



AUSTRALIAN  
HEALTH POLICY  
COLLABORATION

# Chronic diseases in Australia: Blueprint for preventive action

Policy paper No. 2015-01  
June 2015

Sharon Willcox



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## About the Australian Health Policy Collaboration

The Australian Health Policy Collaboration was established at Victoria University in 2015 to build from the work of the health program at the Mitchell Institute over the previous two years. The Collaboration is an independent think tank that aims to attract much required attention to the critical need for substantial and urgent health policy reform focused on addressing chronic disease on a national scale.

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# Table of contents

Foreword.....	v
Executive summary .....	i
1.Vision - why we need to take action on chronic diseases.....	v
2.Strategic priorities - turning knowledge into action.....	xxiii
3.Conclusion .....	liv
Appendix 1: Australian and WHO targets to prevent chronic diseases .....	lv
Acronyms .....	lviii
References.....	lix



# Foreword

This is the second report prepared for the Australian Health Policy Collaboration (AHPC) by Dr Sharon Willcox. The first, *Chronic diseases in Australia: the case for changing course*, set out the cost of chronic diseases to individuals, the health system and the economy, and argued for national action on prevention. This second report, *Chronic diseases in Australia: Blueprint for preventive action*, looks at what can and should be done to improve population health and prevent illness.

The AHPC explores health policy challenges, seeking to advance policy reform and to contribute to improved health outcomes. The health program is focussed on chronic disease prevention, which has been identified by the Australian Institute of Health and Welfare (AIHW) as the biggest problem facing Australia's health system.

Chronic conditions such as diabetes, stroke and depression affect more than seven million Australians. The proportion of people with a chronic condition increases with age, and almost one in three Australians aged 45 or over have at least one chronic condition. The nation cannot afford to ignore an issue that affects so many of its people.

This paper, written by Dr Sharon Willcox with the AHPC and a national expert advisory group, provides principles, strategic priorities and action areas for improved population health in Australia. We are fortunate to have had input and advice from leaders in chronic disease prevention and management from the public, private and non-government sectors.

Reducing chronic diseases through preventive interventions would provide significant benefits to individuals, communities, the health system, and the economy. We believe that this paper will make a valuable contribution to a national action agenda, and to a measurable reduction in the incidence and impact of chronic diseases in Australia.

Rosemary Calder  
Director  
Australian Health Policy Collaboration







# Executive summary

This paper identifies strategic priorities for taking action to prevent chronic diseases. It is the second report by the Australian Health Policy Collaboration on this issue. The first report, *Chronic diseases in Australia: the case for changing course*, mapped out the social, economic and health costs of chronic diseases to the Australian community, as well as identifying the evidence on the effectiveness and cost-effectiveness of preventing chronic diseases.

*Chronic diseases in Australia: Blueprint for preventive action* moves beyond the evidence to provide a framework for action that is summarised in the diagram on the next page. The vision of this Blueprint is to reduce the impact and incidence of chronic diseases through preventive interventions. The desired outcomes, against which progress should be measured, comprise:

- Healthy lives: improved health status for all populations.
- Healthy children: a healthy future for our children.
- Healthy communities: more liveable and socially connected communities.
- Healthy economies: increased economic participation and productivity.

To achieve this vision, action will be required on many fronts. This recognises that chronic diseases have many shared risk factors and determinants, including health behaviours (such as smoking and physical inactivity), biomedical factors (such as high blood pressure and depression), and social and environmental determinants (such as early life conditions and socio-economic status). Taking preventive action early includes tackling the underlying social determinants of poor health (primordial prevention) and implementing strategies to reduce specific risk factors for chronic diseases (primary prevention). Preventive actions to reduce the disease burden for high-risk populations, including people with risk factors or in the early stages of chronic diseases, are also vitally important.

Seven core principles have been identified that shape the actions we propose to reduce the impact and incidence of chronic diseases:

1. Systemic approach: focus on common risk factors and determinants, not individual diseases.
2. Evidence-based action: act now using best available evidence and continue to build evidence.
3. Tackling health inequity: work to improve and redress inequities in outcomes.
4. National agenda with local action: build commitment and innovation with local action.
5. A life course approach: intervene early and exploit prevention opportunities at all ages and across generations.
6. Shared responsibility: encourage complementary actions by all groups.
7. Responsible partnerships: avoid ceding policy influence to vested interests.

This Blueprint identifies three strategic priorities, each of which includes specified actions.

The first strategic priority is to drive healthy behaviours and healthy environments focussing on tackling the risk factors and social determinants that contribute to the burden of chronic diseases.



**VISION**  
**To reduce the incidence and impact of chronic diseases through population-based interventions**

**OUTCOMES**

- Improved health status for all populations
- A healthy future for our children
- More liveable and socially connected communities
- Increased economic participation and productivity

- UNDERPINNING PRINCIPLES**
1. *Systemic approach: focus on common risk factors and determinants, not individual diseases*
  2. *Evidence-based action: act now using best available evidence, continue to build evidence*
  3. *Tackling health inequity: work to improve and redress inequities in outcomes*
  4. *National agenda with local actions: build commitment and innovation with local action*
  5. *A life course approach: intervene early and exploit prevention opportunities at all ages and across generations*
  6. *Shared responsibility: encourage complementary actions by all groups*
  7. *Responsible partnerships: avoid ceding policy influence to vested interests*

**STRATEGIC PRIORITIES**

- Driving health behaviours and healthy environments
- Creating accountability for action and monitoring progress
- Generating community support for action on prevention

**ACTION AREAS**

1. Healthier diets
2. Make smoking history
3. Increase physical activity
4. Decrease harmful use of alcohol
5. Better mental health
6. Decrease biomedical risk factors
7. Tackle social determinants of health

1. Australia implements WHO 25x25 targets
2. Independent progress report cards
3. Nationally focussed accountability agency
4. State-based success challenges

1. Community data and attitudes
2. Chronic disease local action communities
3. Social media and smart technologies

**PARTNERS:** *Parents and families, community groups, educational institutions, local governments, health services, private health insurers, employers and business associations, sporting associations, non-government organisations, the media and advertising industry, Commonwealth and state/territory governments*

It involves setting measurable objectives and assessing preventive interventions in order to determine priority actions for implementation.


The second strategic priority is to create accountability for action and monitoring progress. Areas for action include Australian implementation of the World Health Organization targets and indicators to prevent chronic diseases, as well as independent reporting.

The third strategic priority is to generate community support and action on prevention. Many factors that are important in preventing chronic diseases require action by groups outside government. Community support is also essential to achieving success, including the development of solutions that meet local circumstances and priorities.

Responsibility for taking action on preventing chronic diseases must be shared. Sustainable change requires partnerships and action by individuals and families, communities, the non-government sector and governments.

The Australian Health Policy Collaboration will work with partner organisations to implement the strategic priorities included in this Blueprint. Work is already underway to auspice the development of an Australian set of indicators and targets that are consistent with the international target of a 25 per cent reduction in premature mortality from chronic diseases by 2025. Following the release of this Blueprint, the Australian Health Policy Collaboration will continue to build a coalition of partner organisations committed to taking action on preventing chronic diseases.

# 1. Vision - why we need to take action on chronic diseases

	<p>A vision, underpinned by evidence, of what can be achieved if we reduce chronic diseases is a critical prerequisite for effective action.</p> <p>A consistent set of messages reinforces the value of a system-wide approach to preventing chronic diseases that combines population-based and high-risk group preventive interventions.</p> <p>Selling the merits of success and dispelling the myths about why 'it won't work' are essential tasks in prevention advocacy.</p>
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Australia has a strong track record of taking effective public health action to reduce harm and protect the health of our population. The list of public health achievements over the past century is impressive, with just a few examples comprising<sup>1</sup>:

- **Turning HIV into a chronic condition, rather than a death sentence:** Australia's response to the HIV/AIDS epidemic involved effective community action, multi-faceted public health intervention, and political commitment by governments to take bold action early in the epidemic. Death rates fell from 6.4 deaths/100,000 men in 1993 to 1 death/100,000 men by 2005, following the significant decline in HIV diagnoses. Over the 25 years to 2010, public health programs to reduce HIV/AIDS cost \$607 million, but resulted in a net benefit of \$2.5 billion due to the reductions in mortality and morbidity.<sup>2</sup>
- **Significant reductions in drowning deaths among toddlers:** Public health actions included the development of national standards on pool fencing, state-based legislation, local council inspections and water safety education campaigns. Subsequently, the number of drowning deaths among 0-4 year old children fell from an annual national average of 58 in the mid-1990s to 35 in 2003. In Queensland, which has historically had the highest rates of child drowning, the installation of pool fencing saved the lives of more than 70 young children in the decade to 2002.<sup>3</sup>
- **Fewer deaths and injuries due to improvements in road traffic safety:** Over five decades, action on road safety has included: compulsory seat belts, child restraints and helmets for cyclists and motorcyclists; reduced speed limits; the inclusion of safety design features in vehicles; restrictions on the use of alcohol and other drugs; random breath testing; and public education campaigns. Road deaths fell from 8 deaths/10,000 registered vehicles in 1970 to 1.4 deaths/10,000 registered vehicles in 1999, while rates of serious injury have also declined significantly.
- **Reducing lead exposure in children:** Following evidence about the adverse impact on intellectual development for children exposed to lead, public health programs in

affected mining communities have included remediation of land and housing; population monitoring, case finding and case management; and public education and health promotion. In Port Pirie, the rate of young children with blood lead levels above the National Health and Medical Research Council (NHMRC) targets declined from 98 per cent in 1984 to 55 per cent by 2001, with further improvements still required.

While there have also been successes in tackling chronic diseases (most notably associated with tobacco control), public health action now needs to intensify to reduce the incidence and impact of all chronic diseases. This is central to our vision.

#### VISION

*To reduce the incidence and impact of chronic diseases through preventive interventions*

The following sections revisit the compelling case for change. Section 1.1 outlines the scope and magnitude of chronic diseases in Australia, as well as the factors contributing to the growing burden of chronic diseases. Section 1.2 highlights the desired outcomes of achieving this vision, while Section 1.3 presents a typology of prevention and explains the complementary approaches to preventing chronic diseases.

## 1.1 Chronic diseases - a growing burden with many interrelated causes

Chronic diseases - referred to as non-communicable diseases (NCDs) by the World Health Organization (WHO) - comprise a range of conditions that are long-lasting and impact negatively on health status, including through the presence of disease symptoms, functional impairment, disability, reduction in healthy life expectancy and premature deaths.

The scope of chronic diseases may be defined narrowly or more broadly, depending upon the basis of the classification. Organisations may use different groupings of chronic diseases according to whether their focus is: preventability of shared risk factors; impact on morbidity and healthy functioning; capacity for improving service delivery and integrating care; or how they contribute to premature deaths. For example, some common groupings of chronic diseases are:

- **World Health Organization:** The WHO describes four main types of NCDs, comprising: cardiovascular diseases (CVDs) (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes. These four diseases account for 82 per cent of all deaths due to NCDs.<sup>4</sup>
- **Australian Governments:** Under the *2005 National Chronic Disease Strategy*<sup>5</sup>, Commonwealth and state and territory governments decided to focus on the five national health priority areas of asthma; cancer; diabetes; heart, stroke and vascular disease; and osteoarthritis, rheumatoid arthritis and osteoporosis. This was linked to the development of national service improvement frameworks that identified opportunities for improvements in prevention and treatment of these chronic diseases. Additional national health priority areas were identified after the development of the 2005 Strategy, including obesity (in 2008) and dementia (in 2012).

- **Australian Institute of Health and Welfare:** The AIHW lists 12 chronic conditions identified in the National Public Health Partnership's report, *Preventing chronic disease: a strategic framework*.<sup>6</sup> It states that these conditions pose a significant morbidity and mortality burden, incur significant health costs and are amenable to preventive measures. The 12 chronic conditions are: ischaemic heart disease; stroke; lung cancer; colorectal cancer; depression; Type 2 diabetes; arthritis; osteoporosis; asthma; chronic obstructive pulmonary disease; chronic kidney disease; and oral disease.

This Blueprint adopts a broad definition based on the shared risk factors and preventability of many chronic diseases. Table 1.1 outlines the scope of chronic diseases covered by this Blueprint, together with the common sets of health behaviours, biomedical factors, and social and environmental determinants that contribute to the development of these chronic diseases.

Table 1.1 illustrates the **value of a systemic approach to preventing chronic diseases**. Each of the listed risk factors and determinants has an effect in contributing to two or more chronic diseases. Accordingly, **action on the underlying risk factors and determinants, rather than tackling individual chronic diseases, will generate the greatest improvement in outcomes**.

Data illustrating the impact and growing burden of chronic diseases in Australia includes:

- **Risk factors for chronic diseases are already present among young children and adolescents.** About one in four children are overweight or obese including very young children. In 2011/12 some 16 per cent of children aged between five and seven years old were overweight and a further 8.7 per cent were already classified as obese.<sup>7</sup> The presence of obesity among such young children is particularly concerning as it appears to play a critical role in triggering the development of other risk factors for chronic diseases.<sup>8</sup> One serious problem that has emerged is that Type 2 diabetes is now being diagnosed among children and adolescents, whereas it was previously an 'adult' disease. The WHO has estimated that Type 2 diabetes accounts for almost one half (45 per cent) of all new cases of diabetes among children and adolescents.<sup>9</sup>
- In 2012/13, about 1.8 million hospital admissions were related to CVD, diabetes and chronic kidney disease (CKD). **This is equivalent to one in every five hospital admissions annually associated with these three chronic diseases.** While hospitalisation rates are declining for CVD, they are increasing for diabetes and CKD. People frequently have two or more of these chronic diseases. Excluding dialysis, there were about 390,000 hospital admissions where patients had a combination of CVD, diabetes and CKD. In 72 per cent of these admissions, patients had two of these chronic diseases, while in 28 per cent of these admissions patients had all three.<sup>10</sup>
- Due to their early onset and prevalence among young people, **mental health conditions have been called the 'chronic diseases of the young'**.<sup>11</sup> About 500,000 children and adolescents (14 per cent of people aged 4 to 17 years) experience a mental health problem.<sup>12</sup> As mental health conditions often start early in life, they account for one-quarter of years of life lived with a disability.<sup>13</sup> Mental health conditions rank third after CVD and cancer as the most significant contributor to the number of healthy life years lost due to living with a disability.

**Table 1.1: Chronic diseases have many shared risk factors and determinants**

Categories <sup>1</sup>	Risk factors and determinants <sup>2</sup>	Cancers	Cardiovascular diseases (incl. heart attack & stroke)	Chronic kidney disease <sup>3</sup>	Dementia <sup>4</sup>	Type 2 Diabetes	Mental health conditions	Musculoskeletal conditions (incl. arthritis)	Respiratory diseases (incl. asthma)
Health behaviours	Tobacco use	✓	✓	✓	?	✓	+	✓	✓
	Alcohol misuse	✓	✓			✓	✓ +	✓	
	Nutrition	✓	✓	✓	?	✓	+	✓	?
	Physical activity	✓	✓	✓	?	✓	✓	✓	
Biomedical factors	Hypertension		✓	✓	?	+	+		
	High cholesterol		✓		?	+			
	Excess weight	✓	✓	✓	?	✓	+	✓	
	Depression	+	✓		?	? +	✓		+
Social and environmental determinants	Chronic stress	?	?			?	✓		?
	Social support		✓			?	✓		
	Early life (including low birth weight)	?	✓	✓		✓	✓		✓
	Low socio-economic status	✓	✓	+	?	✓	✓		✓

✓ = Established link

+ = Association/comorbidity

? = Possible link

**Notes/Sources:**

1. The categories of risk factors and determinants are based on the AIHW's Framework for the Determinants of Health in *Australia's Health 2014* (Figure 1.1).<sup>14</sup>

2. The attribution of links between most of the chronic diseases, risk factors and determinants is drawn from the *Victorian Public Health and Wellbeing Plan 2011-2015* (Figure 4).<sup>15</sup>

3. The assignment of risk factors and determinants for chronic kidney disease is based on the AIHW's 2009 report, *Prevention of cardiovascular disease, diabetes and chronic kidney disease: targeting risk factors* (Table 2.1).<sup>16</sup>

4. The evidence on risk factors and preventability of dementia is still developing, noting that there are many different forms of dementia.<sup>17, 18</sup>

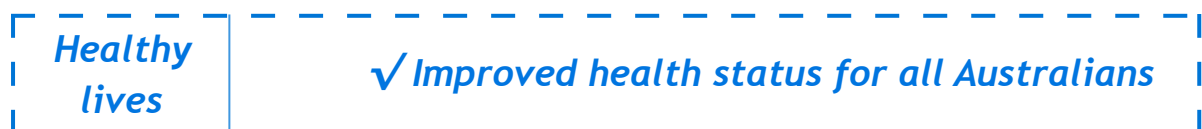


- At the other end of the age spectrum, **dementia was the fourth leading cause of the overall burden of disease in Australia in 2011**. This significant burden of disease flows from the relatively high prevalence of dementia in older populations. It has been estimated that in 2011, 9 per cent of all Australians aged 65 and over had dementia, with this increasing to 30 per cent of people aged 85 and over. About three-quarters of the burden of disease caused by dementia is due to its disabling nature, while one-quarter is associated with premature mortality.<sup>19</sup>
- **The burden of chronic disease is unevenly distributed, with higher rates of chronic diseases and risk factors among disadvantaged populations.** Indigenous Australians have a significantly higher age-standardised mortality rate for all cancers combined (221 per 100,000 people) than non-Indigenous Australians (172 per 100,000 people).<sup>20</sup> People living in rural and remote areas have higher levels of some risk factors for chronic diseases arising from comparative health and socio-economic disadvantage.<sup>21, 22</sup> The burden of chronic diseases (comprising reduced life expectancy and years lived with a disability) is 32 per cent higher for the most disadvantaged Australians (people in the lowest 20 per cent of socio-economic status) than for the most advantaged Australians (people in the highest 20 per cent of socio-economic status).<sup>23</sup> Mental health and CVD are the largest contributors to the higher burden of disease among disadvantaged populations.

