

## 8.1 Prevention for a healthier future

A fundamental aim of any health system is to prevent disease and reduce ill health, so that people remain as healthy as possible for as long as possible. In Australia, prevention as part of advocacy and action in public health has long been a core focus of health authorities (Gruszin et al. 2012).

One hundred years ago, the biggest health challenges were the prevention of infectious diseases, the improvement of maternal and child health and the creation of safer home, work and physical environments. Sanitation, communicable disease surveillance, immunisation, quarantine, workplace health and safety, safe birthing practices, promotion of breastfeeding and ensuring a better food and water supply were key prevention strategies then, and they remain so today.

More recently, changes affecting climate, water, air and other aspects of the physical environment present new risks to population health which will require new prevention strategies (McMichael et al. 2008).

The ongoing need for prevention has also been brought into sharp focus by the increase in chronic diseases, with the large associated health, social and economic burdens (see Chapter 4 'Chronic disease—Australia's biggest health challenge'). This 'overtaking' of the burden of disease by chronic disease has been driven by the decline in infectious disease mortality in combination with unfavourable trends in some health risk factors, as well as by the ageing of the population.

Many of the 14 million annual premature deaths worldwide which result from cardiovascular disease, cancer, chronic respiratory disease, diabetes and other chronic diseases could be prevented by eliminating or reducing common risk factors—mainly tobacco smoking, unhealthy diet, physical inactivity and the harmful use of alcohol (WHO 2013). In turn, these health behaviours and risk factors are affected by the social determinants of health—the conditions into which people are born, grow, live, work and age (see Chapter 1 'Health and illness'). Reduction of these modifiable risk factors and tackling unfavourable social determinants where practicable can reduce illness and the risk of premature death, with the potential for large health gains in the population. Preventing or delaying chronic disease is one of the most important priorities for the Australian health care system today.

Chronic disease is a global concern, with prevention of chronic diseases considered to be a key approach that will ensure that future generations are not at risk of premature death from these diseases (Beaglehole et al. 2011). In 1977, the World Health Organization (WHO) highlighted the importance of promoting health so that all persons had an economically productive level of health. The 1986 Ottawa Charter for Health Promotion added momentum with a goal of 'Health for all' by the year 2000 and beyond through better health promotion.

The World Health Assembly's current vision for prevention is 'a world free of the avoidable burden of noncommunicable diseases', through multisectoral collaboration and cooperation, so that populations achieve the highest attainable standards of health and productivity at every age (WHO 2013). Two important objectives of WHO's action plan include reducing modifiable disease risk factors and underlying social determinants through creating equitable health-promoting environments, and strengthening and orienting health systems through people-centred primary health care.

## What is prevention?

The World Health Organization defines prevention as 'approaches and activities aimed at reducing the likelihood that a disease or disorder will affect an individual, interrupting or slowing the progress of the disorder or reducing disability' (WHO 2004).

Within this broad definition there are some more specific characterisations:

- *primary prevention*, which reduces the likelihood of developing a disease or disorder
- *secondary prevention*, which interrupts, prevents or minimises the progress of a disease or disorder at an early stage
- *tertiary prevention*, which halts the progression of damage already done.

