

Queenslanders tackling chronic disease: becoming Australia's healthiest State

Prepared by a Working Group of the **Smart State Council**

November 2008



Smart State Council



An initiative of the Queensland Government

Dear Premier

Please find attached the Smart State Council working group report on *Queenslanders tackling chronic disease: becoming Australia's healthiest State*.

This report provides the Queensland Government with a blueprint to achieve the ambition set out in *Towards Q2: Tomorrow's Queensland*, to make Queenslanders Australia's healthiest people. It recognises that Government cannot achieve this ambition alone, and recommends urgent and comprehensive actions, by Government and the community, to meet the target of cutting obesity, smoking and heavy drinking by one third by 2020.

The report notes that unsustainable demands on Queensland's healthcare system will continue to grow unless we redefine the balance between maintaining good health and treating disease.

Specifically it recommends the creation of a new ministry devoted to healthy living and a Government agency devoted to the maintenance of good health, with the authority to develop and implement a whole-of-Government approach to disease prevention, and an investment in health and wellbeing and disease prevention of \$100 per person by 2010. The agency would map the health and wellbeing of individual communities throughout Queensland, and work with them to reduce the risk factors underpinning chronic disease.

The report also identifies opportunities to use Queensland's existing investment in biomedical research to reduce health care costs by strengthening community-wide screening and risk assessment programs enabling the early detection and prevention of disease.

I commend it to you.



Professor Peter Andrews
Queensland Chief Scientist and
Chair, Standing Committee, Smart State Council

November 2008

© The State of Queensland (Department of the Premier and Cabinet) 2008.

Published by the Queensland Government, George Street, Brisbane. Qld. 4000.

The Queensland Government supports and encourages the dissemination and exchange of information. However, copyright protects this document. The State of Queensland has no objection to this material being reproduced, made available online or electronically but only if it is recognised as the owner of the copyright and this material remains unaltered. Copyright enquires about this publication should be directed to the Department of the Premier and Cabinet, by email to copyright@premiers.qld.gov.au or in writing to PO Box 15185, City East Qld 4002.

Copies of this publication can be obtained at www.smartstate.qld.gov.au

This document does not represent Queensland Government policy.

November 2008

Working Group

Chair

Professor Michael Good AO, Director, Queensland Institute of Medical Research

Members

Associate Professor David Colquhoun, Cardiologist and Clinical Associate Professor in Medicine, The University of Queensland

Professor Derek Hart, Director, Mater Medical Research Institute

Professor Lesley Johnson, Deputy Vice-Chancellor (Research), Griffith University

Professor Elizabeth Kendall, Research Centre for Clinical and Community Practice Innovation, Griffith University

Mr Peter Lancaster, CEO, Food Spectrum Pty Ltd

Mr Michael Rayner, Principal Director, Cox Rayner Architects Pty Ltd

Professor Cindy Shannon, Director, Centre for Indigenous Health, The University of Queensland

Dr Linda Selvey, Senior Director, Population Health Branch, Queensland Health (observer)

Assisted by Ms Gehann Molachino, Report Project Manager.

With thanks to the numerous stakeholders who provided input to the report.

Smart State Council

The Smart State Council was established in June 2005 as a central advisory body to provide high level advice to the Queensland Government on emerging Smart State issues and trends, and to propose measures to position Queensland to respond to challenges and opportunities.

The Smart State Council is chaired by the Premier of Queensland and comprises Government Ministers, the Queensland Chief Scientist and representatives from Queensland's business and research communities.

This paper was prepared by an independent working group for the Smart State Council. The views expressed in this paper are those of the group and do not represent Queensland Government policy.

This document does not represent Queensland Government policy.

Executive summary

Queensland's health

Many common lifestyle diseases, such as diabetes, cardiovascular disease and some cancers, are caused by one or more risk factors such as: smoking, overweight and obesity, physical inactivity, poor diet, and risky alcohol consumption.

Queensland does not compare well against other states and territories on a range of health indicators. For example, deaths from cancer, heart disease and stroke are higher than the national average, and deaths from skin cancer are the highest in the country. Queensland also performs poorly on risk factors for chronic diseases with rates of smoking, overweight and obesity and physical inactivity some of the highest in the country.

Today in Queensland:

- Nearly one in five men and one in seven women smoke daily
- Six in 10 men, four in 10 women and one in five children are overweight or obese
- Slightly less than half of Queensland men and women are physically inactive
- Half of Queensland adults eat the recommended serves of fruit, and only one in three eat the recommended serves of vegetables, and
- One in eight men and women are heavy drinkers.

The community cost of chronic disease

Chronic lifestyle diseases are currently the major cause of death among adults in almost all countries. Queensland is no exception, with most illness, disability and early death today due to chronic disease. More than one-third of all deaths in Queensland is the result of a chronic disease that could have been prevented.

Chronic diseases have been estimated to cost Queenslanders \$5 billion per year in direct health care costs, and an additional \$22 billion in lost productivity, and other costs such as lost earnings and the cost to carers.

Failing to prevent these diseases not only leads to pain, suffering, disability and early deaths, but costs billions of dollars in medical expenses for individuals and governments, which are contributing to the unsustainable cost and demand on our healthcare system.

Although death rates for some chronic diseases, such as cardiovascular disease are decreasing, ill health and associated treatment costs are increasing. It has been estimated that 15 percent of the population, most of them with chronic conditions, generate about 60 percent of all healthcare expenditure. In Queensland the total cost of obesity alone is estimated to be almost \$12 billion. Over the next 20 years, the number of hospitalisations in Queensland is expected to double due to the ageing of the population and the increasing burden of chronic disease, particularly diabetes and associated kidney failure.

If this continues, the cost of supporting Queensland's hospital system will consume the entire Queensland State Budget within two decades (Health Minister Stephen Robertson, *The Courier Mail* "Sick to Death", 16 August 2008).

Queensland's healthcare system is, and will continue to be severely challenged by the current and growing pressures that will result from the increasing burden of chronic disease in the population.

Although disease prevention and early intervention provide a means of reducing this significant demand for services in the longer term, current levels of government investment in preventive health are insufficient.

For every \$1 spent on disease prevention programs (increasing physical activity, improving nutrition and reducing smoking), there is a return on investment of \$5.60 within five years.

In 2006-07 Queensland's recurrent health expenditure was \$16.6 billion, rising from \$12.3 billion in 2003-04. But less than 2 percent of this was spent on activities which aim to improve health and prevent illness.

However, the cost savings and economic benefits of prevention should not be the only driver for action. There are also significant social consequences for individuals and society. Obesity for example can have tragic personal costs, with studies demonstrating psychological trauma and social isolation and discrimination of overweight or obese children.

The evidence is clear. A greater focus on prevention is a critical and missing part of our health system.

Investment in Queenslanders' health, however, is not just an investment in our health system. It will lead to improved quality of life for individuals and families, greater productivity of our workforce, create more livable and active communities, assist to reduce congestion and transport costs, and build greater social interaction and engagement.

A call to action

We know that we need to stop smoking, drink responsibly, be more physically active, eat healthily (more fruit and vegetables and less of everything else) and maintain a healthy weight. But we also know that telling people how and why they must change does not work. Healthy behaviour change comes from complex, long-term and multi-layered processes that enable people to take control of the decisions that influence their health.

Over the past few years, Queensland Government agencies have implemented a range of programs which aim to improve the health of Queenslanders. These include: strengthened tobacco legislation, a Chronic Disease Strategy for Queensland, Eat Well Be Active programs to reduce overweight and obesity through physical activity and healthy eating, Smart Moves and Smart Choices physical activity and healthy food supply policies in State schools, networks of cycling and walking paths, and TravelSmart programs to encourage active transport.

Although undoubtedly worthwhile in their own right, there appears to be a lack of coordination of programs across Government, poor impact, and little alignment with activities of the non-government sector, private sector and other levels of government. There is no substantial whole-of-Government policy platform to provide a uniform direction and focus for these activities, prevent duplication and improve cost effectiveness and program efficiencies.

It is Government's role to help people make the healthy choice the easy choice, every day in every way.

In its vision for the future *Towards Q2: Tomorrow's Queensland*, the Queensland Government has recently announced a bold ambition for Queenslanders to be Australia's healthiest people. It has set challenging targets to "cut obesity, smoking, heavy drinking and unsafe sun exposure by one third" by 2020.

Today, Queensland is one of Australia's least healthy states.

To achieve these targets we will need to:

- decrease the proportion of Queenslanders who are overweight or obese from – 60 percent to 40 percent of men; 41 percent to 27 percent of women; and 21 percent to 14 percent of children
- decrease the proportion of Queenslanders who smoke from – 19 percent to 12.5 percent of men; and 15 percent to 10 percent of women, and
- decrease the proportion of Queensland men and women who drink at unsafe levels from 12 percent to 8 percent.

We will also need to:

- increase the proportion of Queensland adults who are physically active from 53 percent to 71 percent, and
- increase the proportion of adults who eat the recommended serves of fruit from 55 percent to 73 percent, and vegetables from 32 percent to 43 percent.

These targets are ambitious, but achievable with concerted effort from the Government and the Queensland community to action the recommendations of this report.

Tackling chronic disease requires major policy change and budgetary support from Government, and major behavioural change at the community level. To support this change, the Queensland Government must develop a whole-of-Government and community approach to provide Queenslanders with the necessary information, skills and infrastructure to make healthy choices easy choices. It must consider all aspects of people's lives that impact on health, and will require a combination of policy, legislation and regulation; education and awareness; skills development; supportive environments; and community engagement across a range of settings and target groups.