## 1.2 The case for change - outcomes of tackling chronic diseases

There are major gains to be realised if the incidence and impact of chronic diseases can be reduced. These gains extend beyond the impact on the health of individuals to our children's future, the wellbeing of the communities in which we live, and the economic prosperity of our society.

The gains that could be achieved through reducing the incidence and impact of chronic diseases are illustrated by examples in four outcome domains:



Potential gains include:

- **If Australians met the national physical activity guidelines**, we could reduce coronary heart disease deaths by 33 per cent, colon cancer deaths by 25 per cent, diabetes cases by 25 per cent, stroke risk by 15 per cent and breast cancer risk by 12 per cent.<sup>24</sup>
- **If the Australian Government introduced mandatory salt limits for manufacturers of just three food groups** (bread, margarine and cereal products), this could result in 110,000 fewer years lived with a disability, as well as generating savings of \$1.43 billion.<sup>25</sup> This would complement and achieve a 20-fold increase in the population health benefits of the National Heart Foundation's existing Tick program.<sup>26</sup>

## Healthy children

### ✓ A healthy future for our children

Potential gains include:

- **If unhealthy food advertising was banned on TV during children's peak viewing times**, this would result in 37,000 disability-adjusted life years (DALYs) saved.<sup>27</sup> Similar restrictions in the UK on advertising high fat, sugar and salt foods during children's TV programs resulted in a 37 per cent reduction in unhealthy food advertisements seen by children.<sup>28</sup> The implementation of such a ban in Australia would be highly cost-effective, generating net savings of about \$300 million.<sup>29</sup>
- **If psychological therapy was made available to high-risk children and adolescents (assessed as high-risk following screening)**, this would result in about 5,600 DALYs saved. Most of the improved health outcomes for these children and adolescents would be due to the reduction in depressive episodes (94 per cent), but suicides would also be prevented (6 per cent of the DALYs averted).<sup>30</sup> Depression and anxiety are very common among young people: one in 16 young Australians (16-24 years) is currently experiencing depression and one in six is currently experiencing an anxiety condition.<sup>31</sup> **In 2012, there were 324 deaths by suicide among young Australians aged 15-24 years**, higher than the number of young Australians (198) dying in car accidents.<sup>32</sup>

## Healthy communities

### ✓ More liveable and socially connected communities

Potential gains include:

- **If effective action was taken to reduce the harmful consumption of alcohol**, this could generate net savings for social costs of \$15 billion (2004/05 costs). Some of the significant (non-health sector) social costs include: \$1.6 billion in the costs of crime (such as policing, criminal courts and prisons) that is directly attributable to alcohol abuse; \$2.2 billion in the costs of road accidents; and \$3.6 billion in workplace productivity losses.<sup>33</sup> Our communities could be much safer. According to the Australasian Centre for Policing Research, alcohol is involved in 62 per cent of all police attendances, 40 per cent of domestic violence incidents, 73 per cent of assaults and 77 per cent of street offences.<sup>34</sup>
- **If a small shift to active travel (walking and cycling) and public transport was achieved**, greenhouse gas emissions could be reduced by up to two-thirds for peak travel and by about 95 per cent for off-peak travel.<sup>35</sup> The joint potential to improve our environment and our waistlines is significant. Nearly 40 per cent of Australians commute less than 10 kilometres to work or study, but only 1.6 per cent cycle and only 4.2 per cent walk to work.<sup>36</sup> Increasing active travel and public transport can also improve the quality of life in Australian cities through reducing traffic congestion. The Bureau of Transport and Regional Economics has estimated that the annual avoidable cost of traffic congestion in Australian cities will rise from almost \$10 billion in 2005 to over \$20 billion by 2020.<sup>37</sup>

Potential gains include:

- **If chronic diseases were eliminated**, the Business Council of Australia has estimated that this could increase the workforce by 10 per cent, boosting the productivity of the Australian economy by 10 per cent.<sup>38</sup> The loss to the Australian labour force from people suffering from chronic diseases is estimated to be 537,000 full-time person years and 47,000 part-time person years.
- **If the prevalence of six risk factors for chronic disease could be reduced to realistically achievable levels**, this could boost the economy by \$2.3 billion. (The six risk factors are: smoking, high-risk alcohol use, physical inactivity, intimate partner violence, obesity and inadequate diets). This comprises savings of \$1.5 billion through reducing health sector costs and \$0.8 billion through reducing workforce productivity losses and costs to households.<sup>39</sup>

These benefits - healthy lives, healthy children, healthy communities and healthy economies - are substantial. They are also achievable - if we have engagement and political commitment to taking effective preventive action on chronic diseases. In case we doubt the potential for systemic public health action to improve our health and safety significantly, Box 1.1 provides a reminder of the immense improvements to road safety achieved over the past five decades and the impact had they not occurred.

## Box 1.1: The future re-imagined for road safety without public health interventions

**In the words of John Lennon, *Imagine*:**

*It is 1965.*

*For the first time, the number of annual road deaths in Australia exceeds 3,000 people. There has been a 50 per cent increase over the past decade associated with rising rates of car ownership.*

*In the United States (US) Ralph Nader does not publish his groundbreaking book, *Unsafe at any speed*. The concept of designing in safety does not come into existence and the car industry of the future does not invest in head restraints, airbags and crumple zones.*

*It is 1969.*

*The Royal Australasian College of Surgeons does not establish a Road Trauma Committee. Road deaths and injuries are viewed as inevitable ‘accidents’, rather than as a preventable public health problem. Orthopaedic surgeons have instead pioneered new approaches to treating the victims of road accidents. There is a severe shortage of orthopaedic surgeons.*

*It is 1973.*

*Australian governments have unofficially adopted the ‘Live free or die’ philosophy (copying the state motto of New Hampshire). Brief public debate on legislating for compulsory wearing of seat belts and motor cycle helmets fizzled before it started. The new Action on Road Safety Association has fewer members than the Anti-Football League.*

*It is 1987.*

*The Victorian Government does not establish the Transport Accident Commission. Innovative road safety educational campaigns (If you drink then drive, you’re a bloody idiot; Don’t fool yourself, speed kills; and Knock off five) are not created. Ten years hence, Tourism Australia’s campaign (Where the bloody hell are you?) receives international advertising awards for its edgy language, but brickbats from grammar pedants.*

*It is 2001.*

*Reduced speed limits for roads near schools are not introduced. Governments argue that parents and children need to take responsibility for their behaviours and not put themselves in danger. The term ‘nanny state’ is unknown and is not used by tobacco companies in 2011 to challenge advertising bans. People continue to think fondly of nannies and remember watching *Mary Poppins* at the movies.*

*It is 2014.*

*The number of road deaths and injuries has kept pace with population growth and car ownership. Every public and private hospital now has its own road trauma ward and most communities have rehabilitation hospitals. Shares in private sector companies that provide wheelchairs, aids and appliances represent blue chip investments.*

### 1.3 Defining prevention and approaches to tackle chronic diseases

Many factors contribute to the development of chronic diseases. Table 1.1 identified some of the health behaviours, biomedical factors, and social and environmental determinants that are linked to the most common chronic diseases. **This complex, multi-causal aetiology of chronic diseases means that prevention must also involve action on many fronts:**

- at *different stages along the disease causation chain*: in well populations; in populations with risk factors and other determinants for chronic diseases; in people in the early stages of chronic diseases; and in people with long-term chronic diseases;
- at *different stages of the life course*: before birth; in early childhood; in adolescence; in early adulthood; in middle age; in older populations; and across generations;
- in *different settings*: in GP clinics; in acute and specialised health services; in schools and other educational institutions; in workplaces; in community groups; and in sporting clubs; and
- by *different individuals and organisations*: parents and families; community associations; educational institutions; local governments; health services; private health insurers; employers and business associations; sporting associations; non-government organisations; the media and advertising industry; and Commonwealth and state/territory governments.

‘Prevention’ means different things to different people. The National Public Health Partnership developed a valuable prevention typology<sup>40</sup> that defines the levels of prevention according to a ‘stages of disease’ continuum, as follows:

- **Primordial prevention**: this involves preventing the emergence of predisposing social and environmental conditions that can lead to causation of disease.
  - An example of primordial prevention is interventions to tackle early childhood disadvantage to overcome the ‘poorer platform of health’ experienced by children in disadvantaged families.<sup>41</sup> This could include financial support for pre-school provision to children experiencing significant disadvantage and parenting programs for disadvantaged families.<sup>42</sup>
- **Primary prevention**: this includes limiting the incidence (development of new cases) of chronic diseases through eliminating or reducing specific risk factors and other determinants, while promoting factors that are protective of health.
  - Examples of primary prevention include: legislation to make seatbelts compulsory; urban design that provides safe environments for walking, cycling and other physical activities to encourage active lifestyles; and plain packaging of tobacco to decrease the number of children who take up smoking.
- **Secondary prevention**: this involves reducing the progression of chronic diseases through early detection (usually by screening at an asymptomatic stage) and early intervention.

- An example of secondary prevention is dietary management and the promotion of physical activity for people at risk of diabetes to reduce or delay the onset of that disease.
- **Tertiary prevention:** this involves improving function and minimising the impact of established disease. It also includes preventing or delaying complications through effective management and rehabilitation.
  - An example of tertiary prevention is cardiac rehabilitation for people who have established CVD and have suffered a heart attack.

The categories in this prevention typology are not absolute and there is inevitably blurring as to how specific preventive interventions are classified. There is also blurring between whether interventions are described as ‘preventive’ or ‘therapeutic’. For example, many people would classify most of the interventions in the tertiary prevention category as treatments, not prevention.

**Prevention can be targetted at individuals** (whether healthy, at risk, symptomatic or with established chronic diseases), **at communities** (including geographically-based communities or specific population groups such as Indigenous people or parents with young children) and **at the total population** (see Figure 1.1). Secondary and tertiary prevention activities are usually targetted at individuals (mainly at high-risk individuals who have multiple risk factors and/or established chronic diseases), while primordial and primary prevention activities can be targetted to the total population or specific communities.

**Figure 1.1: Action to prevent chronic diseases can be targetted at individuals, communities and whole populations**



The focus of this Blueprint is encouraging preventive interventions that reduce the incidence and impact of chronic diseases.

In relation to the prevention typology and approaches outlined in the previous pages, it is clearly desirable first to prevent the development of chronic diseases (the aim of reducing incidence). This means that **there should be a high priority given to primordial and primary prevention strategies that tackle the underlying social determinants of poor health, as well as specific risk factors** (including behavioural and biomedical risk factors) **for chronic diseases**. This is consistent with a systemic approach to prevention that focusses on the risk factors and determinants that are common to many chronic diseases. Intervening early through primordial and primary prevention can help reduce the burden of disease and health system costs associated with the subsequent treatment of people with chronic diseases.

However, it is also recognised that these ‘upstream’ forms of prevention need to be complemented with ‘downstream’ preventive interventions. This includes **reducing the disease burden for high-risk populations including people with risk factors and/or in the early stages of chronic diseases** (the aim of reducing the impact of chronic diseases). Secondary prevention includes, for example:

- Targetting high-risk populations such as people with risk factors for Type 2 diabetes to prevent the onset of disease.
- Screening and the provision of early intervention services for adolescents who may be at risk of mental health conditions such as depression and anxiety.
- Reducing risk factors in people with chronic diseases. For example, the Australian guidelines on CVD emphasise the value of managing absolute risk through a comprehensive approach to tackle multiple risk factors (such as smoking, hypertension, insufficient physical activity, high cholesterol).<sup>43</sup>

These two approaches<sup>44</sup> are sometimes distinguished as:

- ‘population-based’ prevention - taking preventive action to influence outcomes in the ‘total’ population, usually through primordial and primary prevention strategies; or
- ‘high-risk group’ prevention - taking preventive action to influence outcomes in targetted sub-populations (groups of high-risk individuals), usually through secondary prevention strategies.

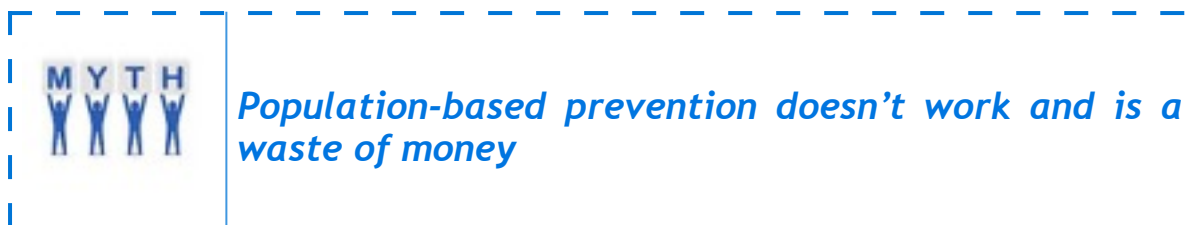
**Both approaches are intended ultimately to influence outcomes for individuals, notwithstanding that they are directed at either the total population or high-risk sub-populations.**

**This Blueprint is intended to promote action through both population-based and high-risk group prevention.** It does **not** cover treatment of patients with established chronic diseases.

One aspect of building support for prevention is setting the facts straight. Section 1.4 is about myth-busting - providing the evidence and arguments to counter some of the common claims made by critics of prevention.

## 1.4 Dispelling the myths - responding to the critics of prevention

Three of the most common criticisms about prevention are assessed and debunked as myths.



In refuting this myth, some of the evidence and arguments that have and can be used by public health advocates include:

*Interventions should always be based on the best available evidence of effectiveness including cost-effectiveness.* Making claims that ‘prevention doesn’t work’ is as flawed as arguing that ‘all treatment works’. In both cases, there should be independent assessment of both the effectiveness of an intervention (does it work?) and its cost-effectiveness (what are the comparative costs and outcomes of an intervention?). There should also be processes for ongoing evaluation and review to allow informed decisions about investment or disinvestment.

Often, it seems as if we hold preventive interventions to a higher standard than treatment interventions. This may partly be due to the ‘rule of rescue’ - that it may be difficult to resist trialling treatments for very ill individuals even if there is no proven benefit of their effectiveness. In contrast, the beneficiaries of successful preventive interventions (such as people who do not develop lung cancer or do not have road accidents) are not usually readily identifiable.

Another reason for the differential assessment of prevention and treatment interventions is that there is no systematic approach to evaluating preventive interventions because of the absence of a dedicated funding stream for prevention. The cost-effectiveness of new medical interventions and pharmaceuticals are assessed for potential inclusion on the Pharmaceutical Benefits Scheme (PBS) and Medical Benefits Scheme (MBS) respectively. It has been proposed that Australia needs a similar approach to assess the evidence on the effectiveness and cost-effectiveness of particular preventive interventions - a Preventative Priorities Advisory Committee (similar to the Medical Benefits and Pharmaceutical Benefits Advisory Committees).<sup>45</sup>

The legislation authorising the establishment of the Australian National Preventive Health Agency (ANPHA) identified the organisation’s first objective as being ‘to effectively monitor, evaluate and build evidence in relation to preventive health strategies’. Given the recent disbanding of ANPHA, it is critical to continue to build, and to communicate, the evidence-base on the effectiveness of population-based interventions in preventing chronic diseases.



*There is robust evidence that some preventive interventions are relatively affordable and score well on cost-effectiveness in that they generate net savings.*

Major Australian and international studies have identified many preventive interventions that both work (that is, they are 'effective') and are cost-effective. In addition to effectiveness and cost-effectiveness, another important criterion is the affordability of preventive interventions. Policy-makers and funders require information on the:

- up-front costs (or affordability) of implementing preventive interventions, including who bears these costs (for example, governments, industry, consumers); and
- return on investment relating to whether these interventions ultimately have a net cost or net savings, again including consideration of who bears/gains the costs/savings of these interventions.