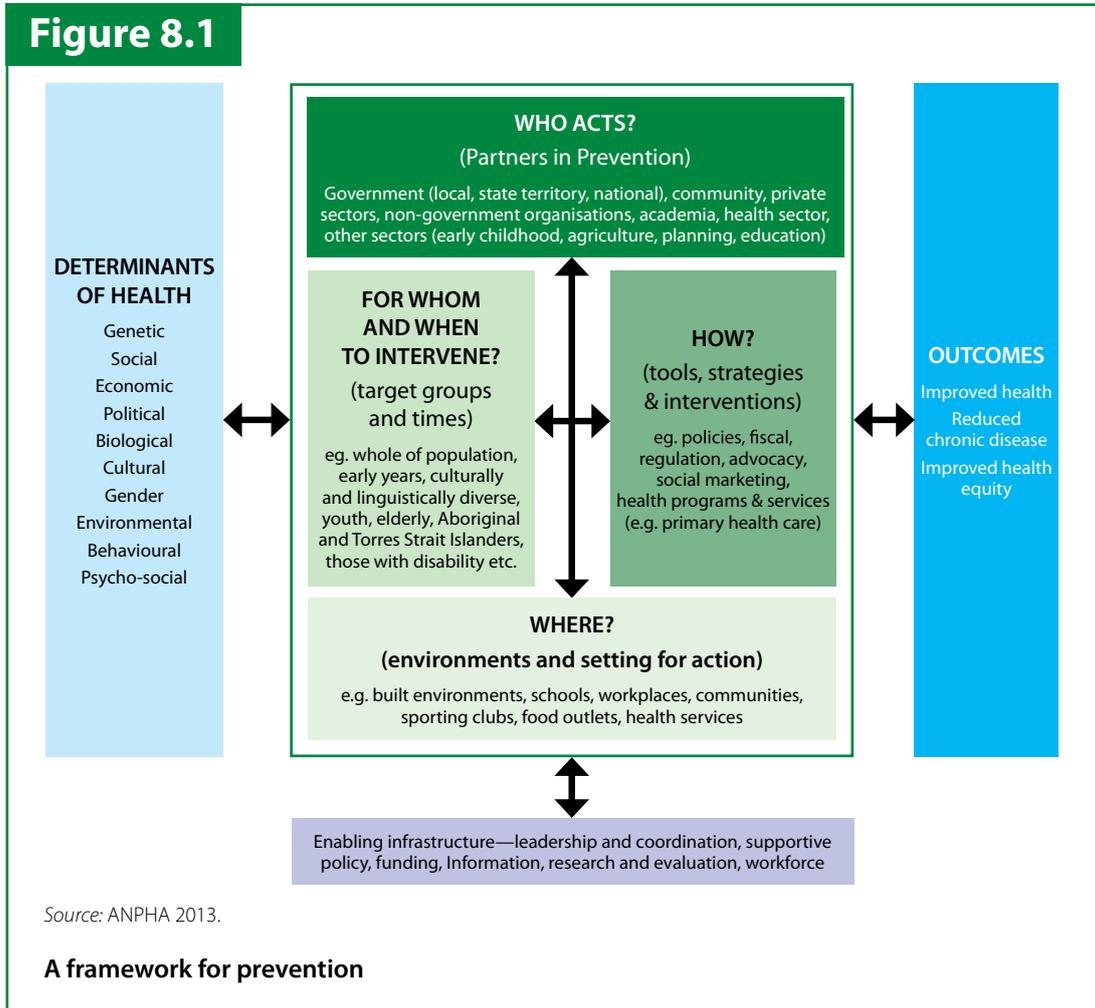
An important part of disease prevention is health promotion. This describes activities which help individuals and communities to increase control over the determinants of their health. Health education and social marketing can be used to promote health, as can policy and structural changes such as taxation, legislation and regulation.

Programs that promote and protect health, and prevent illness, are undertaken by many agencies (Figure 8.1). All 3 levels of government (federal, state and local), along with non-government organisations, academia, the private sector and community groups fund and carry out prevention activities.

Other government sectors besides health—such as education, urban planning, and sport and recreation—have an important role in promoting good health. Although individuals ultimately make the decisions that affect their own health, each of these groups and sectors assist people in making healthy choices and leading healthier lives (ANPHA 2013).

Who needs to act depends largely on which area of prevention is a focus: whether it is modifying health risk factors, or preventing the progression, complications and recurrence of disease. Health promotion through public awareness campaigns and community-based programs largely target risk factor prevention. Prevention through health counselling and the effective management of disease is often undertaken by primary health care providers such as general practitioners, along with specialists and allied health care professionals (RACGP 2012) (see Chapter 8 'Primary health care in Australia').

Decisions to invest in prevention are guided by a number of considerations, including whether the intervention increases community wellbeing, whether it is costly or offers value, and how its benefits can be distributed fairly (Carter et al. 2012).