This report provides advice on how Queensland can most effectively prevent chronic diseases in our community, thereby helping people to live happy, healthy, productive lives. It recommends a range of actions that the Queensland Government must implement, in partnership with the

private and non-government sectors and the community, to reduce the prevalence of chronic disease in the State and achieve the Q2 targets for 2020.

The time is right. There is a ground swell of community interest and support for improving health and preventing illness. Providing regular public reports on how Queenslanders are progressing towards achieving the Q2 targets will be an important motivator for continued community action.

Recommendations

There are no quick-fix solutions. It is the view of the Working Group that the actions needed to combat preventable chronic disease will require long-term commitment and investment; must be better led and coordinated; and should be delivered as a partnership between the Government and the community.

A summary of the recommendations of the Working Group is provided below – further detail may be found in the body of this report, and include developing a Wellness Footprint, bans on 'junk food' and alcohol advertising, incentives for employers to provide workplace health programs and developers to build health promoting communities, and a State-wide health check. The recommendations of the Working Group are:

1. Invest in prevention

If Queensland is to achieve its Q2 ambition of being the healthiest State, significant and targeted investment in public health and wellbeing, and disease prevention is required over the long-term. Our per capita investment in prevention should be one of the largest in the country if we are serious about becoming Australia's healthiest people.

- 1.1. Increase the Queensland and Australian Government investment for public health and wellbeing and disease prevention to \$100 per capita (approximately \$400 million per annum) by 2010.
- 1.2. Increase this investment to 5 percent of Queensland's recurrent health expenditure (approximately \$800 million in today's terms) by 2012.

2. Drive enduring change

Political imperative, a high profile leader within Government, and community champions are needed to drive the cultural change needed for Queensland to meet the Q2 targets for cutting chronic disease.

The Queensland Government must provide leadership, coordination and focus on good health and wellbeing, and create the environment for Queenslanders to become Australia's healthiest people:

- 2.1. Appoint a Minister for Healthy Living
- 2.2. Establish a separate agency for healthy living and wellbeing to better coordinate whole-of-Government policy and action
- 2.3. Develop a comprehensive, whole-of-Government and community plan to reduce chronic disease.
- 2.4. Apply a "health in all policies" approach to Government decision making.

3. Make the healthy choice the easy choice.

Government has a number of levers it can use to generate action – legislation, regulation, policy and funding – providing it with a range of "carrot and stick", low-cost and no-cost options which can be implemented in relatively short timeframes. It is fundamental that Government also leads by example in implementing healthier living strategies and policies in its own departments and facilities, and provides the policy environment for this to occur in the wider community.

- 3.1. Increase community awareness of healthy living and disease prevention
- 3.2. Grow healthy kids for life
- 3.3. Build environments for active and healthy living
- 3.4. Create a healthy public sector.

4. Map Queensland's wellness footprint

A Queensland Wellness Footprint will provide the Government and local communities with information on the physical, social, economic and environmental health and wellbeing of all Queensland communities. Critically, this data will provide the basis, for communities and governments alike, to make decisions about those services, facilities and environmental improvements that will enhance individual and community wellbeing and quality of life.

- 4.1. Develop a Queensland Wellness Footprint.

It will provide the information for government and communities to measure their progress against others, and stimulate government and community action.

5. Focus on people and places

In implementing the recommendations of this report, the Queensland Government should prioritise the most vulnerable groups within the Queensland community. Consideration should be given to the express needs of these groups in the planning, design and delivery of programs to prevent disease and improve health. Priority groups include:

- Children and young people, and the unborn
- Aboriginal and Torres Strait Islander peoples
- Lower socio-economic groups
- Rural and remote communities.

The Government should also take a 'settings' approach to the planning, design and delivery of programs in places where Queenslanders live, learn, work and play.

6. Encourage early detection and new technologies

Early identification of people at risk of developing chronic disease and helping them to prevent progression of the disease is an important part of the suite of strategies the Queensland Government must implement to achieve the 2020 targets to cut chronic disease.

- 6.1. Develop a state-wide health check
- 6.2. Improve participation in population screening programs
- 6.3. Fund a six month demonstration project to link basic and applied research with clinical need
- 6.4. Utilise Queensland's biomedical research base to take a leadership position in the identification of early stage biomarkers for cancers and other chronic diseases.

Table of contents

Executive summary	iii
Introduction.....	2
Queensland's health – how Queensland compares.....	4
The state of play	24
Engaging the community	34
Approaches to tackle chronic disease	37
Early detection and early intervention.....	45
Key findings and recommendations.....	51
Appendices.....	60

This document does not represent Queensland Government policy.

Introduction

This report has been prepared by an independent Working Group of the Smart State Council Standing Committee.

The Queensland Government has recently released its strategic vision for the future of Queensland, *Toward Q2: Tomorrow's Queensland*, which outlines a bold ambition for Queenslanders to become Australia's healthiest people by 2020. It also announces challenging targets for cutting obesity, smoking, heavy drinking and unsafe sun exposure by one third.

Queenslanders are not (currently) Australia's healthiest people, and achieving these targets will require significant effort on the part of Government, the non-government and private sectors and the community.

This report provides the Government with independent advice on what must be done to achieve these targets, and reduce the prevalence of chronic disease in the Queensland community. It recommends actions where the community, as well as Government, can take action and responsibility.

Defining chronic disease

Chronic diseases are those 'lifestyle' illnesses which persist for a long time (i.e. more than three months). They are not contracted from another person or by infection, and while they can be treated, they are not easily cured.

Chronic diseases are a major contributor to illness, disability and deaths in all developed countries. While they are more common in older people, chronic diseases are becoming increasingly common in children and younger people.

Although they are often determined by genetics, age and gender, most chronic diseases can be prevented or delayed (and/or managed) by adopting healthy behaviours such as maintain a healthy body weight, eating nutritious foods, avoiding smoking, limiting alcohol consumption and being physically active.

Chronic diseases include: coronary heart disease, stroke, lung cancer, colorectal cancer, depression, diabetes, asthma, chronic obstructive pulmonary disease, chronic kidney disease, oral diseases, arthritis and osteoporosis.

Chronic diseases adversely affect our quality of life, and contribute to a significant proportion of deaths which can be prevented or avoided.

Scope of report

The scope of the report is to explore new prevention and early intervention initiatives that the Queensland Government could implement, in partnership with the non-government and private sectors and the community, to reduce chronic disease in Queensland.

It builds on relevant suggestions proposed at the Australia 2020 Summit, and takes into account existing Government initiatives.

In preparing the report, the Working Group was requested to:

- review current Queensland Government initiatives aimed at reducing levels of chronic disease
- investigate initiatives/approaches to reducing chronic disease being implemented in other Australian and international jurisdictions, and
- provide advice on possible prevention and early intervention approaches/strategies (including no-cost and low-cost options) which could be implemented to reduce the levels of chronic disease in Queensland.

The report's main focus is on lifestyle factors and the primary and secondary prevention of chronic diseases. It also incorporates early detection of chronic disease, including through mass screening and new technologies.

Queensland's health – how Queensland compares

Life expectancy and mortality

Australians enjoy one of the highest life expectancies from birth in the world, at 83.5 years for females and 78.7 years for males¹.

Unfortunately, not all groups within the Australian community experience this longevity, with Indigenous Australians having a life expectancy of 17 years less than other Australians². Indigenous Australians also have a greater disease burden, more disability and a lower quality of life than other Australians. Australians living in rural and remote areas also have shorter lives and higher levels of illness and disease risk factors than people living in major cities³.

Queenslanders experience a life expectancy slightly below the national average (Figure 1 below), with women living an average of 83.4 years and men living an average of 78.5 years (fifth of all states and territories).

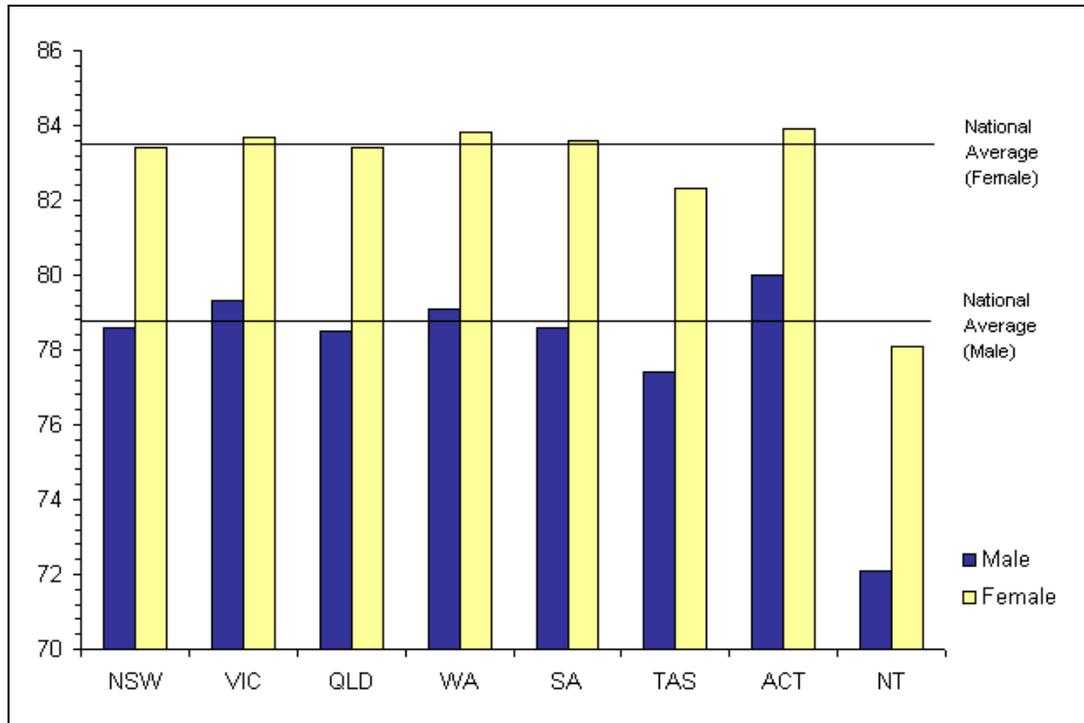


Figure 1: Life expectancy at birth, by sex and state/territory, 2004-06
(Source: ABS Cat No. 3302.0)

¹ Australian Institute of Health and Welfare 2008. *Australia's health 2008*. Canberra, AIHW.