Some interventions may be highly cost-effective, but may have high up-front costs and may not be able to be accommodated within existing budgetary constraints. Other interventions may be relatively affordable (such as government regulation and taxes on unhealthy products) and also perform well on cost-effectiveness.

One of the most important Australian studies is the Assessing Cost Effectiveness (ACE)-Prevention study, which evaluated the effectiveness of 150 preventive health interventions. The assessed interventions included both population-based and high-risk group preventive interventions covering areas such as mental health, diabetes, tobacco use, alcohol use, nutrition, body weight, physical activity, blood pressure, blood cholesterol and bone mineral density.

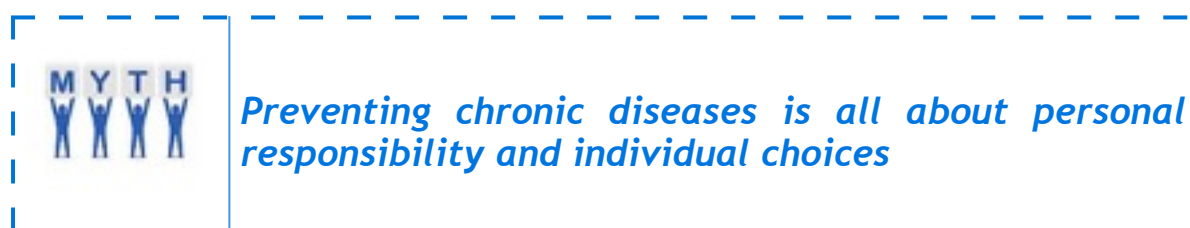
The ACE-Prevention study identified interventions that would reduce risk factors, lessen the burden of chronic diseases and result in net savings. Table 1.2 provides a summary of the benefits of five population-based preventive interventions related to the use of taxation or regulation of tobacco, alcohol and unhealthy foods. These interventions result in healthier lives (fewer years living with a disability) and are highly cost-effective. For example, a 10 per cent tax on unhealthy foods would generate almost \$3.5 billion in cost savings and produce a health gain of 170,000 DALYs prevented. Table 1.2 also includes two preventive interventions targetted at high-risk populations. These interventions would result in healthier lives for people at risk of CVD. There are significant cost savings associated with the polypill, or a combination of blood-pressure lowering drugs, largely due to the inefficient nature of current practice.

**Table 1.2: Impact of implementing the most cost-effective preventive interventions for chronic diseases**

Intervention	DALYs prevented	Intervention costs (A\$ billion)	Cost offsets (A\$ billion)	Net costs (A\$ billion)	Cost/DALY
Tobacco tax 30% increase	270,000	0.02	-0.7	-0.68	Savings
Alcohol tax 30% increase	100,000	0.02	-0.5	-0.48	Savings
Alcohol volumetric tax 10% above current excise on spirits	110,000	0.02	-0.7	-0.68	Savings
Unhealthy foods tax 10%	170,000	0.02	-3.5	-3.48	Savings
Mandatory salt limits on processed food	110,000	0.07	-1.5	-1.43	Savings
Three blood-pressure-lowering drugs to replace current practice of preventive drug treatments	20,000	-1.9	-0.3	-2.2	Savings
Polypill to replace current practice	60,000	-7.0	-0.8	-7.8	Savings

**Note:** DALY is disability adjusted life year.

**Source:** Based on Table 0.1 in: Vos et al. 2010, *Assessing cost-effectiveness in prevention (ACE-Prevention) Final Report*, University of Queensland, Brisbane and Deakin University, Melbourne.



The most common argument used to challenge proposals for population-based interventions is that most chronic diseases could be prevented if people watched what they ate or exercised more. One example of this argument is as follows:

*Lifestyle modification and sustaining changes to unhealthy but often pleasurable behaviours is principally an individual responsibility. Success in avoiding lifestyle disease ultimately depends on personal qualities - will, self-discipline, and impulse control - that public health policies struggle to instil in people who do not already possess them.*<sup>46</sup>

Proponents of personal responsibility sometimes go further and suggest that people with ‘lifestyle diseases’ should not have their health costs met by Medicare.

In refuting this myth, some of the evidence and arguments that have and can be used by public health advocates include:

***The obesogenic environment promotes unhealthy choices:*** There have been major shifts in the availability of unhealthy food and drinks, with growing portion sizes and rising levels of sugar and salt. Such factors effectively ‘hijack biological and psychological regulatory systems that govern eating and weight’<sup>47</sup> creating an environment where it is extremely difficult to make responsible eating choices. There is clear evidence of the critical importance of the changing environment relative to individual choices as a major driver of obesity. For example, research has consistently identified that people moving from less to more obese countries gain weight and those moving to less obese countries lose weight, with a recent systematic review examining the complex factors that contribute to this phenomenon of ‘acculturation’.<sup>48</sup>

***We need to make ‘healthy choices, easy choices’:*** The ‘it’s all down to personal responsibility’ mantra assumes well-functioning markets: that everyone has perfect information about the risks and benefits of particular behaviours; that they act in rational self-interest; and that individual decisions are not influenced by external factors, including societal pressures and environmental conditions. These assumptions are not correct. Behaviours, such as healthy eating, are influenced by the accessibility and affordability of healthy food. Teenagers eat fewer servings of fruits and vegetables and are more likely to be overweight or obese if their schools are within close proximity to fast-food outlets.<sup>49</sup>

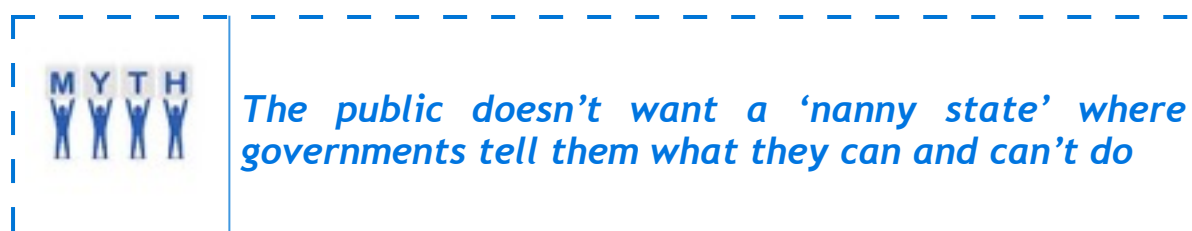
The concept of ‘choice architecture’ is based on reconciling and recognising the complementary roles of individual and collective responsibility. Examples of choice architecture that can ‘nudge’ people towards healthier behaviours include the redesign of menus in school cafeterias or using information to correct misperceptions about levels of binge drinking to create new social norms.<sup>50</sup>

***Some unhealthy consumption involves addictive behaviours which are much more complex to change than simply advocating ‘just say no’:*** Blaming individuals for unhealthy behaviours such as excessive alcohol consumption, tobacco smoking and binge eating habits fails to recognise the complexity of achieving sustained behaviour changes. The challenges in responding to addictive behaviours and compulsions are illustrated through use of electronic and social media. While we might all recognise the increased productivity achievable through only checking our emails at set times each day, very few people can resist the pressure to be ‘in the loop’. Behavioural economics has identified the many ways in which human behaviour is ‘predictably irrational’, rather than conforming to expectations of healthy behaviours.<sup>51</sup>

***Many people, including children, cannot make informed healthy choices:*** Children are no match for industries that manufacture and promote unhealthy products in ways designed to create unhealthy social norms and behaviours. To suggest that this is in any way a level playing field is to stretch the paradigm of personal responsibility beyond the boundaries of credulity. Yet, unhealthy industries consistently deny that they are marketing to children or claim that parents should take responsibility for children’s diets and physical activity levels. Even adults struggle to make healthy choices in the context of our food-rich, hyper-consumption environment where there is an overwhelming amount of ‘choice’ (as exemplified by the dozens of brands for each product line in supermarkets), but very limited factual information to guide those choices. While the Australian Dietary Guidelines exhort people ‘to choose foods and drinks more wisely’,<sup>52</sup> the inadequacy of current food labelling in Australia seriously undermines the ability for either children or adults to make healthy choices.

The ability to make healthy choices is also influenced by social and environmental factors including the level of education, income and social supports. Social and economic disadvantage may severely limit the capacity of individuals to make informed choices about behaviours that are risk factors for chronic diseases. For example, low levels of ‘health literacy’ among people with limited education can influence the ability to make healthy choices. Diminished social capacity means that there is not a level playing field when it comes to taking personal responsibility for healthy behaviours.

The Australian Bureau of Statistics (ABS) defines health literacy as ‘the knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies and staying healthy’.<sup>53</sup> In its 2006 survey, the ABS found that 60 per cent of adults lack basic proficiency in health literacy. This existing problem of low literacy is compounded when information to guide health choices is not readily understandable. A recent Australian study assessed about 250 web pages with information on twelve common health conditions to evaluate their readability compared with the average reading level of Australians.<sup>54</sup> The twelve conditions were: anxiety, arthritis, asthma, back pain, bowel cancer, breast cancer, depression, diabetes, dementia, heart disease, obesity and prostate cancer. Using the aptly named SMOG (Simple Measure of Goobledygook) formula, only 0.4 per cent of web pages were written at or below grade 8, which was the benchmark recommended by SA Health as a guide. The readability of health information web pages varied by health conditions and by sector: information on dementia was unfortunately the most difficult to read, while government health information web pages were significantly harder to read than not-for-profit web pages.



The spectre of the ‘nanny state’ is frequently evoked when governments are contemplating regulations that are designed to keep people healthy. In response to the Australian Government’s proposal to introduce plain packaging for cigarettes, the tobacco industry ran a short-lived media campaign in 2011, with a stern woman (dressed in quasi-prison officer garb) warning smokers of the dangerous precedents that would flow from this legislation. Such critics often characterise government action on public health as ‘paternalistic’ and infringing on personal liberties.

In refuting this myth, some of the evidence and arguments that have and can be used by public health advocates include:

***We should prioritise health outcomes, not commercial interests:*** It is noteworthy that the proponents of the nanny state argument are most often those whose commercial interests are threatened, rather than the intended beneficiaries of government actions. The organised opposition to plain packaging did not come from consumers wary of government intervention, but was driven by the tobacco industry, some retailers and newly-established lobby groups. Astroturfing - the practice of funding and orchestrating apparently independent organisations to simulate grassroots opposition to public health policies - has been used by tobacco and food and soft drink manufacturers in Australia and internationally.<sup>55, 56, 57</sup>



***Governments should act to create a level playing field to counter industry domination and enable informed consumer choice:*** In criticising the nanny state, industry often claims that government regulation is ‘interference’ in the free market and that this reduces personal freedoms. However this can be reframed to recognise that much government action is about allowing individuals to make informed choices, free from the ‘domination’ of industry advertising and other strategies.<sup>58</sup> It is actually industry that plays the role of the ‘nanny’ when it markets junk food to children, when it distorts the facts about the harm caused by alcohol or when it fails to ensure that food products are subject to an effective food-labelling scheme. Action by governments provides a counter-balance to this industry domination. It creates a level playing field so that consumers can make informed choices.

***A pure market ‘buyer-beware’ philosophy is inadequate when health risks are significant:*** There are many examples where governments have responded to evidence of public harm to enact balanced regulation, or take other actions, to keep people safe. This includes: prohibiting the sale of flammable nightwear for children; setting standards and undertaking inspections related to food safety; making it mandatory to use safety glass in showers; banning solariums; and the introduction of age limits for the purchase of alcohol and tobacco products. In these and many other examples, there is legitimate community expectation that governments will act to protect public health, rather than putting the onus solely on individuals to avoid and/or be fully informed about the risks of dangerous products.

***There is popular support for government intervention to protect public health:***

Often, the public is ahead of governments in supporting regulation or other approaches to protect public health. Some examples are:

- In 2013, the National Drug Strategy household survey found that there was majority support for a wide array of interventions to tackle alcohol, including: stricter enforcement of laws against supplying minors (84 per cent); limiting TV advertising until after 9.30pm (73 per cent); requiring information on national drinking guidelines on all alcohol containers (65 per cent); serving only low-alcohol drinks at sporting events (56 per cent); and banning alcohol sponsorship of sporting events (54 per cent). While most people don’t support increasing the price of alcohol (28 per cent), there is substantial support for increasing the tax on alcohol to pay for health, education and the cost of treating alcohol-related programs (44 per cent).<sup>59</sup>
- Australians have strong concerns about the health risks of childhood obesity and support actions to reduce consumption of junk food among children. In 2012, a national survey found that most people support a ban on advertising junk food during children’s programming (77 per cent).<sup>60</sup> Other approaches to discourage consumption of junk food by children are also well supported. Most Australians (77 per cent) support making the Health Star rating mandatory on all packaged foods, while half (50 per cent) support a tax on junk food/sugary drinks.<sup>61</sup>

## 2.Strategic priorities - turning knowledge into action



Translating public health knowledge into action requires community and political commitment.

As the old joke goes, the light bulb has to want to change!

Creating the climate and commitment for change is at the core of this Blueprint and is outlined in this section.

Having and communicating the evidence-base on the preventability of chronic diseases is not sufficient to ensure action. It took many decades from the publication in the 1950s and 1960s of scientific studies and the US Surgeon-General's reports on the dangers of tobacco smoking before governments took decisive regulatory and other action to reduce smoking rates.<sup>62, 63</sup>

For preventive action to happen, the knowledge base needs to be complemented by political commitment which, in turn, is shaped by community attitudes.<sup>64</sup> The knowledge base also needs to be translated into a set of actionable strategies, with accountability through public reporting for delivery of such strategies and measurable improvements in the outcomes sought.

Section 2.1 outlines a set of core principles that are central to the Blueprint action agenda and provide a common platform for interventions to prevent chronic diseases. Sections 2.2 to 2.4 present specific actions that will be promoted and supported through this Blueprint. These are grouped under three strategic priority areas:

1. Driving healthy behaviours and healthy environments;
2. Creating accountability for action and monitoring progress; and
3. Generating community support for action on prevention.

Finally, Section 2.5 outlines the need for a partnership approach where all groups have a role in taking action to prevent chronic diseases.

### 2.1 Core principles - a common framework for action on chronic diseases

Seven core principles have been identified to shape actions to reduce the impact and incidence of chronic diseases. These are detailed on the following pages.



### **Systemic approach**

✓ **Focus on common risk factors and determinants not individual diseases**

The rationale for a systemic approach to chronic diseases was clearly illustrated in Table 1.1. Chronic diseases share many common risk factors and determinants. This extends beyond the more commonly understood ‘health behaviours’ (the SNAP quartet of smoking, nutrition, alcohol and physical activity) to a range of biomedical factors and social and environmental determinants. Taking joint action across multiple chronic diseases leverages the shared risk factors and determinants for many of these diseases.

### **Evidence-based action**

✓ **Act now using best available evidence, continue to build evidence**

The Australian Health Policy Collaboration’s Issues Paper - *Chronic diseases in Australia: the case for changing course*<sup>65</sup> - identified the wealth of information available on cost-effective interventions to prevent chronic diseases. Further sources of evidence on cost-effective interventions are also provided later in Section 2.2 of this Blueprint. For now, the key messages are that:

- We have good evidence on preventive interventions that are cost-effective.
- Drawing upon this evidence, we should use existing funding more constructively by ensuring that investment is directed at cost-effective preventive interventions. The corollary is that we should not implement interventions that are not cost-effective.
- We should continue to collect and synthesise the evidence on preventive interventions.

The evidence on the effectiveness of specific prevention interventions needs to be communicated and translated for policy-makers, public and private funders and other organisations that may have a role in implementing these interventions (such as local councils and workplaces). A range of Australian organisations already undertake this role, including the Sax Institute, the Centre of Excellence in Intervention and Prevention Science, and the Cochrane Public Health Review Group at the McCaughey VicHealth Centre for Community Wellbeing. Despite the existence of these organisations and the landmark Australian ACE-Prevention study, there is still limited awareness about the evidence-base for preventive interventions.

The other important element of this core principle is that instead of deferring action until definitive analyses are available, prevention advocates need to recommend action using the best available evidence. Critics are often quick to claim that ‘further studies are required’. For example, in their opposition to the introduction of plain packaging in Australia, the tobacco industry argued sequentially that ‘it’s never been done before’ and therefore ‘there’s no evidence it will work’.<sup>66</sup> Rather than be dissuaded by these tactics, prevention advocates worked with the Australian Government to assemble and review the evidence, including commissioning a series of studies to specifically test the design elements of the proposed approach to plain packaging.