Prevention targets different groups of people, depending on their need:

- **Universal prevention** is desirable for the entire population, or particular age groups such as early childhood, adolescence or the elderly.
- **Selective prevention** is for people with a greater than average risk of developing a disease, such as Aboriginal and Torres Strait Islander people, people from low socioeconomic status groups and refugees.
- **Indicated prevention** is for people at high risk, such as injecting drug users or prisoners.



As people have complex needs, and personal circumstance differ considerably, no single approach works for everyone.

Experience from key approaches suggests that prevention activities appear to work best with a combination of universal and targeted approaches, and with multiple strategies and interventions. Efforts to reduce smoking, for example, have relied on universal approaches incorporating: restrictions on how tobacco products can be promoted and sold; graphic health warnings on packages and in the media; increased tobacco excise; public education programs; support for smokers who are trying to quit; and selective prevention approaches that target at-risk populations such as pregnant women and Indigenous Australians.

Preventive action is undertaken in different settings, from the home to urban spaces, schools and workplaces, with each playing a role in creating healthy, sustainable communities. Effective action also requires an enabling infrastructure, involving research, information, monitoring and evaluation.

Sometimes prevention is a long-term prospect, since behavioural and structural change leading to lower rates of disease or premature death can take time. But long-term investments to address deeply rooted social factors, or issues beyond the control of individuals or specific sectors, are as important as strategies that focus on shorter-term clinical prevention and other direct services.

### Prevention activities

Australia has a long history of implementing health promotion campaigns. Some well-known educational and behavioural campaigns from the past include:

- *Life. Be in it*, beginning in the mid-1970s, with the animated character 'Norm' promoting a healthy active lifestyle
- *Slip Slop Slap*, beginning in 1981, protecting against an increased risk of skin cancer
- the *Grim Reaper* campaign, beginning in 1987, to increase HIV/AIDS awareness
- the National Heart Foundation's *Tick* endorsement program, beginning in 1989, to promote healthy eating
- *Every cigarette is doing you damage*, beginning in 1997, as part of the National Tobacco Campaign to reduce smoking
- *Go for 2 & 5*, beginning in 2005, with 'Vegie-Man' encouraging increased consumption of fruit and vegetables.

Notable policy and regulatory activities have included free milk for school children, fluoridated water, polio and other mass vaccinations, fitted seat belts in motor vehicles, addition of folic acid to bread-making flour for the healthy development of babies early in pregnancy, iodised salt to prevent thyroid gland problems and tobacco plain packaging.



There are numerous population-level interventions currently operating which seek to influence health and behaviour. Selected Australian Government campaigns are directed at eye health awareness, sexually transmitted infections, illicit drugs, tobacco, alcohol, cancer screening, mental health, obesity and healthy lifestyles, immunisation, pandemic influenza and HIV/AIDS.

The Indigenous Chronic Disease Package provides funding for preventive health activities including smoking cessation and healthy lifestyle programs for Aboriginal and Torres Strait Islander individuals, families and communities.

A selection of case studies illustrating good practice and promising work can be found in the Australian National Preventive Health Agency's *State of Preventive Health 2013* report.

### **Spending on prevention**

For the financial year 2011–12, \$2.23 billion, or 1.7% of total health expenditure, went to public health activities, which include prevention, protection and promotion. This amount does not include spending in non-health sectors such as road safety, the environment, and schools. Immunisation, health promotion activities that encourage a healthy lifestyle and reduce health risk factors, and cancer screening programs, were the major areas of public health spending (AIHW 2011, 2013).

Between 2000–01 and 2010–11, government expenditure on public health activities grew at an average rate of 3.8% per year. Much of the growth resulted from implementing the human papillomavirus vaccination (HPV) program in 2007–08.

While public health expenditure estimates are subject to data quality issues that affect international comparability, comparisons suggest Australia spends less on prevention and public health services than most other Organisation for Economic Co-operation and Development (OECD) countries, ranking in the lowest third in 2010–11. New Zealand led the way, with 7% of total health expenditure, followed by Canada at 5.9% (OECD 2013).