² Ibid.

³ Ibid.

Australia also compares well with other OECD (Organisation for Economic Cooperation and Development) countries on a range of health measures, matching or leading other comparable OECD countries on most aspects of health.

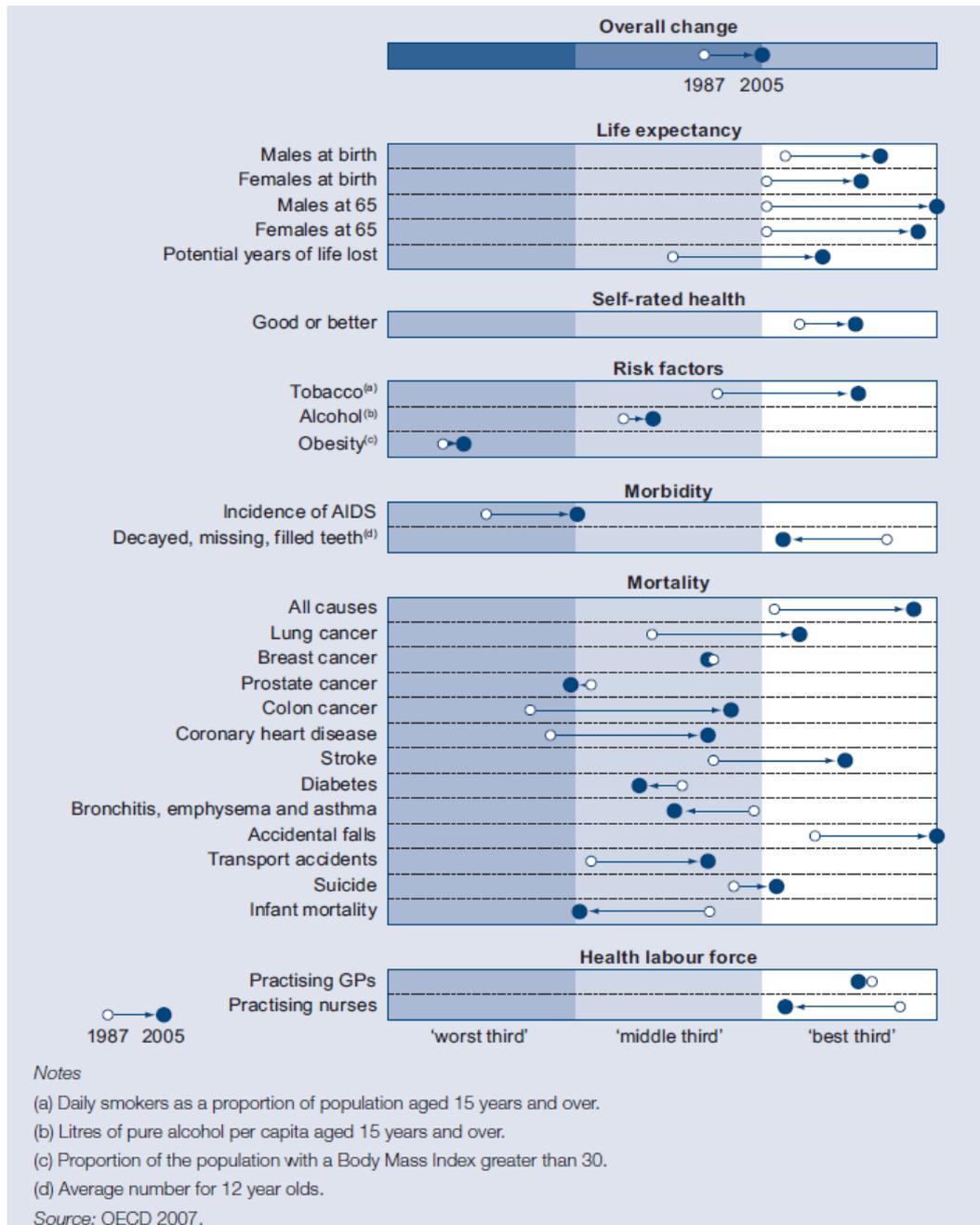


Figure 2: Australia's ranking among OECD countries, selected indicators, 1987 and 2005
(Source: Australian Institute of Health and Welfare 2008. *Australia's health 2008*, p. 6. Canberra: AIHW.)

Although cardiovascular disease, cancer and respiratory diseases such as asthma and chronic lung disease remain the leading causes of death in Australia, death rates from these diseases are falling. This is partly because there are fewer of these diseases occurring, or they are occurring later in peoples lives, and partly because of better survival rates from the disease. However, rates of diabetes and mental health problems are rising markedly, with diabetes doubling in the past two decades⁴, and the burden of disease continues to rise.

Queensland does not compare well against other states and territories (Table 1 below) on a range of health indicators (see Appendix 2 for details). For example, deaths from cancer, heart disease and stroke are higher than the national average, and deaths from skin cancer are the highest in the country. Queensland also performs poorly on risk factors for chronic diseases with rates of smoking, overweight and obesity, physical inactivity and risky alcohol consumption some of the highest in the country.

State/Territory	Risk Points (ranking)	Life Expectancy (ranking)
South Australia	26	4
Queensland	25	6
Northern Territory	25	8
Tasmania	20	7
Western Australia	19	2
New South Wales	16	5
Victoria	12	3
Australian Capital Territory	5	1

Table 1. Risk factor league table summarising rankings for alcohol, smoking, overweight/obesity and physical inactivity

(Sources: based on data from Australian Social Trends 2008 and 2007 National Drug Strategy Household Survey)

In 2004, the major chronic diseases (excluding depression) accounted for almost 50 percent of all deaths in Australia⁵. In Queensland, more than one third of all deaths are the result of chronic diseases which could have been prevented⁶.

⁴ Australian Institute of Health and Welfare 2008. *Australia's health 2008*. Canberra, AIHW.

⁵ Australian Institute of Health and Welfare 2006. *Chronic diseases and associated risk factors in Australia, 2006*. Canberra: AIHW.

⁶ Queensland Health 2005. *Queensland Strategy for Chronic Disease 2005-2015*. Brisbane: QH.

Burden of disease

The top 10 chronic diseases account for 43 percent of the total burden of disease in Australia, and affect one in four Australians⁷. Chronic diseases account for 88 percent of the total burden of disease and injury in Queensland⁸.

The burden of disease can be thought of as the gap between current health status and an ideal situation in which everyone lives into old age free of disease and disability. The causes of this gap are premature death, disability and exposure to certain risk factors that contribute to illness.

The leading burden of disease in Queensland in 2003 was cancer (18.4 percent), followed by cardiovascular disease (17.7 percent) and mental disorders (14 percent) (Figure 3 below).

- For men, the top cause of disease burden was coronary heart disease (11 percent), followed by type 2 diabetes (5.4 percent) and anxiety and depression (5 percent).
- Anxiety and depression (11.1 percent) was the leading specific cause of disease burden for women, followed by coronary heart disease (9.2 percent) and stroke (5.1 percent)⁹.

There are however, inequities in burden of disease around the State, depending on socioeconomic advantage and remoteness from the capital city:

- Queenslanders living in regional areas have a 10 percent higher burden of disease, and those living in remote areas experience a 21 percent higher burden of disease than those living in metropolitan areas.
- Compared with Queenslanders living in advantaged areas, those living in the most disadvantaged areas had a 34 percent higher burden of disease.
- There is still a significant difference in overall health status between Indigenous and non-Indigenous peoples. Infant mortality rates, for example, are more than twice that for non-Indigenous Queensland infants. Reports also show that the health of Indigenous Queenslanders is partly due to socioeconomic disadvantage, rather than living in remote locations¹⁰.

⁷ Australian Institute of Health and Welfare 2006. *Chronic diseases and associated risk factors in Australia, 2006*. Canberra: AIHW.

⁸ Queensland Health 2006. *The Health of Queenslanders 2006. Report of the Chief Health Officer, Queensland*. Brisbane: QH.

⁹ Ibid.

¹⁰ Ibid.

