dhs.vic.gov.au/phd/nutrition/resources.htm">http://www.dhs.vic.gov.au/phd/nutrition/resources.htm</a></p> <p><i>Draft health promotion guidelines</i> (Department of Human Services)  <a href="http://hnb.dhs.vic.gov.au/acmh/phkb.nsf">http://hnb.dhs.vic.gov.au/acmh/phkb.nsf</a></p> <p>Eat Well Victoria Partnership  <a href="http://www.dhs.vic.gov.au/phd/nutrition/ea/twellvic.htm">http://www.dhs.vic.gov.au/phd/nutrition/ea/twellvic.htm</a></p> <p><i>Information management in the Victorian primary care system—developments of interest</i>  <a href="http://www.dhs.vic.gov.au/acmh/ph/pcp/infodev/rscs/infodev.pdf">http://www.dhs.vic.gov.au/acmh/ph/pcp/infodev/rscs/infodev.pdf</a></p> <p><i>Nutrition monitoring and surveillance in Victoria—a framework for action</i> (Department of Human Services: draft)</p> <p><i>The 'Active for life' Victorian physical activity strategy</i> (Department of Human Services: draft)</p>	<p><i>Nutrition resources</i>  <a href="http://www.health.gov.au/pubhlth/publicat/phys.htm">http://www.health.gov.au/pubhlth/publicat/phys.htm</a></p> <p><i>National Aboriginal and Torres Strait Islander nutrition strategy and action plan: a summary, 2000–2010</i>  <a href="http://www.health.gov.au/pubhlth/strateg/food/nphp.htm">http://www.health.gov.au/pubhlth/strateg/food/nphp.htm</a></p> <p><i>National monitoring and surveillance in public health nutrition</i>  <a href="http://www.health.gov.au/pubhlth/strateg/food/nphp.htm">http://www.health.gov.au/pubhlth/strateg/food/nphp.htm</a></p>

	Victorian Government	Australian Government
2000	<p><i>Tobacco (Amendment) Act 2000</i>  <a href="http://www.dhs.vic.gov.au/phd/smokeleg/index.htm">http://www.dhs.vic.gov.au/phd/smokeleg/index.htm</a></p> <p>Victorian Diabetes Taskforce recommendations (under development)</p> <p><i>Toward a more health promoting human service system: health promotion policy</i> (Department of Human Services: under development)</p> <p><i>Strengthening systems for health promotion: strategic direction and recommended actions for health promotion development in Victoria: 1999-2000</i>  <a href="http://www.dhs.vic.gov.au/phd/9903034/index.htm">http://www.dhs.vic.gov.au/phd/9903034/index.htm</a></p>	<p><i>Eat well Australia: a national framework for action in public health nutrition 2000-2010</i>  <a href="http://www.health.gov.au/pubhlth/strateg/food/nphp.htm">http://www.health.gov.au/pubhlth/strateg/food/nphp.htm</a></p> <p>National Child Nutrition Project  <a href="http://www.health.gov.au/pubhlth/strateg/childnutrition/index.htm">http://www.health.gov.au/pubhlth/strateg/childnutrition/index.htm</a></p> <p><i>Developing an active Australia: a work plan for 2000 to 2003</i> (SIGPAH: draft)</p> <p>National action plan for promotion, prevention and early intervention for mental health (2000) (Department of Health and Aged Care: under development)  <a href="http://www.health.gov.au/hsdd/mentalhe/mhinfo/ppei/nap2000.htm">http://www.health.gov.au/hsdd/mentalhe/mhinfo/ppei/nap2000.htm</a></p> <p>Promotion, prevention and early intervention for mental health monograph (Department of Health and Aged Care: under development)  <a href="http://www.health.gov.au/hsdd/mentalhe/mhinfo/ppei/monograph.htm">http://www.health.gov.au/hsdd/mentalhe/mhinfo/ppei/monograph.htm</a></p> <p>Integrated public health practice: supporting and strengthening local action (National Public Health Partnership: under development)</p> <p><i>A planning framework for public health practice—a systems perspective</i> (National Public Health Partnership)  <a href="http://www.health.gov.au/pubhlth/strateg/hiv_hepc/hepc/index.htm">http://www.health.gov.au/pubhlth/strateg/hiv_hepc/hepc/index.htm</a></p>
1999	<p><i>Report of the review of primary health redevelopment</i>  <a href="http://www.dhs.vic.gov.au/acmh/ph/pcp/report/index.htm">http://www.dhs.vic.gov.au/acmh/ph/pcp/report/index.htm</a></p> <p><i>1999-2000 primary health program guidelines</i>  <a href="http://www.dhs.vic.gov.au/acmh/ph/policy/policy_a_to_z.htm">http://www.dhs.vic.gov.au/acmh/ph/policy/policy_a_to_z.htm</a></p> <p><i>Promoting physical activity in Victoria: an integrated cross sectoral strategy</i>  [add web address]</p> <p><i>Mental health promotion plan 1999-2002</i> (VicHealth)  <a href="http://www.vichealth.vic.gov.au/HEALTH1.pdf">http://www.vichealth.vic.gov.au/HEALTH1.pdf</a></p>	<p><i>National health priority areas report: cardiovascular health, a report on heart, stroke and vascular disease</i> (Department of Health and Aged Care)  [add web address]</p> <p><i>National Tobacco Strategy 1999 to 2002-03: a framework for national action</i> (Department of Health and Aged Care)  <a href="http://www.health.gov.au/pubhlth/publicat/document/metadata/tobccstrat.htm">http://www.health.gov.au/pubhlth/publicat/document/metadata/tobccstrat.htm</a></p> <p><i>Mental health promotion and prevention national action plan</i> (National Mental Health Promotion and Prevention Working Party)  <a href="http://www.health.gov.au/hsdd/mentalhe/mhinfo/ppei/nap.htm">http://www.health.gov.au/hsdd/mentalhe/mhinfo/ppei/nap.htm</a></p>

