

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*² (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.

² 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).