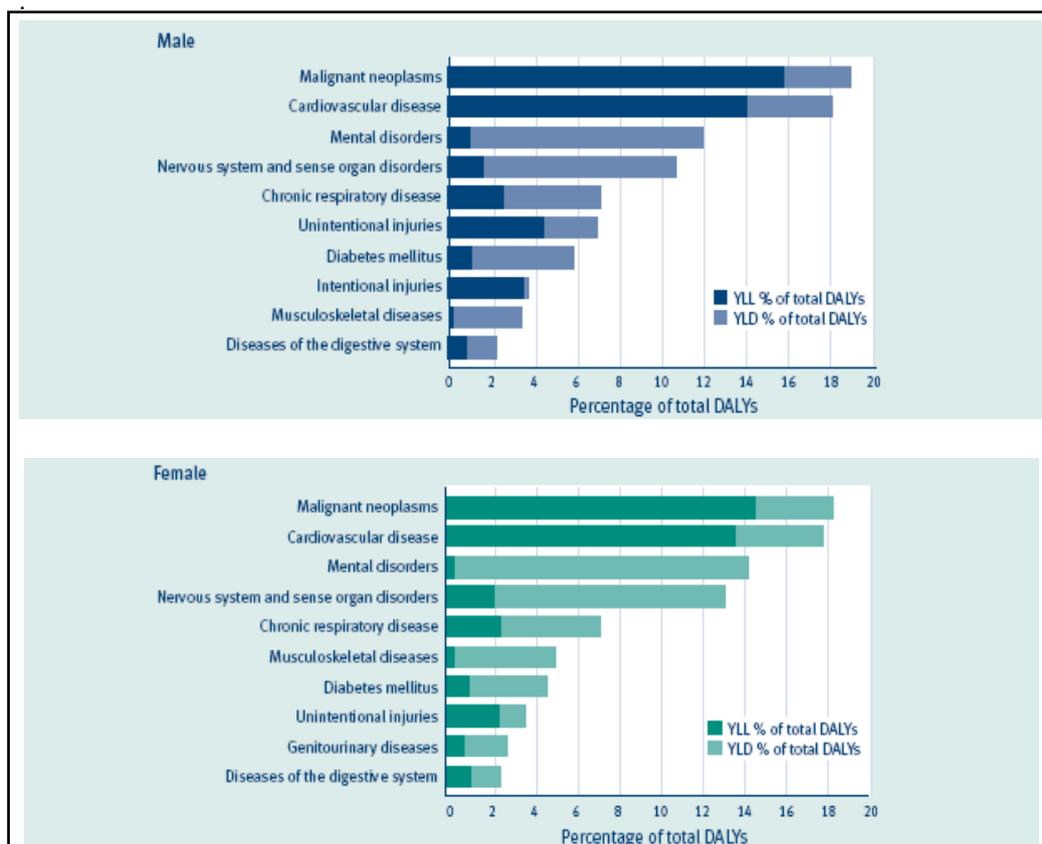


Figure 3: Disease and injury burden, top 10 causes, Queensland, 2003

(Source: Queensland Health 2006. *The Health of Queenslanders 2006. Report of the Chief Health Officer, Queensland*. Brisbane: QH.)

Chronic disease risk factors

A large proportion of chronic disease is preventable. A number of risk factors contribute to the development of chronic diseases, some of which may be modifiable. We can help to prevent chronic diseases in a number of ways, and help patients manage the disease once it occurs.

Four key *behavioural* risk factors contribute significantly to the burden of chronic disease. These are: smoking, poor diet, excess alcohol consumption, and physical inactivity.

There are also three *biomedical* risk factors which contribute to chronic disease: high blood pressure, high blood cholesterol, and excess weight (overweight and obesity).

Other influences, such as *early life experiences, emotional wellbeing and socio-economic status* play a role in determining a person's likelihood of developing chronic disease (see Table 2 and Figure 4 below).

Modifiable risk factors		Broad influences	Non-modifiable factors
<i>Behavioural</i>	<i>Biomedical</i>	<i>(may or may not be modifiable)</i>	
Tobacco smoking Excess alcohol consumption Physical inactivity Poor diet	Overweight or obesity High blood pressure High blood cholesterol	Socio-environmental factors – socio-economic status, working conditions & living environment Psycho-social factors – social support or exclusion, emotional wellbeing, resilience, sense of control Early life factors – maternal health, low birth weight, childhood infections, abuse & neglect Political factors	Age Gender Indigenous status Ethnic background Family history Genetic makeup

Table 2: Risk factors and determinants of chronic disease

(Source: Australian Institute of Health and Welfare 2006. *Chronic diseases and associated risk factors in Australia, 2006*. Canberra: AIHW).

These risk factors often coexist or interact with each other, and may be modified or avoided to reduce a person's risk of developing chronic disease, or better managing an existing disease¹¹.

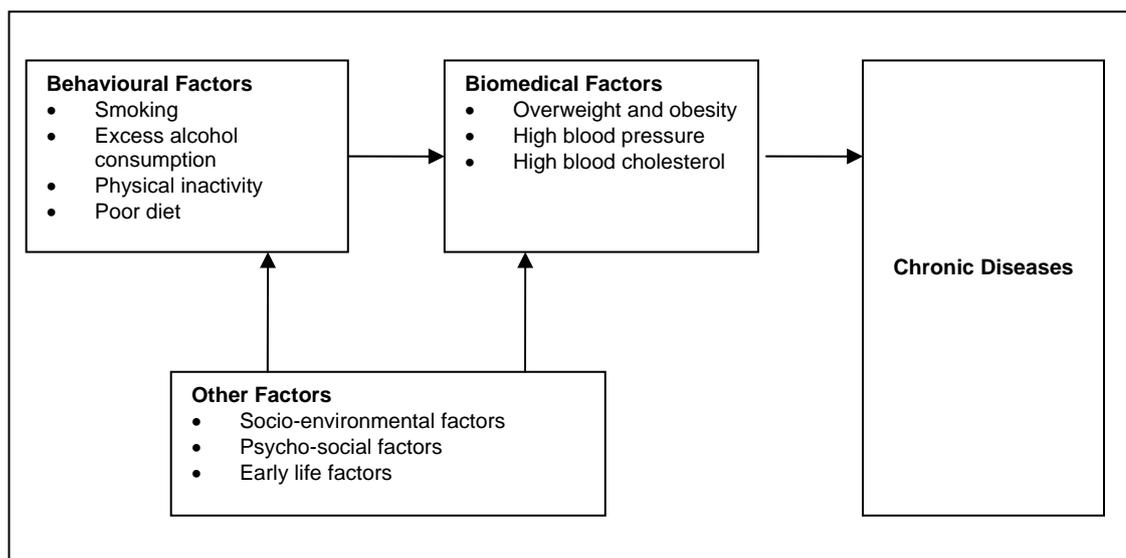


Figure 4: Risk factors and determinants of chronic disease

(Source: Australian Institute of Health and Welfare 2006. *Chronic diseases and associated risk factors in Australia, 2006*. Canberra: AIHW).

¹¹ Australian Institute of Health and Welfare 2002. *Chronic diseases and associated risk factors in Australia, 2001*. Canberra: AIHW.

The longer one lives, the greater the impact of these risk factors, and the greater the prevalence of disease. Reducing these risk factors may prevent disease or result in delaying the onset of chronic disease.

Although this section focuses on those risk factors which are more readily modified or avoided, psycho-social and environmental factors are key determinants of health and are addressed later in this report.

The Interheart Study, involving 30,000 subjects world-wide, demonstrated that greater than 90 percent of coronary heart disease is predicted by known biological and psycho-social risk factors. Importantly, the study demonstrated that these risk factors were universal across all 52 countries in the study (including Australia), in every ethnic group, and for males and females. (Yusuf S et al. Lancet 2004; 364:937-52).

Contribution of risk factors to chronic diseases[#]

According to the World Health Organisation, up to 80 percent of coronary heart disease, 90 percent of type 2 diabetes, and one-third of cancers can be avoided by changing to a healthier diet, increasing physical activity and stopping smoking.

One third (33 percent) of the burden of disease in Australia can be attributed to lifestyle behaviours – such as smoking, physical inactivity, excess alcohol consumption or insufficient fruit and vegetable intake – and physiological factors which put health at risk – high blood pressure, high blood cholesterol, overweight and obesity¹² (Table 3 below).

These risk factors combine to create a devastating effect on disease for Australians:

- The two risk factors of overweight (54.7 percent) and physical inactivity (23.7 percent) combine to contribute to 77 percent of diabetes.

- 70 percent of cardiovascular disease can be attributed to 12 risk factors, with high blood pressure and cholesterol the greatest contributors; 85 percent of coronary heart disease is attributed to these factors.

The Harvard School of Public Health has assessed the impact of five lifestyle factors in two large cohorts followed up for more than 15 years. These factors were: not smoking, moderate alcohol consumption (5-30mg/day), exercise (30 minutes per day), BMI \leq 25 kg/m², and being within 40% of a healthy diet score.

In the Nurses Health Study of 88,000 individuals, over 80% of coronary events could have been prevented by adherence to these lifestyle measures (Stamper M. Nurses Health Study. New England Medical Journal 2000; 343: 10-22).

The parallel (male) Health Professionals Study which included 51,529 individuals, demonstrated that 62% of coronary events could have been prevented (Chiuvre SE. Circulation 2006; 114:160-67).

Adoption of two lifestyle factors during the follow-up was associated with 2% lower coronary heart disease, while a reduction in two lifestyle factors was associated with a 48% increase in coronary heart disease.

[#] Information in this section sourced from Queensland Health 2006. *The Health of Queenslanders 2006. Report of the Chief Health Officer, Queensland*. Brisbane QH unless otherwise indicated.

¹² Begg S, Voss T, Goss J, Barker B, Stevenson C, Stanley L, Lopez A 2006. *The burden of disease and injury in Australia 2003*. Centre for Burden of Disease and Cost-Effectiveness, School of Population Health, University of Queensland.