**Tackling health  
inequity**

**✓ Work to improve and redress inequities  
in outcomes**

The importance of social determinants in influencing the development of chronic diseases, together with the well-known gradient of disadvantage for many health behaviours such as smoking and drinking, makes it vital that preventive interventions also target disadvantaged communities and populations.

It is not sufficient to simply achieve risk factor reductions at a whole-of-population level. Instead, special focus is required to ensure that preventive interventions have reach and effectiveness in populations that have worse risk factors and poorer health outcomes.

**National agenda  
with local action**

**✓ Build commitment and innovation with  
local action**

This principle recognises the importance of working to achieve prevention from ‘both ends’ - driven or informed by a national agenda but with ownership and engagement by local communities.

Local action is important for several reasons. First, it helps build the community commitment for change that will be necessary for governments to make tough decisions. Second, it helps foster innovation and the development of local solutions to complex problems that require a multi-faceted approach, such as obesity. Third, local engagement is critical in achieving change in hard-to-reach and/or disadvantaged communities that otherwise may not be receptive to top-down preventive interventions.

In its report on preventing alcohol-related harm, the National Preventative Health Taskforce (NPHT) summed up the value of local action as follows:

*The contribution of community-level action is significant, and is integral to the effective implementation of federal, state and local government policies and programs (pg 4).<sup>67</sup>*

**A life course  
approach**

**✓ Intervene early and exploit prevention  
opportunities at all ages and across  
generations**

A life course approach includes acting early to prevent chronic diseases before their onset. It includes opportunistic actions, as people age and develop risk factors, to reduce the impact of chronic diseases in high-risk populations. It also recognises the intergenerational risks for the development of chronic diseases.

As risk factors accumulate over a lifetime, interventions early in life can reduce the incidence of some risk factors and the subsequent development of chronic diseases. Initiatives to discourage children from ever smoking are an obvious and well-known example.

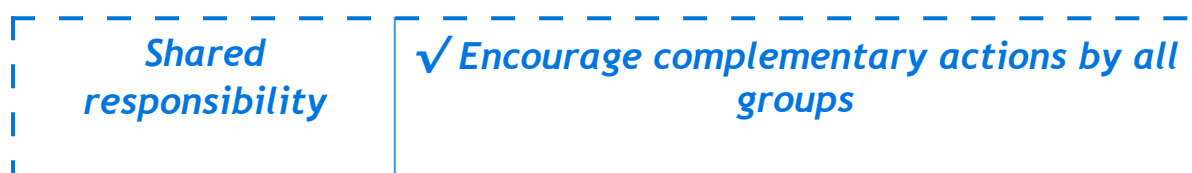
At early ages, other important initiatives are those that seek to tackle social disadvantage and create healthy environments for children’s physical, mental and emotional development. This includes programs that foster resilience in adolescents<sup>68, 69</sup> to help them build a strong adaptive response to adversity and to act as a ‘vaccine’ to prevent mental illness in young people and the uptake of risky behaviours such as drug use or binge drinking.

The adoption of a life course approach recognises the importance of distal factors including social and economic determinants of health. Hence, a life course approach also involves taking preventive action across all settings of life - such as schools, workplaces and community events - rather than taking a narrow focus that disease prevention only happens in health care settings.

There is also an accumulation of chronic disease risk factors as people age. The identification and management of high-risk groups - people with multiple risk factors and/or in the early stages of chronic diseases - requires secondary prevention that is usually delivered by primary health care and other health professionals. There is also an increasing focus on secondary prevention in other settings through, for example, diabetes assessment programs in the workplace.

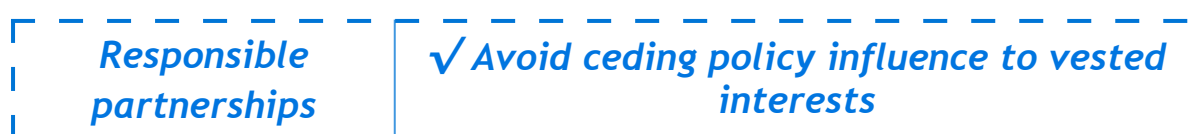
A life course approach also recognises that chronic diseases do not only impact across the life cycle of individuals, but that the risks of chronic diseases can be ‘transmitted’ across successive generations. This intergenerational aspect of the development of chronic diseases includes increased risk for chronic diseases due to epigenetic factors and social determinants that may affect the health and life chances of successive generations of families. For example, intergenerational factors that increase the risk of obesity include maternal gestational diabetes, maternal birth weight and parental obesity.<sup>70</sup>

In summary, a life course approach is based on early and opportunistic approaches to prevention at all ages and in all settings to protect the health of individuals, families and subsequent generations.



As stated most succinctly by the NPHT, ‘prevention is everyone’s business’.

This principle eschews the idea that unless governments take action, no significant gains will be made in preventing chronic diseases. The priorities adopted by governments change over time, meaning that prevention will not always be ‘top of the agenda’ for governments. While governments undoubtedly have an essential role in tax and regulatory policies, many other preventive interventions can involve leadership and/or participation by other agencies.



Corporations (including food, alcohol and tobacco manufacturers) have obligations to their stakeholders to increase consumption of their products, but such consumption is incompatible with the public health objective of reducing exposure to risk factors for chronic diseases. Although governments may seek technical input from these corporations, industry should not participate in processes that directly advise or guide government policy. Such involvement constitutes ‘regulatory capture’ and creates a strong risk of public health objectives being compromised by commercial interests.

Recent experience with food labelling provides an example of public health goals being subverted through the involvement of industry. Public health advocates have not been able to achieve ‘traffic light’ labelling on food despite it being initially recommended in 2009 by the NPHT and in 2011 by a Council of Australian Governments (COAG) commissioned review of food labelling law and policy.<sup>71</sup> Instead, the Health Star rating system has been introduced on a voluntary basis only, with almost no promotion by government or industry to communicate how the scheme works and its benefits to consumers.

Related to this, in 2009 the Australian Government established the Food and Health Dialogue (which includes public health, government and food industry representatives) to raise the nutritional profile of foods through reformulation, consumer education and portion standardisation. A recent assessment of the Food and Health Dialogue found that:

*Few targets have been set, little objective evidence about progress has been provided, and there is a low likelihood that any real health gains have been achieved ... In the context of an industry in which profitability is substantially aided by the addition of salt, sugar and fat to foods, it is perhaps unsurprising that a voluntary model based on a public-private partnership faces these challenges ... In particular, it will be necessary to develop mechanisms that control for the significant conflicts of interest that exist for influential industry umbrella organisations like the Australian Food and Grocery Council. While it is reasonable for such bodies to argue for a system that maximises profits, the Dialogue was established to reduce health problems, and this is not currently being achieved.<sup>72</sup>*

## 2.2 Strategic priority one: driving healthy behaviours and healthy environments

The first strategic priority is effectively the ‘what to do’ element of this Blueprint.

There are many hundreds of interventions that could be implemented to prevent chronic diseases. **Decisions about which interventions to implement will vary across time, settings and the perspective of stakeholders.** For example, the NHPT focussed on interventions related to tobacco, alcohol and obesity and identified interventions for action by governments, reflecting its remit and role. Non-government organisations, community groups and health professionals will legitimately have different priorities as they have alternative levers available to them to influence the risk factors and determinants of chronic diseases.

Accordingly, this Blueprint does not present a definitive list of priority actions. Such a list runs the risk of becoming outdated (for example, as new evidence emerges on the effectiveness of particular interventions) or less relevant (for example, as political agendas change, necessitating a ‘reframing’ of prevention priorities).

Instead, this Blueprint provides a high-level strategic framework to guide decisions about how to select and prioritise prevention interventions to reduce the incidence and impact of chronic diseases. In doing so, examples of important preventive interventions are highlighted, as are sources of information on how to assess and implement preventive interventions.

In overview, the strategic framework for driving healthy behaviours and healthy environments involves:

- Setting objectives for improved health (and other) outcomes that are underpinned by a systemic approach to preventing chronic diseases; and
- Assessing potential interventions to achieve these objectives against a set of criteria that can help provide guidance about when to implement (or advocate for the implementation of) specific preventive interventions.

These tasks are obviously closely related to the other strategic priorities included and discussed in subsequent sections of this Blueprint:

- Creating accountability for action and monitoring progress; and
- Generating community support for action on prevention.

### ***Setting objectives for improved health and other outcomes***

The one-page overview of this Blueprint identified seven ‘action areas’ under the strategic priority of *driving healthy behaviours and healthy environments*.

1. Healthier diets
2. Making smoking history
3. Increase physical activity
4. Decrease harmful use of alcohol
5. Better mental health
6. Decrease biomedical risk factors
7. Tackle social determinants of health

These seven action areas are derived from Table 1.1, which identified the main risk factors and determinants (see column 2) contributing to many chronic diseases, as follows:

- The **health behaviours** that are the most common risk factors for many chronic diseases have been directly mapped to the first four action areas.
- Of the **biomedical factors** listed in Table 1.1, the risk factor of ‘depression’ has been mapped to a higher-level action area of ‘better mental health’. The other three biomedical factors (hypertension, high cholesterol and excess weight) have been mapped to the high-level action area of ‘reducing biomedical risk factors’. This recognises that:
  - many of the actions to tackle excess weight are captured under the action areas of ‘healthier diets’ and ‘increasing physical activity’; and

- the evidence on management of biomedical risk factors stresses the importance of taking a comprehensive approach across multiple risk factors, instead of focussing on individual risk factors. The most well-known example of this approach relates to CVD. The Australian guidelines emphasise the importance of measuring and managing absolute risk for CVD based on the combined effect of multiple risk factors.<sup>73</sup>
- The **social and environmental determinants** listed in Table 1.1 have been mapped to the high-level action area of ‘tackling the social determinants of health’.

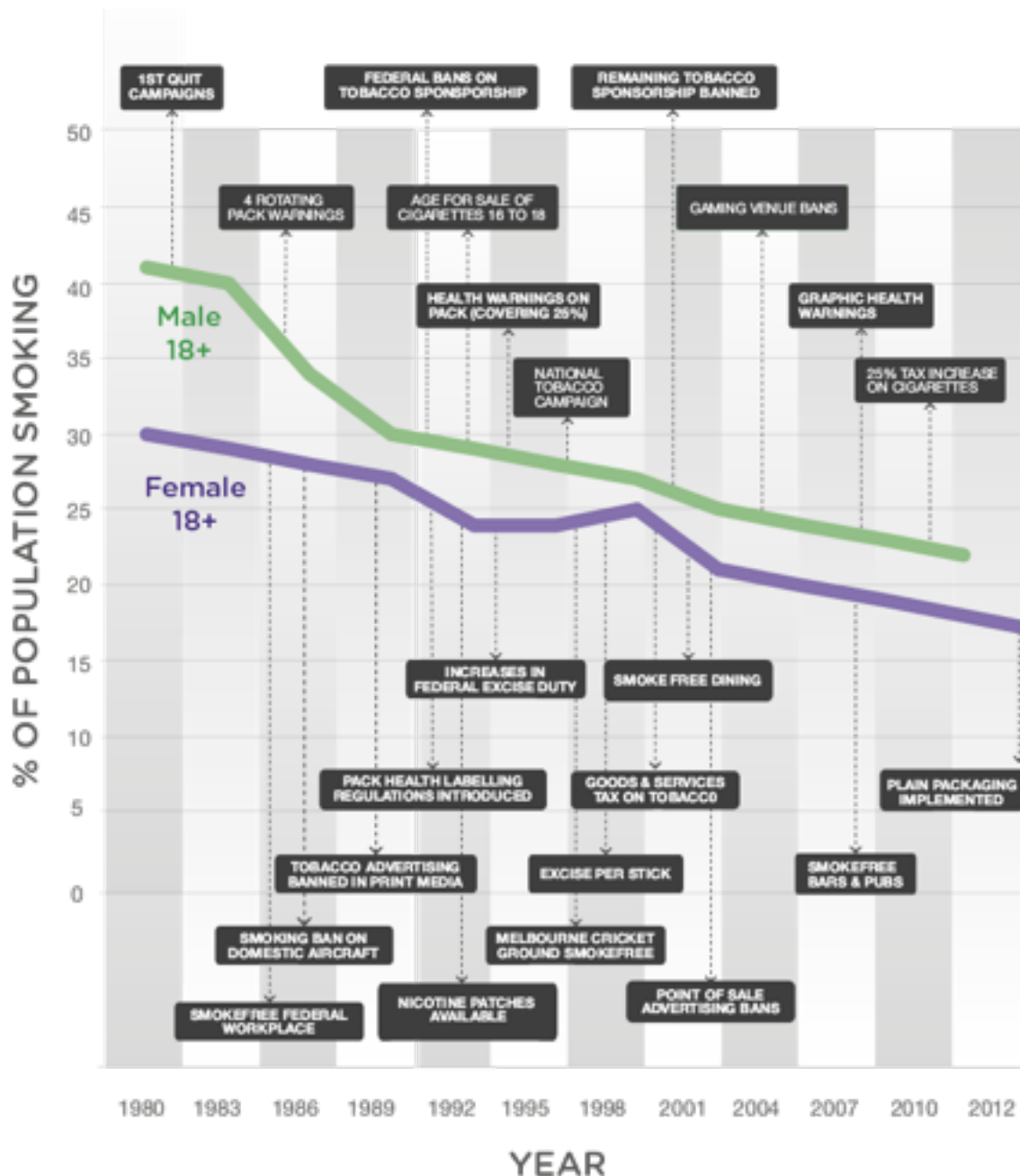
**The purpose of having these seven action areas as broad objectives is to ensure that there is a systemic approach to preventing chronic diseases.** The ‘systemic approach’ principle has previously been described as involving a focus on common risk factors and determinants, not individual diseases. However, **the systemic approach principle can be further understood to include:**

- taking action on **multiple risk factors and determinants**;
- taking action using a **range of policy levers and tools** (this recognises the complex nature of the changes that are required to tackle risk factors and determinants);
- taking and encouraging action by **multiple participants** (this recognises the complementary roles of different groups and their different capacities for action); and
- taking and encouraging action in **multiple settings** (this recognises that there are many opportunities for tackling the risk factors and determinants including health care settings, workplaces, schools and community groups).

Box 2.1 provides two examples of the value of a systemic approach to preventing chronic diseases. Both examples illustrate the value of using a comprehensive array of complementary and reinforcing levers (such as fiscal policy, regulation, education, product safety changes) with different participants (such as governments, health professionals, industry, local organisations) responsible for, and contributing to, a coordinated web of action.

## Box 2.1: Systemic approaches to preventing chronic diseases

The value of a systemic approach is well-illustrated by Australian action on tobacco control over many decades, as shown in the diagram produced by the ANPHA. Tobacco control has involved multiple policy levers and tools - regulation, taxation and pricing, advertising and educational campaigns.



Source: ANPHA 2013, *State of preventive health 2013*, Canberra: ANPHA

### Box 2.1: Systemic approaches to preventing chronic diseases (cont'd)

Another good example of the value of multi-faceted action is shown in the NOURISHING framework developed by the World Cancer Research Fund International to describe actions that can be taken to promote healthy diets and reduce obesity.<sup>74</sup> The NOURISHING framework comprises:

- **Nutrition label standards and regulations** on the use of claims and implied claims on foods;
- **Offer healthy foods** and set standards in public institutions and other specific settings;
- **Use economic tools** to address food affordability and purchase incentives;
- **Restrict food advertising** and other forms of commercial promotion;
- **Improve the nutritional quality** of the whole food supply;
- **Set incentives and rules** to create a *healthy retail and food service environment*;
- **Harness the food supply chain** and actions across sectors to ensure coherence with health;
- **Inform people** about food and nutrition through *public awareness*;
- **Nutrition advice and counselling** in health-care settings; and
- **Give nutrition education and skills.**

Once, again, the NOURISHING framework does not rely on single interventions, but involves many interventions targetted at different aspects of the issue, including food supply, individuals and behaviour change, and the environment and context in which food is available.

### Assessing preventive interventions to determine implementation priorities

Seven assessment criteria have been identified that could assist in making priority-setting decisions about the implementation of specific preventive interventions. These are:

1. What is the evidence on the effectiveness of the intervention?
2. Are there successful working models for the implementation of the intervention?
3. Is the intervention cost-effective?
4. Is there political support for action on the intervention?
5. Is there community support for action on the intervention?
6. What is the magnitude of the health burden that the intervention is targetting?
7. What will be the impact of the intervention on reducing health inequities related to chronic diseases?

Many of these assessment criteria are closely related. Each is briefly explained on the following page.