### **Does prevention work?**

Well-planned prevention programs have made contributions to a better quality of life and increased life expectancy. In recent decades there have been major improvements in tobacco control, road trauma and drink-driving, skin cancers, immunisation, cardiovascular disease, childhood infection diseases, and sudden infant death syndrome (SIDS) and HIV/AIDS control (National Preventative Health Taskforce 2009).

Successful prevention reduces the personal, family and community consequences of disease, injury, and disability. It allows for the better use of health system resources, producing a healthier workforce, which in turn boosts economic performance and productivity.



Reductions in smoking rates are a prevention success story in Australia. Health promotion, regulation and increased taxation have each played a role in reducing smoking rates among both males and females; for males from around 70% in the 1950s to 18% today, and for females from around 30% to 14%. Death rates from smoking-related diseases have fallen, with a time lag, from the high levels of the 1970s and 1980s—lung cancer deaths have fallen by 40%, and chronic obstructive pulmonary disease deaths by 60%.

A second notable example is SIDS death rates, which fell by almost three-quarters, from an average of 196 deaths per 100,000 live births during 1980–1990 to 52 during 1997–2002. The fall was largely due to the SIDS Reduce the risk campaign on safe sleeping for babies (d'Espaignet et al. 2008).

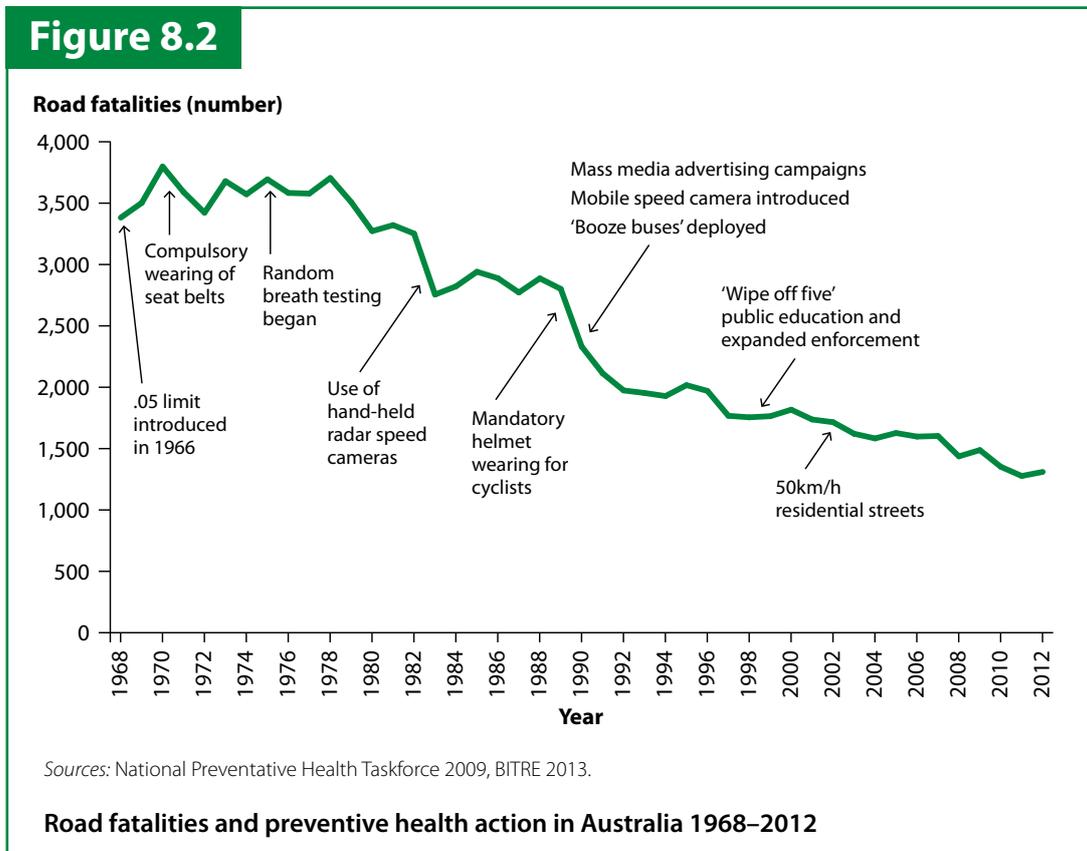
An epidemiological and economic analysis of a number of public health programs by the then Australian Government Department of Health and Ageing (DoHA 2003) highlighted further prevention successes. Some specific examples were:

- Road safety initiatives saved 1,000 Australian lives and kept 5,000 people out of hospital every year (Figure 8.2).
- The decline in tobacco consumption attributed to health promotion campaigns had, on the most conservative estimate, net benefits of \$2 billion in the 30 years between 1970 and 2000. In 1998 alone, more than 17,000 deaths were averted.
- Subsidised immunisation for measles saved an estimated 95 lives and averted 4 million cases between 1970 and 2003.
- Anti-smoking, physical activity and other programs to reduce coronary heart disease cost \$810 million in the 1970s to 1990s, but created benefits worth \$9.3 billion.

## Finding value for money

Decision makers in health have long been interested in strategies that can reduce morbidity and mortality at a reasonable cost to the public (Tengs et al. 1995). Health promotion and disease prevention activities can be expensive, especially those directed at large population groups rather than, for example, specific target populations or people with specific risk factor profiles. There is a need for a sound business case to assess the evidence for appropriate interventions and demonstrate value for money, as well as economic evaluations of these activities. This will better inform decision-making about which programs are more likely to be successful and where they may best be targeted when considering both effectiveness and cost.

Cost-effectiveness analysis is a method which is often used to compare programs and policies on the basis of their estimated cost and potential to improve health. It is also, however, an area where the costs of implementation and the value of attributed cost savings or benefits are highly contested and often difficult to demonstrate over time. This makes the case for investment more difficult for decision makers.



One Australian study, for example, concluded that taxing nutritionally poor food and using generic drugs to target combined health risk factors were 2 actions that were cost-saving in obesity prevention, while having a high health impact (Vos et al. 2010). However, another study indicated that there was a lack of long-term evaluation to test the veracity of claims for cost-effectiveness, and that in the case of childhood obesity, further evidence on actions which could positively influence children's eating behaviours and levels of physical activity were needed to develop long-term community interventions (Crowle & Turner 2010).

Another example is an international project which examined the economics of chronic disease prevention. It used cost-effectiveness analysis to conclude that interventions aimed at tackling obesity by improving diet and increasing physical activity in areas such as health education and promotion, regulation and fiscal measures, and counselling in primary care, are all effective in improving health and longevity, and are more cost effective than treating chronic diseases once they emerge. The study also found that when multiple interventions were undertaken which targeted different age groups and determinants simultaneously, overall health gains increased, adding years of healthy life to people's health expectancy, without any loss in cost-effectiveness (Sassi 2010).



Based on current evidence, the World Health Organization has suggested a number of 'best buy' policy interventions as well as individual interventions that may assist in the prevention of chronic disease. WHO suggests that these 'best buys' be implemented in primary care settings in all countries to produce rapid results in terms of lives saved, diseases prevented and large costs avoided (WHO 2013). They include:

- protecting people from tobacco smoke and banning smoking in public places
- warning about the dangers of tobacco use
- restricting or enforcing bans on tobacco and alcohol advertising, promotion and sponsorship
- excise tax increases on tobacco and alcohol
- restricting access to retailed alcohol
- reducing salt intake and salt content of food
- replacing trans-fats in food with unsaturated fats
- promoting public awareness about diet and physical activity, including through mass media
- drug therapy and counselling to individuals who have had a heart attack or stroke and to persons with high risk of a cardiovascular event
- acetylsalicylic acid for acute myocardial infarction
- prevention of liver cancer through hepatitis B immunisation
- prevention of cervical cancer through screening, linked with timely treatment of pre-cancerous lesions.