- 10 risk factors are associated with cancer and explain 33 percent of the disease burden. Smoking was the greatest cause, followed by physical inactivity, overweight and alcohol consumption.
- Four risk factors contributed to 27 percent of the burden of mental disorders, where alcohol and illicit drug use contributed in roughly equal proportions¹³.

DISEASE	RISK FACTOR						
	Behavioural				Biomedical		
	Poor diet	Physical inactivity	Tobacco	Alcohol misuse	Excess weight	High blood pressure	High blood cholesterol
Coronary heart disease	✓	✓	✓	✓	✓	✓	✓
Stroke	✓	✓	✓	✓	✓	✓	✓
Lung cancer			✓				
Colorectal cancer	✓	✓		✓	✓		
Depression		✓		✓	✓		
Diabetes	✓	✓			✓		
Asthma			✓		✓		
Chronic obstructive pulmonary disease			✓				
Chronic kidney disease	✓				✓	✓	
Oral disease	✓		✓	✓			
Osteoarthritis		✓			✓		
Osteoporosis	✓	✓	✓	✓			
Condition							
Excess weight	✓	✓					
High blood pressure	✓	✓		✓	✓		
High blood cholesterol	✓	✓			✓		

Table 3: Relationship between various chronic diseases/conditions and modifiable risk factors
(Source: Australian Institute of Health and Welfare 2006. *Chronic diseases and associated risk factors in Australia, 2006*. Canberra: AIHW).

Being overweight was the leading cause of the burden of disease in Queensland in 2003 (8.5 percent). The risk factors which contributed most to the burden of disease and injury in Queensland were:

¹³ Begg S, Voss T, Goss J, Barker B, Stevenson C, Stanley L, Lopez A 2006. *The burden of disease and injury in Australia 2003*. Centre for Burden of Disease and Cost-Effectiveness, School of Population Health, University of Queensland.

- For men, the five leading risk factors were – smoking (10 percent), overweight (9.2 percent), high blood cholesterol (6.6 percent), physical inactivity (6.4 percent) and high blood pressure (5.5 percent).
- For women, the five leading risks were – overweight (7.7percent), physical inactivity (6.9 percent), high blood cholesterol (6 percent), smoking (5.9 percent) and high blood pressure (4.7 percent).

The time lag effect of risk factors for chronic disease means that the full effect of past exposure to behavioural risk factors, especially among children, will only be seen in the future. Unless preventive and management efforts are embraced worldwide, the global burden of chronic disease will continue to rise¹⁴.

Overweight and obesity

In 2008, 3.71 million (17.5 percent) Australians were estimated to be obese – 16.5 percent of men and 18.5 percent of women. The total cost of obesity is estimated to be \$58.2 billion including productivity losses (\$3.6 billion), health system costs (\$2 billion) and carer costs (\$1.9 billion); and the net cost of lost wellbeing (\$49.9 billion)¹⁵.

It is estimated that obesity causes: 23.8 percent of type 2 diabetes; 21.3 percent of cardiovascular diseases; 24.5 percent of osteoarthritis; and 20.5 percent of colorectal, breast, uterine and kidney cancers¹⁶.

Overweight and obesity are measured by Body Mass Index (BMI) and waist circumference. BMI is the ratio of weight (kg) divided by height (m²).

Body mass index (kg/m ²)		Waist circumference (cm)	
Underweight:	< 18.5	Males - Normal:	< 94
Normal weight:	18.5 to < 25	Overweight::	94 to < 102
Overweight:	25+ to < 30	Obese:	102+
Obese:	30+	Female - Normal:	< 80
		Overweight:	80 to < 88
		Obese:	88+

(Source: AIHW National Health Data Dictionary)

In 2003, overweight and obesity was the leading cause of the burden of disease in Queensland, accounting for 8.5 percent of the total burden. The burden of disease attributable to overweight and obesity was higher for males, at 9.2 percent than females, at 7.7 percent.

Current spending on prevention of obesity is less than \$1 per person each year, while treating the consequences costs \$70 per person each year.

¹⁴ World Health Organisation. <http://www.who.int/dietphysicalactivity/publications/facts/cvd/en/index.html>. Accessed 12:52pm 6 October 2008.

¹⁵ Access Economics 2008. *The growing cost of obesity in 2008: three years on*. Report for Diabetes Australia, Canberra.

¹⁶ Ibid.

- Adults

Overweight and obesity are major risk factors for a range of diseases, including type 2 diabetes, cardiovascular disease, some cancers, high blood pressure and cholesterol, and depression.

Weight loss favourably impacts on diabetes risk and improves blood lipid profile. For every kilogram decrease in body weight, LDL-cholesterol decreases by 0.02mmol/l, triglycerides decrease by 0.015mmol/l and HDL-cholesterol increases by 0.14 mmol/l. (Dattilo AM, Kris-Etherton PM. American Journal of Clinical Nutrition 1992; 56: 320-8).

Indigenous Australians, aged 15 years and over, were 1.2 times more likely to be overweight or obese than non-indigenous Australians in 2004-05.

Most recent data for Queensland show that 60.3 percent of men (second highest in the nation) and 41.3 percent of women (second lowest in the nation) over the age of 15 years are overweight or obese¹⁷.

The prevalence of overweight and obesity has dramatically increased over a decade; by about 11 percent for both men and women. Most of this increase is due to an increase in obesity.

If current trends continue, three in four Australians will be overweight or obese by 2020¹⁸.

Recent studies indicate that the average weight of Australians (18 – 70 years) has increased by 0.5 – 1.0 kg per year for the past 20 years. While small weight gains are not often noticed, these translate to significant weight gains of between 10 – 20 kg over 20 years, and consequent increases in the risk of developing cardiovascular disease, diabetes and other chronic diseases¹⁹.

People's perception of 'acceptable weight' and their actual weight may have implications for public health programs which encourage healthy body weight. For example, in 2004–05 more than half of Australian adults (63 percent of males and 59 percent of females) considered themselves to be of acceptable weight. Although 32 percent of men and 38 percent of women considered themselves to be overweight, this was considerably lower than those who were classified as overweight/obese according to their BMI (62 percent and 45 percent respectively)²⁰.

- Children

Overweight and obesity in children and young people can result in short and long term health problems, including impacts on social and emotional development. These include diabetes, asthma and other respiratory problems, high blood pressure and blood lipids and stress on weight bearing joints (such as knees and ankles). Over the longer term, overweight children are

¹⁷ Australian Bureau of Statistics 2008. *Australian Social Trends, 2008*. Canberra: ABS

¹⁸ Harper C, Cardona M, Bright M, Neill A, McClintock C, McCulloch B, Hunter I, Bell M 2004. *Health Determinants Queensland 2004: at a glance*. Brisbane: Public Health Services, QH.

¹⁹ Brown W and Ball K 2007. *Physical activity and energy balance*. Prepared by the National Physical Activity Program Committee, National Heart Foundation of Australia.

²⁰ Australian Bureau of Statistics 2008. *Australian Social Trends, 2008*. Canberra: ABS

more likely to develop chronic diseases such as diabetes, cardiovascular disease and some cancers.

Studies have shown that at least half of overweight children remain overweight as adults, and the risk of being overweight in adulthood is at least twice as great for children who are overweight.

The Healthy Kids Queensland Survey (2006) indicates 21 percent of Queensland children aged 5-17 years are overweight or obese, including 19.5 percent of boys and 22.7 percent of girls.

This overall figure is approximately 4 percent lower than the national average of 25 percent of children being overweight or obese²¹, and 3 percent lower than comparable studies from New South Wales (2004) and Western Australia (2003). However, overall there is a trend for an increase in overweight and obesity for all age groups, with most doubling since 1985.

Smoking

Smoking is the greatest cause of preventable deaths in Australia, and increases the risk of lung cancer, cardiovascular disease, chronic lung conditions and osteoporosis. About 80 percent of lung cancer is caused by smoking. Quitting smoking leads to rapid decreases in the risk of cardiovascular diseases.

At 8.1 percent, tobacco smoking was the second largest cause of burden of disease in Queensland in 2003 – 10 percent for men and 5.9 percent for women.

In 2007, 18.9 percent of Queensland men (third highest in the nation) and 15.4 percent of Queensland women (fourth highest in the nation) over the age of 14 years smoked daily²².

Rates of smoking in Queensland have declined markedly since the introduction of strengthened tobacco legislation in Queensland. Queensland's rates of smoking have seen the greatest decline of all states and territories from 19.8 percent in 2004 to 17.2 percent in 2007. However, we still have the third highest rate of smoking in the country after the Northern Territory and Tasmania, and higher than the national average²³.

In 2004-05, 50 percent of Indigenous Australians smoked daily.

²¹ Department of Health and Ageing, 2008. *2007 Australian National Children's Nutrition and Physical Activity Survey*. Commonwealth of Australia, 2008.

²² Australian Institute of Health and Welfare, 2008. *2007 National Drug Strategy Household Survey*. Canberra: AIHW.

²³ Ibid.

Physical inactivity

It is well documented that participation in regular moderate-intensity physical activity results in a range of individual health benefits including: reduced risk of

cardiovascular disease and stroke; prevention of some cancers; reduced risk of becoming overweight; prevention and treatment of type 2 diabetes; enhanced bone and muscle development and prevention of osteoporosis. Social and emotional benefits have also been demonstrated, with studies showing students who are physically active tend to perform as well or better academically than less active students, and have improved concentration; enhanced memory and learning; enhanced creativity; and better problem solving ability.