	Victorian Government	Australian Government
		<p><i>Depression action plan</i> (Department of Health and Aged Care)  <a href="http://www.health.gov.au/hsdd/mentalhe/resources/reports/dap.htm">http://www.health.gov.au/hsdd/mentalhe/resources/reports/dap.htm</a></p>
1998	<p><i>An evidence-based planning framework for nutrition, physical activity and healthy weight</i>  <a href="http://www.dhs.vic.gov.au/phb/hdev/hpromo/hpstrat1/index.html">http://www.dhs.vic.gov.au/phb/hdev/hpromo/hpstrat1/index.html</a></p> <p><i>Towards a Victorian physical activity strategy</i>  <a href="http://www.dhs.vic.gov.au/phd/9803078/index.htm">Http://www.dhs.vic.gov.au/phd/9803078/index.htm</a></p> <p><i>Active for life: physical activity patterns and health impacts</i></p>	<p><i>National diabetes strategy and implementation plan</i> (Diabetes Australia)  <a href="http://www.health.gov.au/hsdd/nhpq/pdf/diabetes2000.pdf">http://www.health.gov.au/hsdd/nhpq/pdf/diabetes2000.pdf</a></p> <p><i>National drug strategic framework 1998-99 to 2002-03</i> (Ministerial Council on Drug Strategy)  <a href="http://www.health.gov.au/pubhlth/publicat/document/ndsf.pdf">http://www.health.gov.au/pubhlth/publicat/document/ndsf.pdf</a></p> <p><i>Developing an active Australia: a framework for action for physical activity and health</i> (Department of Health and Family Services)</p> <p><i>Second national mental health plan</i> (Department of Health and Family Services)  <a href="http://www.health.gov.au/hsdd/mentalhe/mhinfo/nmhs/plan2.htm">http://www.health.gov.au/hsdd/mentalhe/mhinfo/nmhs/plan2.htm</a></p>

## Appendix E: Evaluation data collection methods

**Source:** Adapted from Marshall, B, Keleher, H, Hutchins, C and Murphy, B 2002, Short Course in Health Promotion, 2nd Edition, Melbourne, Department of Human Services Victoria.