### ***Evidence of effectiveness***

In making decisions about which preventive interventions to implement, an obviously important criterion is their comparative effectiveness. Effectiveness has to be assessed against a specified outcome and is not an innate property of the preventive intervention. A commonly used approach in assessing effectiveness is the PICO approach, namely:

- define the **P**opulation in which the intervention is being tested;
- define the specific **I**ntervention;
- identify the **C**omparator against which the intervention is being assessed; and
- define the **O**utcomes against which improvement should be measured.

Using tax on sugar-sweetened beverages (SSBs) as one example, studies reviewing its effectiveness would specify the population (for example, children, low-income adults) for which measurement of outcomes (for example, reductions in consumption of SSBs, weight loss) and the comparator against which the intervention is being tested (for example, no tax, different levels of tax).

**Table 2.1 includes some of the many sources of evidence for the effectiveness (and the cost-effectiveness) of preventive interventions.** The sources listed provide information through systematic reviews, public health and clinical guidelines, knowledge databases and implementation tools for policy-makers, health practitioners and other groups seeking to implement interventions to prevent chronic diseases.

**Table 2.1: Sources of evidence on preventive interventions**

Source	Description	Link
Cochrane Public Health Group	Reviews of the effects of population-level public health interventions directed at the social determinants of health	<a href="http://ph.cochrane.org/home">http://ph.cochrane.org/home</a>
Sax Institute	The Evidence Check Library comprises rapid literature reviews that assemble existing research and evidence to answer specific policy questions	<a href="http://www.saxinstitute.org.au">www.saxinstitute.org.au</a>
Health Evidence	Database of over 4,000 quality-rated systematic reviews evaluating the effectiveness of public health interventions	<a href="http://www.healthevidence.org">www.healthevidence.org</a>
Effective Public Health Practice Project	Undertakes systematic reviews related to the effectiveness of public health programs and interventions	<a href="http://www.ehppp.ca">www.ehppp.ca</a>
Public Health Agency of Canada	The Canadian Best Practices Portal includes best practice information for chronic diseases, interventions, public health topics, as well as resources to implement health promotion and disease prevention interventions	<a href="http://cbpp-pcpe.phac-aspc.gc.ca/">http://cbpp-pcpe.phac-aspc.gc.ca/</a>
NICE (National Institute for Health and Care Excellence) (UK)	Includes evidence-based guidance on quality standards, technology appraisals, clinical, public health and social care guidelines	<a href="http://www.nice.org.uk">www.nice.org.uk</a>
Centre for Reviews and Dissemination (University of York, UK)	Forms part of the UK National Institute for Health Research, undertakes systematic reviews on health and public health issues, provides access to several research databases, maintains PROSPERO (the international prospective register of systematic reviews)	<a href="http://www.york.ac.uk/inst/crd/">http://www.york.ac.uk/inst/crd/</a>
Evidence for Policy and Practice Information and Coordinating Centre	Includes an evidence library of systematic reviews of research evidence across many fields including public health	<a href="http://eppi.ioe.ac.uk/cms">http://eppi.ioe.ac.uk/cms</a>
Evidence-Informed Policy Network, WHO	Includes policy briefs, systematic reviews, rapid response and policy dialogue reports aimed at low and middle income countries	<a href="http://global.evipnet.org/">http://global.evipnet.org/</a>

The approaches to assessing the effectiveness of public health interventions<sup>75</sup> may differ from clinical interventions, recognising that many public policy interventions involve real-world changes that are not able to be tested using randomised controlled trials (such as the introduction of mandatory seatbelts).

## **Successful working models**

This criterion is clearly related to effectiveness, but has been listed separately due to the value of being able to point to examples of successfully implemented specific interventions. For example, Australia is now being used as the model for other countries interested in implementing plain packaging of tobacco products; the experience of Mexico in implementing taxes on SSBs is being carefully studied to assess the evidence of its impact and applicability to other countries; and the United Kingdom (UK) is one of the comparator nations for groups interested in the implementation of salt reduction targets.

Having access to working models in Australia or other countries adds real value that moves beyond the ‘does it work’ question to ‘what was needed to make it work’ and ‘what were the barriers that had to be overcome’. For example, an analysis of the UK salt reduction program yielded a ‘how-to’ guide of the key components that were essential in the successful implementation of this program (see Box 2.2). These working models also provide access to policy, scientific, clinical, community and political experts that can be called upon to communicate the benefits of the proposed intervention to local decision-makers.

### **Box 2.2: Implementing a successful salt reduction program in the UK**

A recent study identified the key components that were essential to the development and implementation of the UK’s salt reduction program<sup>76</sup>. The key components for success comprised:

- “(1) setting up an action group with strong leadership and scientific credibility;*
- (2) determining salt intake by measuring 24-h urinary sodium, identifying the sources of salt by dietary record;*
- (3) setting a target for population salt intake and developing a salt reduction strategy;*
- (4) setting progressively lower salt targets for different categories of food, with a clear time frame for the industry to achieve;*
- (5) working with the industry to reformulate food with less salt;*
- (6) engaging and recruiting of ministerial support and potential threat of regulation by the Department of Health;*
- (7) clear nutritional labelling;*
- (8) consumer awareness campaign; and*
- (9) monitoring progress by (a) frequent surveys and media publicity of salt content in food, including naming and shaming, (b) repeated 24-h urinary sodium at 3-5 year intervals.”*

## **Evidence of cost-effectiveness**

The Australian Government has a long history of using cost-effectiveness analysis in determining which pharmaceuticals and medical procedures will be publicly subsidised through the PBS and MBS respectively. While there is no similar assessment mechanism available for population-health preventive interventions, there are clear expectations by governments and other funders that such interventions should be cost-effective.

Section 1.4 indicated that there are many available studies (including the ACE-Prevention study) that have assessed the cost-effectiveness of preventive interventions to reduce the incidence and impact of chronic diseases. Table 2.1 presented a range of sources that can be searched to determine whether there is evidence on the cost-effectiveness of particular preventive interventions.

There is robust evidence on the effectiveness of many preventive interventions, with new evidence accumulating rapidly. To cite one example, Table 2.2 provides evidence from a February 2015 study on the cost-effectiveness of various interventions to prevent childhood obesity. In addition to summarising data on the cost-effectiveness of various interventions in different settings and for different target populations, the authors of this study also highlighted the emerging view that:

*These and other reviews generally suggest that, rather than single-component interventions, the most sustainable and beneficial effect on obesity prevention, involves multiple strategies that focus on meals, classroom activities, sports, and play activities, and involve home, school or kindergarten, and community participants.<sup>77</sup>*

**Table 2.2: Cost-effectiveness of childhood obesity prevention interventions**

Intervention	Setting	Target population	Measure of health gain
<i>Dominant interventions (positive financial benefits and health gains)</i>			
Reduction of advertising of junk food	Media	Children 0-14 years	Dominant (health gains and financial gains)
Education programme to reduce sugar sweetened drink consumption	School	Primary school children 7-11 years	Dominant
Multifaceted targeted programme	School	Overweight or obese primary school children 7-10 years	Dominant
Multifaceted programme including nutrition and physical activity	School	Primary school children 6 years	Dominant
Education programme to reduce television viewing	School	Primary school children 8-10 years	Dominant
Family-targeted programme	Clinical	Obese children 10-11 years	Dominant
<i>Likely to be cost-effective (financial costs are worthwhile for the health gains)</i>			
Medical College of Georgia FitKid project	School (after hours)	3 <sup>rd</sup> grade students	US\$317 per 0.76% reduction in body fat
Be Active Eat Well multifaceted community based programme	School	Primary school children 5-12 years	Net cost per DALY saved AU \$29,798
APPLE multifaceted school-based programme	School	Primary school children 5-12 years	NZ\$664-1708 per kg of weight gain prevented
Multifaceted programme excluding nutrition and physical activity	School	Primary school children 6 years	AU\$21,300 per DALY saved
Cuenca Study school-based physical activity programme	School	Primary school children 9-10 years	€500 saved per 1% decrease in triceps skinfold thickness
Coordinated Approach to Child Health (CATCH)	School	Children 8-11 years	US\$900 per QALY saved
Planet Health	School	Children 11-14 years	US\$4,035 per QALY saved
Family-based group treatment	Clinical	Obese children 7-9 years	€53 per 1% decrease in weight for height

Intervention	Setting	Target population	Measure of health gain
Laparoscopic-adjustable gastric banding	Clinical	Severely obese adolescents 14-19 years	AU\$4,400 per DALY saved
Family-based GP-mediated programme	Clinical	Overweight or moderately obese children 10-11 years	AU\$4,700 per DALY saved
RCT-evaluated lifestyle interventions to treat overweight and obesity	Clinical	Obese children 10-11 years	£13,589 per life-year gained
Family-based group treatment	Clinical	Children 8-12 years	Group treatment gave 14% reduction in overweight prevalence per \$1000 spent
<i>Unlikely to be cost-effective</i>			
Active after-school communities programme	School (after hours)	Primary school children 5-11 years	AU\$82,000 per DALY saved
TravelSMART schools	Neighbourhood	Primary school children 10-11 years	AU\$117,000 per DALY saved
Walking school bus	Neighbourhood	Primary school children 5-7 years	AU\$760,000 per DALY saved

**Notes:** These estimates regard effectiveness in terms of obesity-reduction or change in body-mass index, but not other potential health benefits. DALY = disability-adjusted life year. GP= general practitioner. RCT = randomised controlled trial. QALY = quality-adjusted life year.

**Source:** Lobstein et al. 2015, 'Child and adolescent obesity: part of a bigger picture', *The Lancet*, 18 February (online).

### ***Political support for action***

This criterion recognises the importance of being able to frame and put forward proposals in a way that resonates with each government's agenda and policy priorities. The well-known example in public health circles is of the late Dr Nigel Gray waiting many years for the window of opportunity (a receptive Victorian health minister) to achieve the implementation of VicHealth.

Selecting and advancing preventive interventions will similarly have to be couched in terms that recognise the public policy concerns and issues of the government of the day, both federally and at the state or territory level.

### ***Community support for action***

Political support for change is more likely if it can be demonstrated that there is public support for an intervention. Measuring community support may involve identifying the net gain or loss of a specific intervention for different groups in the population. For example, the costs and benefits of plain packaging of tobacco products may vary across:

- tobacco manufacturers;
- retailers;
- the advertising industry;
- current smokers; and
- non-smokers.

Building community support may often involve analysing and communicating the real costs and benefits of preventive interventions to rebut unsubstantiated claims (for example, about the potential impact of some interventions on employment or costs to industry).

Community support is an important criterion in effecting preventive action and is discussed in more detail in Section 2.4.

### ***Magnitude and type of health (burden of disease) impact***

Chronic diseases can have varying health impacts that include premature mortality and impaired functioning, disability or quality of life. For some chronic diseases such as CVD and many cancers, most of the burden of disease is due to early deaths. For many chronic diseases such as mental health conditions, diabetes and chronic respiratory conditions, reduced quality of life is responsible for most of the burden of disease. Table 2.2 shows that health gains associated with preventive interventions can also be assessed using intermediate measures such as weight loss (or any favourable trends in the SNAP health behaviours).

### ***Impact on overcoming health inequities***

An important issue in assessing preventive interventions is understanding whether they will improve health outcomes equally across the whole population or whether they will be less effective in tackling risk factors in more disadvantaged populations. Policy levers may vary in the extent to which they achieve behaviour change or reduce environmental risk factors for certain populations. For example, tax increases or portraying smoking as ‘not cool’ may be more successful in reducing smoking rates in some population groups than offering QUIT (smoking cessation) programs.

This criterion is obviously closely related to how the initial policy objective is defined, as well as the accountability measures that will be used to measure progress. Having the capacity to measure progress or improvement for key population groups (such as Indigenous Australians, low income groups, young people, migrant communities) is an important element in weighing up which preventive interventions should be implemented.

## 2.3 Strategic priority two: creating accountability for action and monitoring progress

Having identified an approach through which preventive interventions can be assessed and prioritised for implementation, **the next strategic priority is about creating systems of accountability to ensure that preventive interventions are successfully implemented with monitoring and public reporting as to their progress.**

There are several factors driving the decision to place substantial emphasis on accountability in this action Blueprint, including:

- There has been a long history of governments agreeing to high-level ‘strategies’ related to preventing chronic diseases and/or risk factors for chronic diseases. Some of these strategies have been ‘aspirational’ with no translation into specified actions, timelines or budgets to ensure delivery. This was the case with the 2005 National Chronic Disease Strategy and there is a risk that this may occur with future strategies (for example, the National Diabetes Strategy that is under development).
- The disbanding of the ANPHA and the COAG Reform Council, together with the cessation of the National Partnership Agreement (NPA) on Preventive Health, has resulted in a lack of clarity as to where leadership and accountability for action on preventive health resides.
- Balanced against this, the Australian Government is a signatory to the WHO *Global action plan for the prevention and control of non-communicable diseases 2013-2020*, providing a new opportunity to reinvigorate action and reporting on preventing chronic diseases.

Within this context, three different, but complementary, approaches to improving accountability for driving action on preventing chronic diseases have been identified and are outlined in the following pages. In addition to these three action areas, the key message is that rigorous (and preferably independent) accountability mechanisms need to be built into any future commitments on preventing chronic diseases.

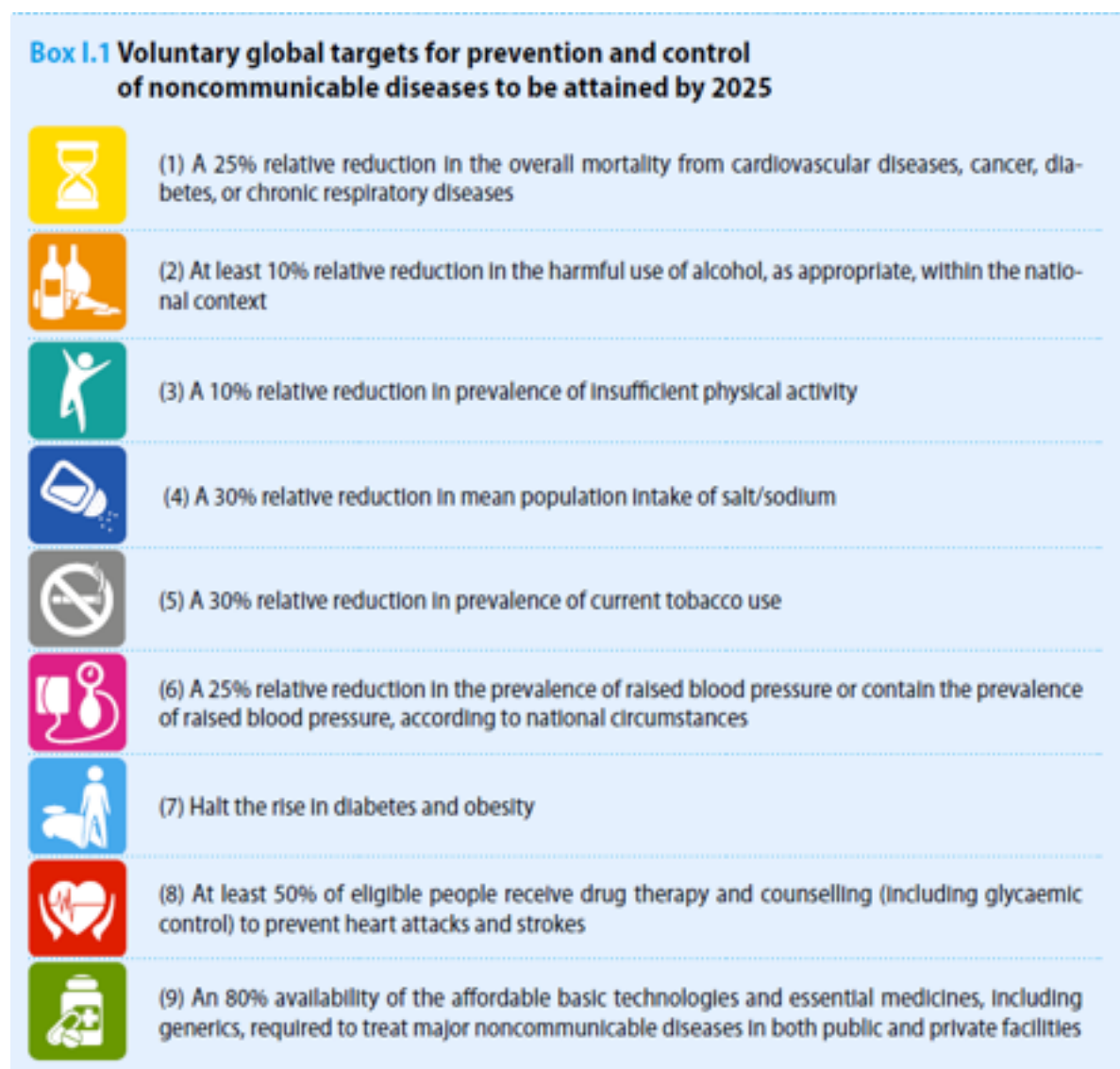
1. Australian implementation of WHO 25 x 25 targets
2. Independent progress report cards
3. Nationally focussed accountability agency

### ***Australian implementation of WHO 25 x 25 targets***

In 2013, the World Health Assembly agreed to the *WHO Global action plan for the prevention and control of non-communicable diseases 2013-2020*.<sup>78</sup> The overall objective of the WHO *Global action plan* is to achieve a 25 per cent reduction in premature mortality from chronic diseases by 2025 - known as the 25 x 25 target.<sup>79</sup> To achieve this objective, the WHO *Global action plan* includes voluntary *global* targets related to risk factors and national system response (see Figure 2.1).