Regular physical activity aids weight loss and improves lipid profile. Regular moderate activity (30 minutes on most days of the week) is associated with a decrease in LDL-cholesterol of 10% and an increase in HDL-cholesterol of 5% (Powers SK et al. *Current Opinion Cardiology* 2002; 17:495-502).

Physical inactivity was shown to be the third largest contributor to the burden of disease in Queensland in 2003 (6.6 percent) – 6.4 percent for males and 6.9 percent for females.

It has been estimated (1999-2001) that a lack of physical activity contributed to 646 deaths in Queensland per year, of which about 60 percent were males. Physical inactivity has a direct health care cost of approximately \$400 million per year.

A gross saving of up to \$8 million per year could be achieved for every 1 percent increase in the proportion of the population who are sufficiently active²⁴.

- Adults

In 2005, 68 percent of Queensland men (highest in the country) and 72 percent of women (third highest in the country) reported they did not undertake any, or very little exercise for sport, recreation or fitness (in the previous two weeks)²⁵. That is, only 32 percent of men and 28 percent of women, over the age of 15, were physically active.

In 2008, slightly more than half (53 percent) of Queensland adults did enough physical activity to achieve health benefits²⁶ (i.e. 30 minutes of moderate activity on most days of the week). Between 1997 and 2001 the number of Queenslanders who were active enough for health declined from 49 percent to 45 percent, and to 40 percent in 2004. Although since 2005 the results show an improvement in activity levels, around half of Queenslanders are still not active enough for good health.

Although 30 minutes of moderate activity is the recommendation for good health, there is growing evidence which suggests that the amount of time spent sitting may impact on the amount of physical activity required to maintain healthy weight or for weight loss. For example,

²⁴ Stevenson J, Bauman A, Armstrong T, Smith B, Bellew B. 2000. *The Costs of Illness Attributable to Physical Inactivity in Australia – a preliminary study*. Canberra: Commonwealth of Australia.

²⁵ Australian Bureau of Statistics 2008. *Australian Social Trends, 2008*. Canberra: ABS.

²⁶ Queensland Health 2008. *The Health of Queenslanders 2008: second report of the Chief Health Officer Queensland*. Brisbane: QH.

for people who sit for more than four and a half hours per day (at home, work or in transport), 60 minutes per day of moderate activity may be needed to maintain or lose weight²⁷.

- Children

In 2006, fewer than one in six Queensland boys (17 percent) and one in 15 girls (7 percent) aged 5-17 years achieved the recommended levels of physical activity of at least one hour of moderate to vigorous activity every day, and the proportion decreased with age.

By comparison, 69% of Australian children, aged 9 to 16 years met the guidelines for physical activity in 2007²⁸.

Just over 50 percent of children were active for an hour or more on three days of the week, while one quarter of children exceeded the recommendation for screen based entertainment (i.e. more than two hours per day in leisure time)²⁹. Whereas, only 33 percent of 9 to 16 year olds nationally, met the guidelines for daily "screen time"³⁰.

Poor diet

Good nutrition is essential for normal growth and the physical and cognitive development of infants and children, enhanced resilience and quality of life, good physical and mental health throughout life, resistance to infection and protection against chronic diseases and premature death³¹.

Eating vegetables and fruits protects against a range of health problems, including coronary heart disease, obesity, type 2 diabetes and some cancers. Insufficient fruit and vegetable intake caused 1.2 percent of the burden of disease in Queensland in 2003 – 1.6 percent for men and 0.8 percent for women.

For over 50 years it has been known that there is a relationship between diet and chronic vascular diseases. Diet, to a large extent, influences blood lipids and high blood pressure (Colquhoun D. *Asia Pacific Journal of Clinical Nutrition* 2000; 9 (supplement): S26-S90). Interestingly the seven countries study demonstrated that, over a 30 year follow-up on 10,000 individuals, a Mediterranean or Japanese diet markedly reduced the risk associated with high blood pressure or elevated cholesterol by more than 50% compared to a western modern diet (Verscharan et al. *Journal of the American Medical Association* 1995; 274: 131-36. Van der Hoogan PC et al. *New England Journal of Medicine* 2000; 742: 1-8). Consistent with this population study, the Lyon Diet Trial demonstrated that a Mediterranean-style diet given to patients following a heart attack decreased mortality by >50% over a four year period independent of risk factors and drugs (deLorveric M et al. *Mediterranean Diet. Final Report of the Lyon Diet Study. Circulation* 1999; 99: 779-85).

²⁷ Brown W and Ball K. 2007. *Physical activity and energy balance*. Prepared by the National Physical activity Program Committee, National Heart Foundation of Australia.

²⁸ CSIRO 2008. *2007 Australian national children's nutrition and physical activity survey*. Canberra: Commonwealth of Australia.

²⁹ Abbott RA, Macdonald D, Mackinnon L, Stubbs CO, Lee AJ, Harper C, Davies PSW. 2007. *Healthy Kids Queensland Survey 2006 – Summary Report*. Brisbane: QH.

³⁰ CSIRO 2008. *2007 Australian national children's nutrition and physical activity survey*. Canberra: Commonwealth of Australia.

³¹ Queensland Public Health Forum. 2002. *Eat Well Queensland 2002-2012: Smart Eating for a Healthier State*. Brisbane: Queensland Public Health Forum.

- Adults

In 2008 only about 22.5 percent of Queensland men and 42 percent of women ate four or more serves of vegetables per day. Although fruit consumption was higher, only about 55 percent of adults ate the recommended two serves of fruit per day³².

Over the past 18 months Queensland's Go for 2&5[®] fruit and vegetable campaign has increased consumption of fruit and vegetables by 0.7 serves per person per day (from 3.5 to 4.2 serves), equating to an estimated saving of \$35 million per year for the Queensland health system.

- Children

Although the Healthy Kids Queensland Survey (2006) found that energy intake for 5-17 year olds was within recommended levels, there is some concern about the quality of the children's diets, particularly the low levels of fruits and vegetables. Only two thirds of year 1 and half of year 5 boys and girls ate the recommended serves of fruit; year 10 students however, fell significantly short. Very few year 1, 5 and 10 children ate the recommended serves of vegetables. In addition, many of the children's diets contained well below the recommended levels of calcium, vitamin C and iron³³.

These results are similar to the national results from the 2007 Australian National Children's Nutrition and Physical Activity Survey where:

- 61 percent of 4 - 8 year olds and only 1 percent of 14 - 16 year olds ate the recommended serves of fruit, and
- 22 percent of 4 - 8 year olds and 5 percent of 14 - 16 year olds ate the recommended serves of vegetables.

Alcohol

Alcohol consumption has both positive and negative effects on health. It is thought that, at moderate levels (i.e. 1 – 2 standard drinks), drinking alcohol may reduce the risk of heart disease in middle-aged people. However, regular excessive consumption can lead to a range of illnesses and early death, including cardiovascular diseases and some cancers, and through accident or injury.

Alcohol misuse impacts significantly across the community, including workforce productivity, healthcare services (e.g. hospitals and ambulances), road accidents, law enforcement, property damage and insurance administration. The annual cost to the Australian community from alcohol misuse and related harm is estimated to be more than \$15 billion³⁴.

³²Queensland Health 2008. *The Health of Queenslanders 2008: second report of the Chief Health Officer Queensland*. Brisbane: QH.

³³Abbott RA, Macdonald D, Mackinnon L, Stubbs CO, Lee AJ, Harper C, Davies PSW. *Healthy Kids Queensland Survey 2006 – Summary Report*. 2007. Brisbane: QH.

³⁴Collins DJ and Lapsley HM. 2008. *The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/05*. National Drug Strategy Monograph Series No. 64. Canberra: Commonwealth of Australia.

In 2007, 11.8 percent of Queenslanders aged 14 years and older had a usual alcohol consumption that put them at risk of harm in the long term: 11.5 percent for males and 12.1 percent for females. This is the third highest in the nation. In addition, 37.2 percent of Queenslanders were drinking at levels which put them at risk of harm in the short term: 40.9 percent of males and 33.5 percent of females³⁵.

The (draft) Australian alcohol guidelines for low risk drinking recommend no more than “two standard drinks in any one day” for men or women, and “not drinking during pregnancy is the safest option” (National Health and Medical Research Council, 2007).

High blood pressure

Hypertension or high blood pressure may be caused by stress, overweight or obesity, high alcohol consumption, physical inactivity and poor diet including high salt intake. High blood pressure increases with age, and males are more likely to have high blood pressure than females. High blood pressure can lead to coronary heart disease, stroke and chronic kidney disease³⁶.

In 2003, high blood pressure contributed 5.1 percent to the burden of disease in Queensland; 5.5 percent for males and 4.7 percent for females.

It is estimated that only 50 percent of people with high blood pressure are diagnosed, and of those only half are adequately treated. In 2005, 26.3 percent of Queensland adults reported they had been told they had high blood pressure.

High blood cholesterol

High levels of blood cholesterol is a major risk factor for coronary heart disease – the greatest cause of death and disability in Australia – and increases the risk of stroke.

In Queensland in 2003, high blood cholesterol contributed 6.3 percent of the total disease burden; with 6.6 percent for males and 6.0 percent for females.

In 2005, approximately 30 percent of Queensland adults reported that had been informed they had high cholesterol.

³⁵ Australian Institute of Health and Welfare 2008. *2007 National Drug Strategy Household Survey*. Canberra: AIHW.

³⁶ Australian Institute of Health and Welfare, 2002. *Chronic diseases and associated risk factors in Australia, 2001*. Canberra: AIHW.