## Monitoring and evaluation

Monitoring and evaluation play a critical role in assessing the performance of disease prevention and health promotion programs, and provide the evidence that researchers, policy makers and service providers need on what works.

Successful monitoring and evaluation examines the long-term sustainability of outcomes for target populations. There is an increasing recognition of the importance of assessing activities which focus on the social determinants of health, especially among disadvantaged populations (Commission on Social Determinants of Health 2008).

Monitoring relies on available data to determine who is most affected by a health problem, and whether the situation changes following an intervention.

The Council of Australian Government indicators and benchmarks for smoking, alcohol and obesity are key monitoring tools for prevention-related health risk behaviours (COAG Reform Council 2013). The National Partnership Agreement on Preventive Health has developed a set of performance measures for states and territories.



Specific prevention activities require robust evaluation so that their success or failure can be measured and lessons can be learnt. Successful evaluation depends on determining which benefits to select, their cost and the value assigned to these benefits. Evaluation results and other information can guide future chronic disease prevention activities (Swinburn & Wood 2013). To maximise effects, an appropriately resourced capacity and method for evaluation should be developed as prevention proposals are planned, with baseline data, targets and anticipated outcomes documented before a campaign or program begins (AIHW 2009).

Government agencies have key roles in health data monitoring and the evaluation of health promotion. The 2011–13 Australian Health Survey, funded by the Australian Bureau of Statistics, the Australian Government Department of Health and the National Heart Foundation of Australia, provides valuable information. The AIHW and other reporting agencies can use results from this survey and other data sources to monitor diseases and risk factors, and evaluate preventive activities.

## The future for prevention

The challenges presented by an ageing population and the prevalence of overweight and obesity, along with the chronic diseases they initiate, are fertile areas for the attention of prevention research, policy and action for the foreseeable future (see Chapter 4, 'Chronic disease—Australia's biggest health challenge', and Chapter 6 'Ageing and the health system: challenges, opportunities and adaptations'). Besides obesity, health promotion is expected to continue to target risk factors such as physical inactivity, poor nutrition, harmful alcohol use, and smoking, and will also seek to prevent injury, oral conditions, cancers and other chronic diseases.

Mental health research suggests that there is an increasing need to promote psychological wellbeing. Managing biological and reducing psychosocial risk factors will help to prevent debilitating depression and anxiety, reduce suicide risk, and head off harmful behaviours (Jorm & Reavley 2013; National Mental Health Strategy 2009).

Another issue is the potential role of preventive action in redressing health disadvantage across the social gradient. Low socioeconomic groups generally have a higher prevalence of risk factors and greater health needs, and can benefit from targeted prevention activities. Hard-to-reach population groups, whether through distance or other access barriers such as language or culture, present additional challenges which can benefit from community-level action.

Building strong partnerships with industry—food and beverage, fitness, health insurance and others—where government regulation and business interests interact, are important for effective health promotion and disease prevention.

As with other health interventions, preventive health strategies need evaluation of their appropriateness, cost and effectiveness, to help avoid future treatment costs associated with ill-health, and wasted expenditure on what may be poorly designed, ineffective prevention approaches.

### Where do I go for more information?

The Australian National Preventive Health Agency's website [www.anpha.gov.au](http://www.anpha.gov.au) is focused on this topic. On 13 May 2014, the Australian Government announced that the Agency's functions would be transferred to the Department of Health from July 2014.

Information on Australian Government disease prevention and health promotion campaigns is available at [www.health.gov.au](http://www.health.gov.au).