Figure 2.1: WHO has set global targets to achieve a 25 per cent reduction in premature deaths from chronic diseases



Source: WHO 2014, *Global status report on non-communicable diseases 2014*, Geneva: WHO.

The WHO has encouraged governments to set *national* chronic disease targets for 2025, against a 2010 baseline measurement, with progress reporting in 2015 and 2020. As the Australian Government is a signatory to the WHO *Global action plan*, it is expected to set targets that are relevant to Australia (which may vary from the global targets presented in Figure 2.1) and report progress on an ongoing basis. Although the WHO plan involves national governments, state and territory governments in Australia are integral to population-based prevention and have an important role in contributing to achievement of the targets.

The Australian Health Policy Collaboration will work with partner organisations to auspice the development and implementation of an Australian set of indicators and targets that are consistent with the *Global action plan's* objective of a 25 per cent reduction in premature mortality from chronic diseases by 2025.

This proposal for independent auspicing of an **Australian chronic disease prevention indicator framework** is based on the following assessment:

- In *Chronic Diseases in Australia: the case for changing course*, the Australian Health Policy Collaboration reviewed chronic disease prevention targets previously set by Australian governments to determine any overlap with the WHO targets.<sup>80</sup> (Appendix 1 provides a summary table from this earlier report). This review identified that:
  - Australian governments have focussed on a narrow set of areas to measure the prevention of chronic disease. For example, relative to the WHO *Global action plan*, measurable targets have not yet been established by Australia to tackle harmful alcohol use or limit salt intake.
  - The previous Australian targets related to obesity, smoking, physical activity and consumption of fruit and vegetables had the benefit of being challenging ‘stretch’ targets, the achievement of which would result in major improvements in health outcomes.
- With the cessation of the NPA on Preventive Health, there is currently no specific avenue through which the Commonwealth and state and territory governments can jointly agree on actions, including targets and indicators, to prevent chronic disease.
- Even if there was an existing intergovernmental agreement, there is benefit in having a more inclusive and open process for setting targets to prevent chronic disease.

While the scope and approach to developing an Australian set of indicators and targets to prevent chronic diseases will evolve, the following guidelines constitute a starting point for this endeavour:

1. The **selection of domains** for inclusion in a chronic disease prevention performance indicator framework **should be comprehensive**, rather than be limited to domains where there is currently good data and/or sufficiently well-developed performance indicators. The included domains should recognise the importance of both health behaviours and healthy environments as factors amenable to preventive interventions.
2. This work **should build upon existing Australian authoritative policy and data sources**, which could include:
  - Targets and indicators included in previous and existing intergovernmental agreements and frameworks, such as the NPA on Preventive Health<sup>81</sup> and the Performance and Accountability Framework.<sup>82</sup>
  - The NHPT’s advice. For example, the Taskforce proposed that implementation of its recommendations on alcohol harm reduction would result in a reduction from 20 per cent to 14 per cent in the proportion of Australians drinking at short-term risky/high-risk levels.<sup>83</sup>
  - State or territory government population health/chronic disease prevention plans. For example, the NSW state health plan includes measurable targets for reductions in smoking rates, overweight and obesity rates and risky drinking.<sup>84</sup>

3. The development of indicators **should involve input from organisations with expertise in health indicator development, including the AIHW and NHPA.** The AIHW's 2008 report on performance indicators provides an overview of the factors that should be considered in the selection, development, technical specification and reporting of indicators.<sup>85</sup>

### ***Independent progress report cards***

The WHO *Global action plan* provides a current opportunity and an authoritative organising framework through which targets can be set to reduce the incidence and impact of chronic diseases. The process of setting and agreeing to achieve measurable targets represents a quantum leap forward from an approach that simply relies on agreeing to a new chronic disease strategy.

Turning commitments and targets into action requires robust and independent accountability mechanisms. This applies not only to accountability for progress on Australian targets under the WHO *Global action plan*, but progress on other preventive interventions to tackle chronic diseases. Accountability is sometimes a 'closed shop' involving agreements between the Commonwealth and state/territory governments or between governments and industry through 'dialogues'. The risk is that this non-transparent 'mutual accountability' can morph into 'mutual appreciation'<sup>86</sup>, where the parties set less challenging improvement targets or are not sufficiently rigorous in evaluating performance. Good governance requires that accountability mechanisms are transparent and involve independent and impartial assessment.

**Accordingly, the Australian Health Policy Collaboration will work with partner organisations to support the development and publication of regular independent progress report cards on actions and outcomes in reducing the incidence and impact of chronic diseases.**

Our first report, *Chronic diseases in Australia: the case for changing course*, identified the absence of regular public reporting against chronic disease prevention targets. It also noted that there are existing examples of independent groups issuing progress reports on different elements of the health system. This includes:

- **The Australian Medical Association:** The AMA has produced an annual report card on public hospitals since 2007. It uses publicly available information produced by other organisations (such as the AIHW) to assess public hospital performance against government-determined standards and criteria, to identify areas for improvement and to make recommendations for future actions by governments.
- **The National Stroke Foundation:** 2007 was also the year in which the National Stroke Foundation commenced its annual reporting via its National Stroke Audit Program through which it measures and publicly reports on adherence to the Clinical Guidelines for Stroke Management. These reports include new audit data collected from participating hospitals, as well as analysis of existing data from other sources (such as the Australasian Rehabilitation Outcomes Centre). The reports can be used by individual hospitals to benchmark their performance and identify areas for improvement, with recommendations also targetted at governments and other groups able to influence the quality of stroke care.

- **Mental Health Australia:** This organisation (previously known as the Mental Health Council of Australia) produces reports on a range of different aspects of the performance of the mental health system. This has included analysis of issues affecting: mental health carers (2009, 2010, 2012); community mental health services (through the 2003 report, *Out of hospital, Out of mind*); and the status of mental health reforms in each state/territory (through the 2005 *Not for Service* report).

The reports produced by these three organisations are examples of the value of independent reporting by agencies that are separate from government and not directly involved as providers or funders of health care services. While many organisations issue advocacy reports, position statements and budget submissions, the key features of progress report cards that add value (as exemplified by the AMA, the National Stroke Foundation and Mental Health Australia) are that:

- There is **sustained analysis and public reporting on progress** (or lack of progress) against a series of performance measures about improvements required in the health system. The ongoing production of these reports (rather than being one-off) gives them authority and promotes greater engagement by governments, other decision-makers and the community on the issues covered in these reports.
- **Performance measures are explicit** and identified up-front (although they may evolve and be strengthened over time).
- **These reports focus** less on demonstrating the existence and magnitude of the problem, but more on **identifying potential solutions and tracking progress against these solutions**. They include specific proposals for improvement, rather than more generic advocacy submissions (such as calling for increased government funding).

The combination of critical analysis and specific change proposals differs from reports produced by many government agencies, some of which are statutorily (or otherwise) prohibited from making policy recommendations.

The Australian Health Policy Collaboration will work with other agencies interested in chronic diseases to develop an analysis framework that could be used as the basis of regular independent reporting. In the initial years, this analysis framework could be directly based upon a set of Australian performance targets linked to the *WHO Global action plan*. It could include:

- reporting on the Australian ‘baseline’ data for the performance targets;
- specification of the intermediate and final performance targets (including disaggregation of performance targets for specific population groups); and
- identification of a range of preventive interventions that could support meeting the performance targets, together with a proposed implementation plan (including responsibilities and timeframes).

## ***Nationally focussed accountability agency***

This action area is about **embedding responsibility for national accountability for chronic disease prevention within a national agency**. An important distinction is that it is not necessarily about establishing a new agency; instead it is about ensuring that the function of nationally focussed accountability for chronic disease prevention is clearly vested with an agency, or alliance/coalition of agencies. **This agency (alliance of agencies) would assume leadership in reporting on progress and actions to prevent chronic diseases.**

The role of this nationally focussed accountability agency would complement the work of many other organisations (including government, non-government and community groups) with an interest in chronic disease prevention.

The rationale for including a nationally focussed accountability agency as a separate action area (over and above the development and release of independent progress report cards) is as follows:

- An agency with a dedicated responsibility for prevention of chronic diseases helps provide a **rallying point in raising public awareness and building community support for action** on these issues. In the mental health area, the establishment of beyondblue has created much more openness to discuss early intervention and management of mental illnesses. This has been complemented by analytical and consultative work undertaken by the former Mental Health Council of Australia in documenting the need for reform of the mental health system.
- A nationally focussed accountability agency can provide **an organising framework which can help coordinate and integrate** the outcomes of relevant research and projects undertaken by other organisations.

This action area has been described as a ‘nationally focussed’ accountability agency to distinguish its purpose and orientation from its ownership/governance structures. To ensure maximum engagement, it is preferable for such an agency to not be closely aligned to one level of government (that is, not a ‘Commonwealth’ agency). There are some existing models of nationally focussed organisations that receive significant government financial support, but are able to maintain their independence. However, there are inevitable trade-offs in balancing factors that might shape a nationally focussed accountability agency for prevention of chronic disease, including: the level of resourcing; the level of independence in scope, functions and reporting; and the level of authority and ability to influence key stakeholders.

At this stage, **this action area has been identified as a ‘placeholder’ concept**. It will be important to undertake further consultations to identify the level of support and interest in a nationally focussed accountability agency for prevention of chronic diseases. This would involve understanding the value of different models in terms of scope, resourcing and governance.

## ***Some concluding comments on accountability***

The critical importance of robust accountability mechanisms in tackling chronic disease is highlighted in the following commentary on the WHO *Global action plan*:

*Promises are easy to make, but harder to deliver and even more difficult to monitor. In the political declaration from the UN high-level meeting on non-communicable diseases in September 2011, heads of state made many welcome*

*promises. But how should the global community ensure that these commitments are adhered to? How can all partners who support the political declaration be mobilised to ensure that tangible progress is being made on the commitments? In one word, the answer lies in accountability.<sup>87</sup>*

A recently developed framework<sup>88</sup> highlights the value of a multi-stage approach to accountability that involves the participation of governments, the private sector and ‘civil society’ - the individuals and organisations that represent the views and interests of the community. The accountability framework (initially developed to monitor healthy food environments, but with broad applicability to chronic diseases) proposes a four-stage approach, comprising:

1. **TAKE** the account: the first stage involves independent assessment and benchmarking of existing progress. In the context of this Blueprint, this stage can be equated with the baseline measurement of progress that is at the core of the WHO *Global action plan*.
2. **SHARE** the account: the next stage involves communicating progress and recognises the value of independent and credible third parties in disseminating information on progress. An existing example of independent monitoring is found in the work of INFORMAS (the International Network for Food and Obesity/NCDs Research, Monitoring and Action Support). This international network of public interest organisations and researchers has published a comprehensive rating of New Zealand government performance in regard to healthy food environments.<sup>89</sup> This Blueprint has also emphasised the value of independent progress report cards, with the Australian Health Policy Collaboration committing to develop an analytical framework that will support regular progress reporting on preventive action on chronic diseases.
3. **HOLD** the account: this step is about ‘enforcement’ - the application of a range of incentives and disincentives to advance progress and ensure that commitments are turned into action. It involves taking action for non-compliance and failure to meet agreed performance targets. While enforcement is often viewed as a government responsibility, non-government organisations are increasingly holding both governments and the private sector to account. Accountability includes an important role for the ‘public voice’ through community mobilisation and action to demand changes that will reduce the incidence and impact of chronic diseases (discussed later in Section 2.4).
4. **RESPOND** to the account: the final step is about closing the loop through system-wide improvements to policies and actions.

The three action areas outlined in this Blueprint to strengthen accountability for taking action on preventing chronic diseases are underpinned by the principle of shared responsibility. Accountability is not simply about national governments holding state and territory governments or the private sector to account for their performance. It also involves bottom-up accountability with the community providing feedback to all levels of government and the private sector on progress in preventing chronic diseases. Accountability for action should be assigned, measured and reported as follows for different:

- **levels of government:** Commonwealth, state/territory and local governments;
- **settings:** workplace, schools, community groups;
- **geographic areas:** states/territories, local communities; and
- **population groups:** adults/children; population groups based on factors such as Indigenous status, socio-economic status, ethnicity.

Unless accountability is translated into measuring actions and progress at a local level, there is scope for significant pockets of ongoing poor progress with preventing chronic diseases. This leads into the third strategic priority.

## 2.4 Strategic priority three: generating community support and action on prevention

The third strategic priority is driven by two core assumptions, namely:

1. Action by government is necessary, but not sufficient, to prevent chronic diseases. While governments need to take responsibility for some actions such as regulation and tax, **many of the levers to prevent chronic diseases sit outside governments** - with community groups, individuals and families and the full range of non-government organisations. The corollary of this is that prevention advocates cannot simply rely on calls for more government funding or regulation, but must also seek to identify the contributions that can be made outside governments.
2. **Community support is essential to achieving success in preventing chronic diseases.** Using nutrition and food safety as an example, it is clear that community support operates at several different levels:
  - Community support - the 'will of the people' - is often critical in **encouraging governments to act.** Governments are now considering country-of-origin food labelling in response to community concerns arising out of health and safety issues with some imported food products.
  - Many preventive interventions (whether initiated by government or by other parties) will not be effective unless **the community gets behind the intervention.** For example, a future evaluation of the Health Star food labelling system may find that this initiative has been ineffective. This will only change if there is widespread education and information about the scheme and consumers use their purchasing power to choose healthier products and reject those from manufacturers that fail to include the Health Star labelling.
  - **Communities can initiate actions** at a local (or a state/territory) level that are **customised to local circumstances and priorities.** Examples include actions taken by individual schools to restrict the sale of unhealthy food products in school canteens and the phenomenon of farmers' markets linked to public interest in the locavore movement.



Within this strategic priority, three potential action areas are outlined. These are illustrative of some of the many streams of community support and action that could reduce the incidence and impact of chronic diseases.

1. Community data and attitudes
2. Social media and smart technologies
3. Chronic disease local action communities

### *Community data and attitudes*

This action area covers two domains:

- Ensuring there is **robust data on risk factors, biomedical factors and social/environmental determinants that is sufficiently disaggregated** so that local communities can make informed decisions about their chronic disease priorities and where they want to take local action.
- **Capturing community attitudes on priorities for action** on chronic diseases including specific preventive interventions in order to encourage action by governments, businesses and other relevant groups.

One of the factors in mobilising community action is access to relevant information and data about the magnitude of chronic disease problems at a local level. However, this is challenging as there are still significant data gaps at the national level and there is also little focus on making data accessible for easy use by local communities.

At the national level, some of the data and/or analysis gaps and infrequent collection of key data include:

- the last Australian Burden of Disease study was based on 2003 data, with the new study (based on 2010 data) being released in several stages in 2015 and 2016;
- linked to this, reports on health expenditure associated with chronic diseases are quite dated; most AIHW publications on health expenditure for various chronic diseases relate to 2008/09; and
- there was more than a 15-year gap between the administration of the 1995 National Nutrition Survey and the 2011-12 Australian Health Survey (which included some data on nutrition, physical activity and biomedical measures).

On the positive side, there is relatively frequent collection of national data on drug and alcohol use (including tobacco) through the National Drug Strategy Household Survey and other surveys conducted by groups such as Cancer Council Victoria.

Among the most valuable data for use by local communities are the regular population health surveys undertaken by many state/territory health departments, with examples including:



- The NSW Adult Population Health Survey and the Child Population Health Survey;
- The Victorian Population Health Survey and the Victorian Health Monitor;
- The WA Health and Wellbeing Surveillance system;
- The SA Health Omnibus/Health Monitor Surveys; and
- The Queensland Population Health Surveys.

Turning to community attitudes, the conduct of surveys and opinion polls to gauge community interest and support for preventive interventions is often critical in driving changes by governments and businesses. There has been a long history of including attitudinal questions in surveys on smoking behaviour and this also occurs in the National Drug Strategy household surveys. Combining data on risk factor behaviours and attitudes can provide a stronger case for reform (for example, many surveys have shown that smokers favour restrictions which limit advertising or availability of tobacco products to protect children).