The cost of chronic disease

Chronic disease is expected to increase over the next 15 years to 2023, with type 2 diabetes projected to become the leading cause of the total burden of disease during this time, mostly due to the increase in prevalence of overweight and obesity³⁷.

The direct costs of providing health care to people with chronic disease are substantial. It has been estimated that 15 percent of the population, most of them with chronic conditions, generate about 60 percent of all healthcare expenditures.

In Queensland, treating chronic diseases costs \$5 billion per year in direct healthcare costs alone. Additional costs to the Queensland economy from lost productivity and other social factors, such as lost earnings and costs to carers amount to \$22 billion per year.

Over the next 20 years, the number of hospitalisations in Queensland is expected to double due to the ageing of the population and the increasing burden of chronic disease, particularly diabetes and associated kidney failure.

The healthcare system will not be able to manage the current and growing pressures that will result from increasing levels of chronic disease in the population.

In addition to the direct health costs of chronic disease, chronic disease indirectly costs Australian society over \$30 billion per year, primarily due to lost productivity related to absenteeism and presenteeism (calculated at 6 working days lost for each employee annually)³⁸.

- The total cost of obesity in Australia in 2008 was estimated at \$58.2 billion in financial costs and lost wellbeing. The economic cost of obesity in Queensland was \$11.6 billion³⁹.
- Poor nutrition is responsible for approximately 16 percent of the total burden of disease, is implicated in more than 56 percent of all deaths, and costs in excess of \$5 billion nationally per year, including \$3 billion in direct health care costs⁴⁰.
- Physical inactivity costs \$1.5 billion per year nationally in direct health care costs⁴¹.
- The total annual estimated cost of tobacco smoking in Australia in 2004-05 was \$31.5 billion⁴².

³⁷ Begg S, Voss T, Goss J, Barker B, Stevenson C, Stanley L, Lopez A. 2006. *The burden of disease and injury in Australia 2003*. Centre for Burden of Disease and Cost-Effectiveness, School of Population Health, University of Queensland.

³⁸ Medibank Private. 2007. *Sick at work: the cost of presenteeism to your business, employees and the economy*. Econotech for Medibank Private.

³⁹ Access Economics. 2008. *The growing cost of obesity in 2008: three years on*. Report for Diabetes Australia, Canberra.

⁴⁰ *Eat Well Australia: A strategic framework for Public Health Nutrition 2000-2010*. 2000. Canberra: National Public Health Partnership.

⁴¹ Medibank Private. *The cost of physical inactivity. What is the lack of participation in physical activity costing Australia?* August 2007.

⁴² Collins DJ and Lapsley HM. 2008. *The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/05*. National Drug Strategy Monograph Series No. 64. Canberra: Commonwealth of Australia.

- The annual national cost to the community of alcohol-related social problems was estimated to be \$15.3 billion in 2004-05⁴³.

Spending on prevention is very small compared with cost of treatment and management of chronic disease.

Spending on prevention

In 2006-07 Australia spent \$94 billion (or \$4,507 per person) on health goods and services – 9 percent of Gross Domestic Product (GDP). While similar to 2004-05 spending as a proportion of GDP, this is an increase over the past decade from 7.7 percent of GDP in 1996-97.

Queensland's recurrent health expenditure (from all sources, and excluding spending on infrastructure) in 2006-07 was \$16.6 billion (or \$4,025 per person). While showing the fastest real growth in recurrent health expenditure of all states and territories of 21.1 percent from 2003-04⁴⁴, and 4.1 percent per annum in recurrent health expenditure per person, Queensland's spend per person is the second lowest in the country and \$160 per person below the national average.

During the same period, a total of only \$1.7 billion was spent on public health activities in Australia⁴⁵.

Public health activities are those that address the factors that determine or cause illness and aim to protect or promote health and prevent disease, such as organised immunisation, communicable disease control, health promotion activities, environmental health, food standards and hygiene, screening programs, prevention of hazardous and harmful drug use and public health research.

Of this, 70.4 percent was spent by state and territory governments and 29.6 percent by the Australian Government. Organised immunisation made up 25.4 percent of the total expenditure (\$436 million), followed by selected health promotion activities (\$283.8 million or 16.5 percent) and \$261.9 million on screening programs (15.3 percent).

During 2006-07, it is estimated that the Queensland and Australian governments spent a total of \$79.77 per capita on public health activities in Queensland (see Table 4 below). This is the second lowest of all states and territories⁴⁶.

Assuming continued growth in government public health expenditure of 4.2 percent per annum, the national average expenditure will be \$93 per person in 2009-10. An increase in total (Queensland and Australian) government expenditure on public health in Queensland from approximately \$80 per person in 2006-07 to \$100 per person in 2009-10 would put us ahead of New South Wales, Victoria and Western Australia, but behind South Australia, Tasmania and the Territories.

⁴³ Ibid.

⁴⁴ Australian Institute of Health and Welfare 2008. *Health Expenditure in Australia 2006-07*. Canberra: AIHW.

⁴⁵ Australian Institute of Health and Welfare 2008. *Public Health Expenditure in Australia 2006-07*. Canberra: AIHW.

⁴⁶ Ibid.

Activity	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Average
Communicable disease control	12.17	9.67	10.28	14.02	13.81	12.19	21.05	67.10	12.19
Selected health promotion	9.17	19.22	11.55	14.30	12.23	13.71	21.12	51.47	13.61
Organised immunisation	19.97	20.92	19.89	19.08	21.53	20.47	22.77	81.76	20.90
Environmental health	3.16	2.65	5.04	5.87	4.83	8.72	9.97	27.58	4.29
Food standards and hygiene	1.55	1.30	1.31	1.85	2.17	1.44	8.28	4.58	1.65
Screening programs	12.50	11.64	13.57	10.02	13.05	16.16	13.48	28.38	12.56
Prevention of hazardous and harmful drug use	6.81	7.66	11.90	13.43	14.63	16.11	11.63	42.03	9.94
Public health research	6.46	7.77	6.22	7.89	8.09	6.64	6.73	13.42	7.08
Total	71.78	80.84	79.77	86.45	90.33	95.44	115.02	316.32	82.22

(a) Includes expenditures incurred by state and territory governments that are wholly or partly funded by the Australian Government through SPPs to states and territories.

(b) Includes estimates of direct expenditure incurred by the Australian Government on its own public health programs which have been apportioned across states and territories (see Appendix).

(c) Based on the annual mean resident population for the jurisdiction concerned.

Table 4: Estimated total government expenditure^{(a)(b)} per person^(c) on public health activities in each state and territory, current prices, 2006-07 (\$)

Source: Australian Institute of Health and Welfare 2008. *Public Health Expenditure in Australia 2006-07*, p10. Canberra: AIHW

This represents a 25 percent increase over 2006-07 investment by the Queensland and Australian Governments. On 2006-07 population levels, this corresponds to an increase in Queensland Government expenditure of \$50 million, from \$230 million to \$280 million, and Australian Government expenditure from \$96 million to \$120 million.

However, if Queensland is to achieve its Q2 ambition of becoming Australia's healthiest State by 2020, further significant and targeted investment in public health and wellbeing, and disease prevention is required over the long-term. Our per capita investment in prevention should be one of the largest in the country if we are serious about becoming Australia's healthiest people.

Cost savings from prevention

Small changes in behaviours at a population level can produce significant health improvements. Reduction in the incidence and prevalence of chronic disease risk factors can lead to rapid improvements in health at both the population and individual levels.

It has been demonstrated that for every \$1 spent on disease prevention programs (increasing physical activity, improving nutrition and reducing smoking), there is a return on investment of \$5.60 within five years⁴⁷.

⁴⁷ Trust for Americas Health, 2008. *Prevention for a healthier America: investments in disease prevention yield significant savings, stronger communities*. Trust for America's Health, <http://www.healthyamericans.org>.

Reducing smoking rates, promoting healthy eating and physical activity in Queensland can save almost 3,500 deaths per year, and significantly reduce the risk of chronic diseases⁴⁸. For example:

- Lifestyle prevention strategies can reduce the risk of diabetes by 60 percent⁴⁹ and of coronary heart disease by 37 percent⁵⁰.
- If all overweight or obese Australians lost 5kg, there would be a \$44 million saving per year in health care costs associated with diabetes and its complications alone⁵¹.
- Reducing the proportion of Queenslanders who smoke to 15 percent would save around 4,750 lives and \$112.9M in treatment costs for cancer, chronic obstructive pulmonary disease and cardiovascular disease over the next 30 years⁵².
- Up to \$8 million per year could be saved for every 1 percent increase in the proportion of the population that are physically active for health benefit (i.e. 30 minutes per day)⁵³.
- Reducing dietary salt intake by 3g per day will result in a reduction in deaths from stroke by 22 percent and ischemic heart disease by 16 percent⁵⁴.

However, the argument for cost savings and economic benefits of prevention should not be the only driver for action. While evidence shows that there are significant economic costs from chronic diseases and their associated risk factors, there are also significant social consequences for individuals and society. Obesity for example can have tragic personal costs, with studies demonstrating psychological trauma, social isolation and discrimination of overweight or obese children.

Investment in Queenslanders' health is not just an investment in our health system. It is an investment in quality of life and will lead to greater productivity of our workforce, create more liveable and active communities, assist to reduce congestion and transport costs, and build greater social interaction and engagement.

⁴⁸ Harper C, Cardona M, Bright M, Neill A, McClintock C, McCulloch B, Hunter I, Bell M. 2004. *Health Determinants Queensland 2004*. Brisbane: Public Health Services, QH.