### References

- AIHW (Australian Institute of Health and Welfare) 2009. Prevention of cardiovascular disease, diabetes and chronic kidney disease: targeting risk factors. Cat. no. PHE 118. Canberra: AIHW.
- AIHW 2011. Public health expenditure in Australia 2008–09. Cat. no. HWE 52. Canberra: AIHW.
- AIHW 2013. Health expenditure Australia 2011–12. Cat. no. HWE 59. Canberra: AIHW.
- ANPHA (Australian National Preventive Health Agency) 2013. State of preventive health 2013. Canberra: ANPHA.
- Beaglehole R, Bonita R, Horton R, Adams C, Alleyne G, Asaria P et al. 2011. Priority actions for the non-communicable disease crisis. *Lancet* 377:1438–47.
- BITRE (Bureau of Infrastructure, Transport and Regional Economics) 2013. Road deaths Australia, 2012 statistical summary. Canberra: BITRE.
- Carter SM, Cribb A & Allegrante JP 2012. How to think about health promotion ethics. *Public Health Reviews* 34:1–24.
- COAG (Council of Australian Governments) Reform Council 2013. Healthcare 2011–12: comparing performance across Australia. Sydney: COAG Reform Council.
- Commission on Social Determinants of Health 2008. Closing the gap in a generation: health equity through action on the social determinants of health: Commission on Social Determinants of Health final report. Geneva: WHO.
- Crowle J & E Turner 2010. Childhood obesity: an economic perspective. Productivity Commission Staff Working Paper. Melbourne: Productivity Commission.
- d'Espaignet ET, Bulsara M, Wolfenden L, Byard RW & Stanley F J 2008. Trends in sudden infant death syndrome in Australia from 1980 to 2002. *Forensic Science Medicine and Pathology* 4:83–90.
- DoHA (Department of Health and Ageing) 2003. Returns on investment in public health: an epidemiological and economic analysis prepared for the Department of Health and Ageing. Canberra: DoHA.
- Gruszin S, Hetzel D & Glover J 2012. Advocacy and action in public health: lessons from Australia over the 20th century. Canberra: ANPHA.
- Jorm AF & Reavley NJ 2013. Preventing mental disorders: the time is right. *Medical Journal of Australia* 199:527.
- McMichael AJ, Friel S, Nyong A & Corvalan C 2008. Global environmental change and health: impacts, inequalities, and the health sector. *British Medical Journal* 336:191–4.
- National Mental Health Strategy 2009. National mental health policy 2008. Canberra: Commonwealth of Australia.
- National Preventative Health Taskforce 2009. Australia: the healthiest country by 2020—National Preventative Health Strategy—the roadmap for action. Canberra: Commonwealth of Australia.
- OECD (Organisation for Economic Co-operation and Development) 2013. OECD statistics. Paris: OECD. Viewed 4 December 2013, <[www.stats.oecd.org](http://www.stats.oecd.org)>.

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- RACGP (Royal Australian College of General Practitioners) 2012. Guidelines for preventive activities in general practice, 8th edn. East Melbourne: RACGP.
- Sassi F 2010. Obesity and the economics of prevention: fit not fat. Paris: OECD Publishing.
- SCRGSP (Steering Committee for the Review of Government Service Provision) 2011. National agreement performance information 2011–12: National Healthcare Agreement. Productivity Commission: Canberra.
- Swinburn B & Wood A 2013. Progress on obesity prevention over 20 years in Australia and New Zealand. *Obesity Reviews* 14 (Supplement 2):60–8.
- Tengs TO, Adams ME, Pliskin JS, Safran DG, Siegel JE, Weinstein MC et al. 1995. Five hundred life-saving interventions and their cost-effectiveness. *Risk Analysis* 15:369–484.
- Vos T, Carter R, Barendreg J, Mihalopoulos C, Veerman L, Magnus A et al. 2010. Assessing cost-effectiveness in prevention (ACE–Prevention): final report. Melbourne: University of Queensland and Deakin University.
- WHO (World Health Organization) 2004. Global forum on chronic disease prevention and control (4th, Ottawa, Canada). Geneva: WHO.
- WHO 2011. Global status report on noncommunicable diseases 2010. Geneva: WHO.
- WHO 2013. Global action plan for the prevention and control of noncommunicable diseases 2013–2020. Geneva: WHO.