**Table A1: Qualitative methods**

Description	Applications	Strengths	Limitations
<i>Focus groups</i>			
Semi-structured discussion with 8–12 participants. Tape-recording or notes. Facilitator leads discussion around key issues and questions	Provides in-depth information about a small group of people (e.g. stakeholders' beliefs, attitudes, concerns). Used to pre-test materials with target audience and to identify issues for surveys.	Provides in-depth information. Is inexpensive. Allows for ideas to be shared and discussed, providing greater insights. Requires few specialised skills, apart from good facilitation skills.	Dominant participants need to be managed carefully. Not suitable for highly sensitive issues. Data can be difficult to analyse from tapes. Results cannot be generalised to whole population.
<i>In-depth interviews</i>			
One-to-one interview by telephone or in person. Interviewer follows outline but has flexibility to vary questions.	Useful for discussing sensitive issues with a small number of people. Enables in-depth understanding of complex issues.	Provides confidential environment. Allows participants to raise concerns. Results are less biased by peer influence. Interviewer can explore new issues raised.	Is more expensive and time consuming than focus groups. Data analysis is complex. Results cannot be generalised to whole population. Interviewers need training.
<i>Open-ended survey questions</i>			
Telephone or mail surveys. Respondents answer standard questions in their own words.	Can add depth to survey results. All respondents answer the same set of questions.	More detail, depth than closed questions in surveys. Reasons for answers can be documented. Results can be partially quantified.	Fixed set of questions reduces flexibility. Analysis of responses is time consuming and expensive.
<i>Journals</i>			
Stakeholders record activities/experiences /responses in a journal over a designated period.	Good for process evaluation. Used to document some short term change (impact)– e.g. organisational change.	Collects details of program. Allows for unexpected information and an ongoing record of events, issues. Prompts reflection on practice. Inexpensive.	Are time consuming to prepare. Responses are highly subjective. Some people lack confidence to write. Time consuming and expensive to analyse.

Description	Applications	Strengths	Limitations
<i>Observation</i>			
Rather than asking questions, the observer observes activities without influencing them. Observer may participate in activities but role as evaluator is known. Field notes.	Useful for understanding the physical and social context, the dynamics, what happens and why. Can inform the development of further data collection. Complements quantitative impact data.	Allows for alternative perspective to that found by other methods that rely on self-reporting. Observer is immersed in the context of the program.	Time consuming and expensive to conduct. Observers need training. Can be seen as intrusive by program staff. Observer participation needs to be carefully negotiated. Presence of observer can change behaviour

**Table A2: Quantitative methods**

Description	Applications	Strengths	Limitations
<i>Surveys</i>			
Structured set of survey questions. Responses are chosen from a fixed set of answers. Surveys can be administered by phone, fax, email or mail, or in person.	Useful for collecting data that can be quantified and generalised to whole population. When validated instruments are used, results can be compared.	Large amounts of data can be analysed in a short time. If the sample is representative of the population, then data can be generalised. Can process large amounts of data in a short time.	Understanding is not in depth. Survey design can bias responses. Statistical analysis may be needed. Expensive when applied to large samples (i.e. costs of survey distribution and collection, and statistical analysis).
<i>Population statistics</i>			
Sets of population data collected by health and other agencies	Allows comparison of data for target population with broader community. Local data are useful for needs assessment.	Provides broad information about changes across population. Accurate. Regular collection by agencies. Usually easily accessed.	Datasets are broader than just the target population, so have limited use for evaluating targeted health promotion programs. Influenced by nonprogram factors.
<i>Process tracking forms/reports</i>			
Collection of process measures in a standardised manner	Documents processes and identifies areas for improvement	Easily incorporated into routine activities. Easy to design and use.	Added demand on workers, who need to negotiate time. Difficult to ensure forms are always completed.

See section 12.4 for a reference list of resources that provide extra detail on evaluation methods (for example, how to conduct a focus group, how to develop a survey).