Data on community attitudes to preventive interventions targetting nutrition, physical activity, biomedical factors and social determinants have not been routinely collected. There has not been the same level of sustained investment in credible, ongoing research on these issues by governments, non-government organisations or universities. In part, this reflects the lack of a clear ‘home’ for such research (contrasting, for example, with the long-term ‘ownership’ by cancer councils of survey data on smoking attitudes and behaviours). In part, it may also reflect the relative under-development of policy around desirable preventive interventions in these areas.

### *Social media and smart technologies*

**The significant role of social media and smart technologies in many people’s lives provides new avenues to manage risk factors and to encourage healthy behaviours.** The juxtaposition of these technologies and the learnings from behavioural economics support options that combine personalised communication strategies with online support and monitoring (including both professional and peer group support) to help people prevent and manage risk factors and chronic diseases.

The opportunities afforded by social media and smart technologies span the spectrum, as follows:

- **Encouraging healthy behaviours** among asymptomatic (low-risk, healthy) people.
- **Early intervention** for people with behavioural or biomedical risk factors.
- **Secondary prevention** to reduce the progression of chronic diseases among high-risk groups.

The ‘quantified self’ phenomenon involves individuals self-tracking biological, physical, behavioural or environmental information through smartphones, apps and wearable technology. Reports from the US indicate that: 60 per cent of adults are currently tracking their weight, diet or exercise routine (risk factors) and 33 per cent are monitoring factors such as blood sugar, blood pressure, headaches or sleep patterns (biomedical factors). In addition, 27 per cent of US internet users track health data online; and 9 per cent have signed up for text message health alerts.<sup>90</sup> There are at least 40,000 smartphone health applications available,<sup>91</sup> and it is estimated that by 2016 there will be 80 million sports, fitness and wellness wearable devices in use.<sup>92</sup>

While health-related self-tracking may have initially been limited to ‘gym junkies’ and high-income, healthier populations, there are now very high levels of smartphone/device ownership and social media use across Australia. About half (46 per cent) of Australians surveyed are using social media at least daily<sup>93</sup>, with high shares of users employing social media to get information on news and current events, to undertake research and to find people with similar interests (all factors that might align with taking action to prevent risk factors and chronic diseases). The use of smart technologies is also resulting in ‘quantified communities’: one example is employment-based fitness challenges where teams of staff compete to monitor their physical activity over a fixed period of time.

Moving beyond the use of these technologies in healthy individuals, there is also burgeoning use of online interventions or portable devices in supporting people with risk factors and/or chronic diseases. Telehealth and ehealth options are particularly well-developed in mental health. The UK Psychology Online service provides cognitive behavioural therapy via instant messaging with a qualified therapist.<sup>94</sup> Australia has many well-established online mental health early intervention and support services including MoodGym, ReachOut and e-Couch<sup>95</sup>, often with a focus on adolescents and young people (who experience a high prevalence of mental health problems). GPS tracking devices have been used to balance independence and safety for older people in the early stages of dementia through the ability to set virtual boundaries (with alerts to family members). Sensors and health apps can help patients with chronic conditions better manage their diseases, as well as providing downloadable data for review by health professionals. For example, Asthmapolis track’s use of different types of asthma medication by a patient with an inhaler sensor<sup>96</sup>. The UK-based innovation foundation, Nesta, has estimated that the adoption of ‘people-powered health’ innovations to manage patients with long-term health conditions could achieve savings of 20 per cent of health costs.<sup>97</sup>

Targetted messaging, personalised coaching of individuals in the early stages of chronic diseases and promoting change through peer/community groups of like-minded individuals provide new prevention opportunities that support patient empowerment and have potentially very extensive reach. This changes the paradigm about responsibility for prevention being focussed around individual interactions between patients and health professionals to a scenario where individuals access information and advice from many sources. One of the obvious challenges in this environment is ensuring that there are high-quality sources of information to support evidence-based behavioural change and risk factor management. Another implication is the need to evaluate the cost-effectiveness of these new approaches to reducing risk factors and preventing chronic disease progression compared to more traditional ‘static’ educational campaigns (such as advertisements on nutrition and physical activity).

This action area of social media and smart technologies is one where governments are not necessarily well-placed to take leadership, with most of the innovation occurring in the private and non-government sector. However, some governments are crowdsourcing the policy problem for solutions to be developed by the private sector. In the US, government agencies use [www.challenge.gov](http://www.challenge.gov) to specify ‘challenges’ for which solutions are required, including in the health risk factors and chronic disease prevention/management space. Recent examples include:

- VizRisk: a challenge to submit health risk data visualisations that inform personal and policy decisions.
- 2014 million hearts hypertension control challenge: a challenge that identified 30 hypertension ‘control champions’ who had developed successful approaches to management of hypertension.
- Behavioural health patient empowerment challenge: a challenge seeking the best apps that empower patients to manage their behavioural health (for mental health and substance abuse issues).
- Reducing high-risk drinking among college students: a challenge seeking technology-based products to decrease the acceptability of, and engagement in, high-risk drinking among university students.

### *Chronic disease local action communities*

Action at the local level provides a vital complement to national or state and territory government action and allows involvement of a wide array of groups. This can include:

- **groups ‘outside’ the health sector**, including sporting clubs, church groups, school canteen groups, local councils, neighbourhood residents’ associations, local businesses and many other groups; and
- **health sector groups**, including Primary Health Networks, local health networks and other health professionals.

Many local councils have taken a longstanding interest in population health issues including links to broader planning, transport and urban design policies. In Victoria, for example, local councils are required to develop municipal public health and wellbeing plans that have the objectives of preventing or minimising public health dangers and enabling people living in the municipality to achieve maximum health and wellbeing. Promoting ‘liveability’ and ‘healthy communities’ is also likely to be of interest to local businesses and employer groups.

For health sector providers, much of the focus is on secondary and tertiary prevention for high-risk populations with risk factors or chronic diseases. However, this is less the case for Medicare Locals and the new Primary Health Networks, which have legitimately had a stronger focus on needs assessment and population health planning.

**In terms of ‘activating’ or supporting local groups to take action on preventing chronic diseases, local councils and Primary Health Networks provide two structural mechanisms that could play an important role.**

### *Some concluding comments on community support and action*

The three action areas described above only skim the surface of the substantial, but underutilised, capacity for local action in preventing chronic diseases. By definition, local actions cannot be ‘prescribed’ from a top-down perspective, although national or state and territory government support can encourage their uptake and the dissemination of successful local actions to other communities.

**The Australian Health Policy Collaboration is committed to actionable policy proposals that span the continuum from national to local/grassroots actions to prevent chronic diseases.** In terms of the overall strategic priority of generating community support for action on prevention, the Australian Health Policy Collaboration will work with partner organisations to:

- Identify existing gaps in community data and attitudes in order to inform investment priorities for research in these areas.
- Map examples of best practice in the use of social media and smart technologies in preventing chronic diseases in order to build awareness and increased utilisation of the opportunities afforded by these mechanisms.
- Identify ‘local success stories’ in actions to prevent chronic disease in order to encourage translation and uptake of local successes more broadly.

## 2.5. Partnerships - sharing responsibility for action

**PARTNERS:** Individuals and families, community groups, educational institutions, local governments, health services, private health insurers, employers and business associations, sporting associations, non-government organisations, the media and advertising industry, Commonwealth and state/territory governments

This blueprint is based on the view that ‘prevention is everyone’s business’.

As stated in one of the underpinning principles, **there should be a national agenda on the shared priorities to prevent chronic diseases that is complemented by local action.** Prevention should include both top-down and bottom-up approaches involving all the partners listed above (which can be summarised as comprising governments, the private and non-government sectors and communities).

As identified in the third strategic priority of *generating community support and action on prevention*, **local engagement and action is essential to achieving sustainable changes** in the prevention of risk factors, social determinants and chronic diseases. Local engagement will include actions taken by individuals and families, community groups, schools, sporting groups, local councils and local employers, such as:

- **Implementing preventive interventions in local settings** - healthy public spaces and liveable communities that encourage physical activity and community connectedness; regulations and policies that protect population health such as random breath testing and lockout laws for premises selling alcohol; and education and support through schools, workplaces and community groups to encourage uptake and retention of healthy lifestyles.
- **Advocacy and holding governments and businesses to account** for the delivery of interventions that foster reductions in all the risk factors for chronic diseases.

Moving up from local action, **organisations with a major role in society** (such as employers and business associations, non-government organisations, the media and advertising industry, health services and private health insurers) **have to use their varying skills and influence to effect systemic changes** in preventing chronic diseases. Finally, **governments must provide leadership and implement preventive actions in areas in which they are sovereign**, including taxation, regulation and other structural policies.

Shared responsibility for taking preventive action is also fundamental to harnessing the value of implementing preventive actions across multiple settings. This includes health care settings (for the provision of preventive interventions to high-risk groups) and all the other settings in which individuals learn, work, play and live (for the delivery of population-based preventive interventions).

Finally, an important element of a partnership approach to prevention of chronic diseases is consistency of messaging. A former health minister identified this as a critical feature in the success of tobacco control advocates in influencing government policy, stating that:

*So, not 10 different people all asking for 20 different things. That [cohesiveness] happens much more rarely than you would imagine in politics. I think the value of the cut-through of a message like that, and how easy it then is for governments to pick it up, shouldn't be underestimated. (pg 120)<sup>98</sup>*

The Australian Health Policy Collaboration will use this Blueprint to work with a range of partners in promoting a short, consistent set of messages about preventing chronic diseases. The key outcomes - healthy lives, healthy children, healthy communities and healthy economies - paint a clear picture of the benefits that can be achieved through successful implementation of interventions to reduce the incidence and impact of chronic diseases. It will be important for all partners to identify specific examples (as illustrated previously in Section 1.2) of the real gains that can be achieved under these four key outcomes of healthy lives, healthy children, healthy communities and healthy economies.

## 3. Conclusion

This Blueprint identifies strategic priorities for taking action to prevent chronic diseases. It has been developed with input from leading experts, and focusses on a group of diseases that AIHW has identified as the greatest problem facing Australia's health system.

The vision of this Blueprint is to reduce the impact and incidence of chronic diseases through preventive interventions. A concerted and consistent effort is needed and action is required on several fronts and from many players. This paper argues that we have no choice: change must happen if Australia is to realise its social and economic goals of:

- Healthy lives: improved health status for all populations.
- Healthy children: a healthy future for our children.
- Healthy communities: more liveable and socially connected communities.
- Healthy economies: increased economic participation and productivity.

# Appendix 1: Australian and WHO targets to prevent chronic diseases

Domain	WHO Global Action Plan	National Partnership Agreement on Preventive Health	Performance and Accountability Framework
Alcohol use	<b>Target:</b> 10% reduction in harmful use of alcohol between 2010 and 2025	<b>Outcome:</b> reduce the harmful and hazardous consumption of alcohol <b>Indicator:</b> no indicators specified	Not included in Framework
Physical inactivity	<b>Target:</b> 10% reduction in physical inactivity between 2010 and 2025	<b>Outcome:</b> increase the proportion of children and adults meeting national guidelines for healthy eating and physical activity by 15 per cent within six years (by 1 January 2015) <b>Performance benchmark:</b> increase in proportion of children participating in at least 60 minutes of moderate physical activity every day from baseline for each state by five per cent by 2013; by 15 per cent by 2015 <b>Performance benchmark:</b> increase in proportion of adults participating in at least 30 minutes of moderate physical activity on five or more days of the week of 5 per cent from baseline for each state by 2013; 15 per cent from baseline by 2015	Not included in Framework
Salt	<b>Target:</b> 30% reduction in salt/sodium intake between 2010 and 2025	<b>Objective:</b> work with the food supply and the food service sectors towards offering healthy choices and minimising choices high in fat, sugar or salt	Not included in Framework
Tobacco use	<b>Target:</b> 30% reduction in tobacco use between 2010 and 2025	<b>Outcome:</b> reduce the proportion of Australian adults smoking daily to 10 per cent within ten years (by 1 January 2019) <b>Indicator:</b> reduction in state baseline for proportion of adults smoking daily commensurate with a two percentage point reduction in smoking from 2007 national baseline by 2011 and a 3.5 percentage point reduction from 2007 national baseline by 2013	<b>Population health outcome measure:</b> Prevalence of smoking
Blood pressure	<b>Target:</b> 25% reduction in raised blood pressure between 2010 and 2025	Not included in Agreement	Not included in Framework
Diabetes /obesity	<b>Target:</b> 0% increase in diabetes / obesity between 2010 and 2025	<b>Diabetes:</b> not included in Agreement; <b>Obesity -</b> several benchmarks <b>Outcome:</b> increase the proportion of children and adults at healthy body weight by 3 percentage points within ten years (by 1 January 2019) <b>Performance benchmark:</b> increase in proportion of children/adults at unhealthy weight held at less than five per cent from baseline for each state by 2013; proportion of children/adults at healthy weight returned to baseline level by 2015 <b>Performance benchmark:</b> increase in mean number of daily serves of fruits and vegetables consumed by children/adults by at least 0.2 for fruits and 0.5 for vegetables from baseline for each state by 2013; 0.6 for fruits and 1.5 for vegetables from baseline by 2015	<b>Population health outcome measure:</b> Prevalence of diabetes <b>Population health outcome measure:</b> Prevalence of overweight and obese status



Mortality	<b>Target:</b> 25% reduction in premature mortality from NCDs between 2010 and 2025	Not included in Agreement	<b>Indicator:</b> Age standardised mortality of potentially avoidable deaths
Drug therapy and counselling	<b>Target:</b> at least 50% of eligible people receive drug therapy and counselling to prevent heart attacks and strokes	Not included in Agreement	Not included in Framework
Access to technologies and medicines	<b>Target:</b> An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities	Not included in Agreement	Not included in Framework

**Source:** Willcox, S. 2014, *Chronic diseases in Australia: the case for changing course*, Australian Health Policy Collaboration Issues paper No. 2014-02. Melbourne: Australian Health Policy Collaboration.

# Acronyms

ACE	Assessing Cost-Effectiveness
AIHW	Australian Institute of Health and Welfare
ANPHA	Australian National Preventive Health Agency
COAG	Council of Australian Governments
CKD	Chronic Kidney Disease
CVD	Cardiovascular Disease
DALY	Disability Adjusted Life Year
GP	General Practitioner
NCD	Non-Communicable Disease
NHMRC	National Health and Medical Research Council
NHPA	National Health Performance Authority
NPA	National Partnership Agreement
NPHT	National Preventative Health Taskforce
WHO	World Health Organization

# References

- <sup>1</sup> Gruszin, S., D. Hetzel and J. Glover 2012, *Advocacy and action in public health: Lessons from Australia over the 20<sup>th</sup> century*, Canberra: Australian National Preventative Health Agency.
- <sup>2</sup> Abelson, P., R. Taylor, J. Butler, D. Gadiel, M. Clements and S. L. Mui 2001, *Returns on investment in public health*: Canberra, Commonwealth Department of Health and Ageing.
- <sup>3</sup> Cunningham, K., R. Hockey, R. Pitt and E. Miles 2002, 'Ten years on: toddler drowning in Queensland 1992-2001', *Injury Bulletin* 75: 1-6.
- <sup>4</sup>World Health Organization 2015, *Non-communicable diseases: Fact sheet*, At: <http://www.who.int/mediacentre/factsheets/fs355/en/>
- <sup>5</sup> National Health Priority Action Council 2005, *National chronic disease strategy*, Canberra: Australian Government Department of Health and Ageing.
- <sup>6</sup> National Public Health Partnership 2001, *Preventing chronic disease: A strategic framework*, Melbourne: National Public Health Partnership.
- <sup>7</sup> Australian Bureau of Statistics 2012, *Australian health survey: First results, 2011-12*, Canberra: ABS.
- <sup>8</sup> Aboderin, J., A. Kalache, Y. Ben-Shlomo, J. W. Lynch, C. S. Yajnik, D. Kuh and D. Yach 2001, *Life course perspectives on coronary heart disease, stroke and diabetes: key issues and implications for research*, Geneva: World Health Organization.
- <sup>9</sup> World Health Organization 2005, *Preventing chronic diseases: A vital investment*, Geneva: WHO.
- <sup>10</sup> 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.
- <sup>11</sup> Insel, T. R., and W. S. Fenton 2007, 'Psychiatric epidemiology: it's not just about counting anymore', *Archives of General Psychiatry* 62: 590-592.
- <sup>12</sup> Sawyer, M. G., F. M. Arney, P. A. Baghurst, J. J. Clark, B. W. Graetz, R. J. Kosky et al. 2000, *Mental health of young people in Australia: child and adolescent component of the national survey of mental health and well-being*, Canberra: Commonwealth Department of Health and Aged Care.
- <sup>13</sup> Begg, S., T. Vos, B. Barker, C. Stevenson, L. Stanley and A. D. Lopez 2007, *The burden of disease and injury in Australia 2003*, Cat. No. PHE 82, Canberra: AIHW.
- <sup>14</sup> Australian Institute of Health and Welfare 2014, *Australia's health 2014*, Cat. No. AUS 178, Canberra: AIHW.
- <sup>15</sup> Victorian Department of Health 2011, *Victorian public health and wellbeing plan 2011-2015*, Melbourne: State Government of Victoria.
- <sup>16</sup> 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.
- <sup>17</sup> McCullagh, C. D., D. Craig, S. P. McIlroy and A. P. Passmore 2001, 'Risk factors for dementia', *Advances in Psychiatric Treatment* 7(1): 24-31.
- <sup>18</sup> Sahathevan, R., A. Brodtmann and G. A. Donnan 2011, 'Dementia, stroke, and vascular risk factors: a review' *International Journal of Stroke*, 7: 61-73.
- <sup>19</sup> Australian Institute of Health and Welfare 2011, *Dementia in Australia*, Cat. No. AGE 70, Canberra: AIHW.
- <sup>20</sup> Australian Institute of Health and Welfare 2014, *Cancer in Australia: An overview 2014*, Cat. No. CAN 88, Canberra: AIHW.
- <sup>21</sup> Australian Institute of Health and Welfare 2006, *Chronic diseases and associated risk factors in Australia*, Cat. No. PHE 81, Canberra: AIHW.

- <sup>22</sup> Australian Institute of Health and Welfare 2008, *Rural, regional and remote health: Indicators of health status and determinants of health*, Cat. No. PHE 97, Canberra: AIHW.
- <sup>23</sup> Begg, S., T. Vos, B. Barker, C. Stevenson, L. Stanley and A. D. Lopez 2007, *The burden of disease and injury in Australia 2003*, Cat. No. PHE 82, Canberra: AIHW.
- <sup>24</sup> Government of South Australia 2012, *Safe communities, healthy neighbourhoods*, Adelaide: South Australian Attorney-General's Department.
- <sup>25</sup> Vos, T., R. Carter, J. Barendregt, C. Mihalopoulos, L. Veerman, A. Magnus, L. Cobiac, M. Bertram and A. Wallace 2010, *Assessing cost-effectiveness in prevention (ACE-Prevention) final report*, University of Queensland (Brisbane) and Deakin University (Melbourne).
- <sup>26</sup> University of Queensland and Deakin University, *General population results pamphlet 15: cost-effectiveness of interventions to reduce salt intake (ACE-Prevention pamphlets)*, Brisbane: University of Queensland.
- <sup>27</sup> Magnus, A., M. M. Haby, R. Carter and B. Swinburn 2009, 'The cost-effectiveness of removing television advertising of high-fat and/or high-sugar food and beverages to Australian children', *International Journal of Obesity* 33(10): 1094-1102.
- <sup>28</sup> Ofcom 2010, *HFSS advertising restrictions: Final review*, London: Office of Communications.
- <sup>29</sup> Magnus, A., M. M. Haby, R. Carter and B. Swinburn 2009, 'The cost-effectiveness of removing television advertising of high-fat and/or high-sugar food and beverages to Australian children', *International Journal of Obesity* 33(10): 1094-1102.
- <sup>30</sup> Mihalopoulos, C., T. Vos, J. Pirkis and R. Carter 2012, 'The population cost-effectiveness of interventions designed to prevent childhood depression', *Pediatrics* 129(3): e723-e730.
- <sup>31</sup> Beyondblue (Undated), *Stats and facts*, At: <http://www.youthbeyondblue.com/footer/stats-and-facts>
- <sup>32</sup> Beyondblue (Undated), *Stats and facts*, At: <http://www.youthbeyondblue.com/footer/stats-and-facts>
- <sup>33</sup> Collins, D. J. and H. M. Lapsley 2008, *The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/05*, Canberra: Commonwealth Department of Health and Ageing.
- <sup>34</sup> Doherty, S. and A. Roche 2003, *Alcohol and licensed premises: best practice in policing. A monograph for police and policy makers*, Adelaide: Australasian Centre for Policing Research.
- <sup>35</sup> Stanley, J. and S. Barrett 2010, *Moving people - solutions for a growing Australia*, Sydney: Australasian Railway Association, Bus Industry Confederation and the International Association of Public Transport.
- <sup>36</sup> Commonwealth Department of Infrastructure and Transport 2011, *Our cities, our future: A national urban policy for a productive, sustainable and liveable future*, Canberra: Commonwealth of Australia.
- <sup>37</sup> Bureau of Transport and Regional Economics 2007, *Estimating urban traffic and congestion cost trends for Australian cities*, Working Paper No. 71, Canberra: Commonwealth of Australia.
- <sup>38</sup> Business Council of Australia 2011, *Selected facts and statistics on Australia's healthcare sector*, Melbourne: BCA.
- <sup>39</sup> Cadilhac, D.A., A. Magnus, T. Cumming, L. Sheppard, D. Pearce and R. Carter 2009, *The health and economic benefits of reducing disease risk factors*, Melbourne: Deakin University & National Stroke Research Institute.
- <sup>40</sup> National Public Health Partnership 2006, *The language of prevention*, Melbourne: National Public Health Partnership.
- <sup>41</sup> Najman, J. M., R. Aird, W. Bor, M. O'Callaghan, G. M. Williams and G. J. Shuttlewood 2004, 'The generational transmission of socioeconomic inequalities in child cognitive development and emotional health', *Social Science and Medicine* 58(6): 1147-1158.
- <sup>42</sup> Sweeny, K. 2014, *The influence of childhood circumstances on adult health*, Australian Health Policy Collaboration Technical paper No. 2014-01. Melbourne: Australian Health Policy Collaboration.

- <sup>43</sup> National Vascular Disease Prevention Alliance 2012, *Guidelines for the management of absolute cardiovascular disease risk*, At: [www.cvdcheck.org.au](http://www.cvdcheck.org.au)
- <sup>44</sup> Vartiainen, E. A., T. Laatikainen, B. Philpot, E. D. Janus, N. Davis-Lameloise and J. A. Dunbar 2011, 'The projected impact of population and high-risk strategies for risk-factor control on coronary heart disease and stroke events', *Medical Journal of Australia* 194(1): 10-15.
- <sup>45</sup> Harris, A., and D. Mortimer 2009, 'Funding illness prevention and health promotion in Australia: A way forward', *Australia and New Zealand Health Policy* 6: 25.
- <sup>46</sup> Sammut, J. 2008, *Submission to the Standing Committee on Health and Ageing: Inquiry into obesity in Australia*, Sydney: The Centre for Independent Studies.
- <sup>47</sup> Brownell, K. D., R. Kersh, D. S. Ludwig, R. C. Post, R. M. Puhl, M. B. Schwartz and W. C. Willett 2010, 'Personal responsibility and obesity: A constructive approach to a controversial issue', *Health Affairs* 29(3): 379-387.
- <sup>48</sup> Delavari, M., A. L. Sonderlund, B. Swinburn, D. Mellor and A. Renzaho 2013, 'Acculturation and obesity among migrant populations in high-income countries - a systematic review', *BMC Public Health* 13: 458.
- <sup>49</sup> Davis, B. and C. Carpenter 2009, 'Proximity of fast-food restaurants to schools and adolescent obesity', *American Journal of Public Health* 99(3): 505-510.
- <sup>50</sup> Thaler, R. H. and C. R. Sunstein 2009, *Nudge: Improving decisions about health, wealth and happiness*, Melbourne: Penguin Books.
- <sup>51</sup> Ariely, D., 2009, *Predictably irrational: the hidden forces that shape our decisions*, London: HarperCollins.
- <sup>52</sup> National Health and Medical Research Council 2013, *Eat for health: Australian dietary guidelines summary*, Canberra: Commonwealth of Australia.
- <sup>53</sup> Australian Bureau of Statistics 2008, *Australian literacy and life skills survey: summary results (2006 reissue)*, Cat. No. 4228.0, Canberra: ABS.
- <sup>54</sup> Cheng, C. and M. Dunn 2015, 'Health literacy and the Internet: A study on the readability of Australian online health information', *Australian and New Zealand Journal of Public Health* Online: doi: 10.1111/1753-6405.12341.
- <sup>55</sup> Fallan, A., R. Grana and S. A. Glantz 2013, "'To quarterback behind the scenes, third-party efforts": the tobacco industry and the Tea Party, *Tobacco Control*, Published Online First: 8 February 2013 as 10.1136/tobaccocontrol-2012-050815.
- <sup>56</sup> Mindell, J. S., L. Reynolds, D. L. Cohen and M. McKee 2012, 'All in this together: the corporate capture of public health', *British Medical Journal* 345: e8082.
- <sup>57</sup> Daniels, J. 2011, *Corporations, the public's health and Astroturf*, At: <http://corporationsandhealth.org/>
- <sup>58</sup> Moore, M., H. Yeatman and R. Davey (In press), 'Which Nanny - the State or Industry? Wowsers, teetotallers and the fun police in public health advocacy', *Public Health*.
- <sup>59</sup> Australian Institute of Health and Welfare 2014, *National drug strategy household survey detailed report 2013*, Cat. No. PHE 183, Canberra: AIHW.
- <sup>60</sup> Lockie, S., and J. Pietsch 2012, *Public opinion on food security*, Canberra: ANU.
- <sup>61</sup> Consumers Health Forum of Australia, National Heart Foundation, Public Health Association Australia and Obesity Policy Coalition 2015, *Media release: 20 January 2015*, At: <https://www.chf.org.au/pdfs/chf/20150120-Junk-Food.pdf>
- <sup>62</sup> National Preventative Health Taskforce 2009, *Australia: the healthiest country by 2020 (Technical Report No. 2. Tobacco control in Australia: making smoking history*, Canberra: Commonwealth of Australia.
- <sup>63</sup> Chapman, S., and B. Freeman 2014, *Removing the emperor's clothes: Australia and tobacco plain packaging*, Sydney: Sydney University Press.

- <sup>64</sup> Attwood, K., G. A. Colditz and I Kawachi 1997, 'From public health science to prevention policy: placing science in its social and political contexts', *American Journal of Public Health* 87(10): 1603-1606.
- <sup>65</sup> Willcox, S. 2014, *Chronic diseases in Australia: the case for changing course*, Australian Health Policy Collaboration Issues paper No. 2014-02. Melbourne: Australian Health Policy Collaboration.
- <sup>66</sup> Chapman, S., and B. Freeman 2014, *Removing the emperor's clothes: Australia and tobacco plain packaging*, Sydney: Sydney University Press.
- <sup>67</sup> National Preventative Health Taskforce 2009, *Australia: the healthiest country by 2020 (Technical Report No. 3. Preventing alcohol-related harm in Australia)*, Canberra: Commonwealth of Australia.
- <sup>68</sup> Oliver, K. G., P. Collin, J. Burns and J. Nicholas 2006, 'Building resilience in young people through meaningful participation', *Australian e-Journal of Mental Health* 5(1): 1-7.
- <sup>69</sup> Manicavasagar, V. 'Resilience and vulnerability', In: Parker, G., and V. Manicavasagar (Eds) 2005, *Modelling and managing the depressive disorders*, Sydney: Cambridge University Press.
- <sup>70</sup> World Health Organization 2003, *Diet, nutrition and the prevention of chronic diseases: Report of a joint WHO/FAO expert consultation*, Geneva: WHO.
- <sup>71</sup> Blewett, N., N. Goddard, S. Pettigrew, C. Reynolds and H. Yeatman 2011, *Labelling logic: review of food labelling law and policy (2011)*, Canberra: Commonwealth of Australia.
- <sup>72</sup> Elliott, T., H. Trevena, G. Sacks, E. Dunford, J. Martin, J. Webster, B. Swinburn, A. R. Moodie and B. C. Neal 2014, 'A systematic interim assessment of the Australian Government's Food and Health Dialogue', *Medical Journal of Australia* 200(2): 92-95.
- <sup>73</sup> National Vascular Disease Prevention Alliance 2012, *Guidelines for the management of absolute cardiovascular disease risk*, At: [www.cvdcheck.org.au](http://www.cvdcheck.org.au)
- <sup>74</sup> World Cancer Research Fund International 2014, *NOURISHING framework*, At: <http://www.wcrf.org/int/policy/nourishing-framework>
- <sup>75</sup> Rychetnik, L., M. Frommer, P. Hawe and A. Shiell 2002, 'Criteria for evaluating evidence on public health interventions', *Journal of Epidemiology and Community Health* 56: 119-127.
- <sup>76</sup> He, F. J., H. C. Brinsden and G. A. MacGregor 2013, 'Salt reduction in the United Kingdom: a successful experiment in public health', *Journal of Human Hypertension* 28: 345-352.
- <sup>77</sup> Lobstein, T., R. Jackson-Leach, M. L. Moodie, K. D. Hall, S. L. Gortmaker, B. A Swinburn, W. P. T. James, Y. Wang and K. McPherson 2015, 'Child and adolescent obesity: part of a bigger picture', *The Lancet* 18 February (Online).
- <sup>78</sup> World Health Organization 2013, *Global action plan for the prevention and control of non-communicable diseases 2013-2020*, Geneva: WHO.
- <sup>79</sup> Beaglehole, R., Bonita, R., Ezzati, M., Alleyne, G., Dain, K., Kishore, S.P. and Horton, R. 2014, 'NCD Countdown 2025: Accountability for the 25 x 25 NCD mortality reduction target', *The Lancet* 384: 105-107.
- <sup>80</sup> Willcox, S. 2014, *Chronic diseases in Australia: the case for changing course*, Australian Health Policy Collaboration Issues paper No. 2014-02. Melbourne: Australian Health Policy Collaboration.
- <sup>81</sup> Council of Australian Governments 2009, *National partnership agreement on preventive health*, Canberra: COAG.
- <sup>82</sup> Council of Australian Governments 2011, *National performance and accountability framework*, Sydney: National Health Performance Authority.
- <sup>83</sup> National Preventative Health Taskforce 2009, *Australia: The healthiest country by 2020 - the roadmap for action*, Canberra: Commonwealth of Australia.
- <sup>84</sup> NSW Government 2014, *NSW health state plan: towards 2021*, Sydney: NSW Ministry of Health.

- <sup>85</sup> AIHW 2008, *A set of performance indicators across the health and aged care system*, Canberra: AIHW.
- <sup>86</sup> Beaglehole, R., R. Bonita and R. Hawthorn 2012, 'Independent global accountability for NCDs', *The Lancet* 381(9867): 602-605.
- <sup>87</sup> Beaglehole, R., R. Bonita and R. Hawthorn 2012, 'Independent global accountability for NCDs', *The Lancet* 381(9867): 602-605.
- <sup>88</sup> Swinburn, B., V. Kraak, H. Rutter, S. Vandevijvere, T. Lobstein, G. Sacks, F. Gomes, T. Marsh and R. Magnusson 2015, 'Strengthening of accountability systems to create healthy food environments and reduce global obesity', *The Lancet* 18 February (Online).
- <sup>89</sup> Swinburn, B., C. H. Dominick and S. Vandevijvere 2014, *Benchmarking food environments: Experts' assessments of policy gaps and Food and Agriculture Organisation priorities for the New Zealand Government*, Auckland: University of Auckland.
- <sup>90</sup> Swan, M. 2013, 'The quantified self: Fundamental disruption in big data science and biological discovery', *Big Data* 1(2): 85-99.
- <sup>91</sup> Swan, M. 2013, 'The quantified self: Fundamental disruption in big data science and biological discovery', *Big Data* 1(2): 85-99.
- <sup>92</sup> Bland, J. 2014, *Refilling the innovator's prescription: the new wave of medtech (Conclusions from Silicon Valley comes to the UK 2013)*, London: Nesta.
- <sup>93</sup> Sensis 2014, *Yellow™ social media report: What Australian people and businesses are doing with social media*, At: [www.sensis.com.au](http://www.sensis.com.au)
- <sup>94</sup> Bland, J. 2014, *Refilling the innovator's prescription: the new wave of medtech (Conclusions from Silicon Valley comes to the UK 2013)*, London: Nesta.
- <sup>95</sup> Rickwood D., 2010, 'Promoting youth mental health through computer-mediated communication', *International Journal of Mental Health Promotion* 12(3): 32-44.
- <sup>96</sup> Barrett, M. A., O. Humblet, R. A. Hiatt and N. E. Adler 2013, 'Big data and disease prevention: From quantified self to quantified communities', *Big Data* 1(3): 168-175.
- <sup>97</sup> Nesta 2013, *The business case for people powered health*, London: Nesta.
- <sup>98</sup> Chapman, S., and B. Freeman 2014, *Removing the emperor's clothes: Australia and tobacco plain packaging*, Sydney: Sydney University Press.





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