⁴⁹ Diabetes Australia, 2008. *Diabetes data: don't ignore diabetes* [online]. Cited 23 September 2008. <http://www.diabetesqld.org.au/>

⁵⁰ Queensland Health. 2006. *The Health of Queenslanders 2006. Report of the Chief Health Officer, Queensland*. Brisbane: QH.

⁵¹ Marks G, Coyne T, Pang G. 2002. *Type 2 diabetes costs in Australia – the potential impact of changes in diet, physical activity and levels of obesity*. Canberra: Commonwealth Department of Health and Ageing.

⁵² Population Health Branch, Queensland Health. *Importance of prevention, promotion and protection in addressing smoking, nutrition, alcohol consumption and physical activity*. Brisbane: QH.

⁵³ Ibid.

⁵⁴ National Health and Medical Research Council, 2003. *Dietary Guidelines for Australian Adults*. Commonwealth of Australia.

Key Finding 1: Prevention is critical

The old adages “prevention is better than cure” and “a stitch in time saves nine” could never be truer. It makes sense that it is better to keep people healthy and prevent illness, than to wait until people are sick to treat it. And it’s the right thing to do.

We know that to be healthier, we need to move more, eat less, quit smoking, and drink in moderation.

There is no quick fix or magic bullet. The problems created over decades will not be repaired overnight or over a political term. It will take urgent, sustained, coordinated and concentrated effort across all levels of government, the non-government sector and private sectors and the community over a number of years. The Government must be bold enough to act and commit sufficient funds over the long term.

The state of play

Significant work is underway but more must be done. Greater leadership, better coordination and collaboration (at all levels of government and across government) are needed to affect real change.

Queensland

In 2005, Queensland Health released the *Queensland Chronic Disease Strategy 2005-2015*, and invested more than \$150 million (over four years) in chronic disease prevention, early detection and self-management programs and to help better manage patients with chronic disease. Although health sector focused, this Strategy may provide the context for the next four years of action in Queensland.

In 2005 Queensland implemented, what was then, the strongest anti-smoking laws in the country. Queensland Health runs Quit smoking campaigns over 25 weeks per year, and provides the Quitline service to support smokers wanting to quit smoking. There is still room for improvement. Tasmania now has the strongest tobacco legislation in the country - continuing to strengthen our tobacco legislation and enforcement is a low cost option. NSW has a smoking rate of 16.4 percent and 52 weeks/year of Quit campaign activity, while Queensland has 25 weeks of Quit campaign activity in 2008. Continued commitment to Quitline campaign and counselling services is required to achieve further declines in smoking rates.

Queensland Health also provides a range of community information resources and manages a range of alcohol cessation programs, including the most recent social marketing campaign "Make up your own mind about drinking", which encourages young women aged 18 to 22 years to reduce risky drinking.

As a result of the 2006 Obesity Summit, the Government invested \$21 million in a package of initiatives to combat overweight and obesity, focussed primarily on physical activity and healthy eating. Coordinated by the Eat Well Be Active Taskforce under the "Eat Well Be Active" title, these initiatives included marketing campaigns for physical activity (Find Your 30 <http://www.your30.qld.gov.au/>) and healthy eating (Go for 2&5[®]), a funding program to support community partnerships in physical activity and healthy eating, and activities to support environments for active and healthy living.

Queensland Health and Sport and Recreation Queensland also offer a range of resources and training programs for teachers and health professionals, and general community information resources on healthy eating and physical activity. Queensland Transport supports the *TravelSmart* (<http://www.travelsmart.gov.au/>) Communities program which encourages active transport (cycling and walking).

In 2007 and 2008, respectively, Education Queensland implemented the *Smart Choices* (healthy eating) and *Smart Moves* (physical activity) policies as mandatory in Queensland state schools. Smart Choices uses a 'traffic light' system to identify healthy food and drink choices (green) and limits the number of unhealthy (red) food and drinks supplied in schools and at school events.

Smart Moves requires primary schools to allocate 30 minutes per day of physical activity during the school curriculum and lower secondary schools to allocate 2 hours of physical activity per week during curriculum time. Unfortunately, there are no similar requirements for childcare centres or outside school hours care providers in Queensland.

Over the past 12 months the Queensland Government has:

- Launched Towards Q2: Tomorrow's Queensland, which outlines ambitious targets to reduce "obesity, smoking, heavy drinking and unsafe sun exposure by one third" by 2020.
- Committed to strengthen Queensland's current anti-smoking laws by banning smoking in cars carrying children and granting councils power to regulate smoking in malls and bus stops.
- Opened a new cycle centre in Brisbane's King George Square, in partnership with the Brisbane City Council, to enable more Brisbane residents to cycle to work.
- Announced it will consider a ban on junk food advertising during children's television viewing times.
- Launched a new statewide competition that rewards towns, schools and workplaces for healthy living initiatives, with prize money for community health and wellbeing infrastructure and programs.

Although undoubtedly worthwhile in their own right, there appears to be a lack of coordination of programs across government, and little alignment with activities of the non-government and private sectors and other levels of government. There is no substantial whole-of-government policy platform to provide a uniform direction and focus for these activities, and there is no clear leadership or imperative from within Government to prioritise policy and action. Without these, the initiatives suffer from a lack of profile and impact.

Key Finding 2: Coordination is required

There appears to be a lot of 'activity' across government (and the private and non-government sectors) which is attempting to address the issue of chronic disease prevention. However, there appears to be little or no coordination of this activity, resulting in duplication of effort, gaps in service delivery, poor cost effectiveness and program efficiency, and lack of impact of initiatives.

Chronic disease prevention is not just the business of the health sector. It requires a truly whole-of-Government approach to be effective, and commitment and coordinated action from education, sport and recreation, local government, environment, infrastructure and planning, housing, communities, employment and industrial relations, transport, main roads and others.

To achieve the ambition of Queenslanders being Australia's healthiest people and reach the targets for reducing chronic disease, there must be better coordination across government – underpinning policy platform for chronic disease prevention and overarching coordination – a high level champion / driver and budgetary support. It is imperative that Q2's clear goals and targets drive urgent action.

Other Australian States

New South Wales

NSW has recently invested \$36 million in a statewide *Obesity Strategy*, which includes: a sustained statewide social marketing campaign promoting healthy eating and physical activity; establishment of a Get Healthy Advice Line to provide information and coaching for those wanting to change to a healthier lifestyle; a Parenting Program to support parents of overweight and obese children; establishment of an obesity prevention research centre and specialised medical and surgical clinics to provide multidisciplinary medical programs to those who are morbidly obese.

The *Premier's Council for Active Living* was established in 2004 (replacing the NSW Physical Activity Taskforce which met from 1996-2002) and aims to build and strengthen the physical and social environments in which communities engage in active living. The Council provides advice to the government on government guidelines, policy, and legislation with a view to increasing the physical activity levels of all people in NSW.

South Australia

Preventative Health is one of the priority areas of South Australia's Strategic Plan, which outlines targets for smoking, healthy weight and physical activity to be achieved over a 10 year time frame:

- Smoking: reduce the percentage of young cigarette smokers by 10 percentage points between 2004 and 2014.
- Healthy weight: increase the proportion of South Australians 18 and over with healthy weight by 10 percentage points by 2014.
- Sport and recreation: exceed the Australian average for participation in sport and physical activity by 2014.

The *'Do It For Life'* program is a government coaching and self-management initiative that aims to reduce risk factors for South Australian adults at high risk of developing preventable chronic diseases. The program employs Lifestyle Advisors and Lifestyle Support Officers who assess, monitor, support and provide feedback to patients (who have been identified at being high risk of developing chronic disease or have one of the risk factors) over a period of three to 12 months. The Advisor or Support Officer helps the patient set lifestyle goals and develop an action plan, which may include referral to other health professionals. Patients can be referred by a GP or other Health Professional, or refer themselves to the program.

Tasmania

Coordinated as part of the Premier's Physical Activity Council, *Get Moving Tasmania* (<http://www.getmoving.tas.gov.au/>) is a state-wide initiative which encourages all Tasmanians to increase their levels of physical activity as part of a healthy and active lifestyle. The website supports the *Tasmanian Physical Activity Plan 2005-2010 – Live Life Get Moving* – and provides

the principle source of public information about physical activity and physical activity initiatives and events throughout Tasmania.

Due for release in December 2008, the Tasmanian Department of Health and Human Services is currently developing a state-wide chronic disease strategy which will build on the reforms outlined in Tasmania's Health Plan.

Tasmania currently has the strongest tobacco control legislation in the country, including: restrictions on the display and sale of tobacco products, with full bans to come into effect in February 2011; and from January 2008 it is an offence to smoke in vehicles carrying children.

Victoria

VicHealth, the Victorian Health Promotion Foundation, was established in 1987 as a statutory authority under the *Tobacco Act of 1987* as the world's first health promotion foundation. Initially funded through the hypothecation of State tobacco taxes, *VicHealth* has been funded through the Victorian State Budget since 1997 (approximately \$29 million in 2005-06). *VicHealth* has a broader health promotion agenda, funding projects, developing knowledge and raising awareness of health promotion issues.

'Go for your life' (<http://www.goforyourlife.vic.gov.au/>) is the Victorian Government's \$150 million health and wellbeing initiative to encourage healthy eating and physical activity and promote healthy weight, and includes: kitchen gardens in schools; promoting a healthy body image in teenagers; and diabetes prevention and healthy and active seniors programs.

The *Victorian Tobacco Control Strategy 2008-2013* proposes strengthened tobacco legislation, including banning smoking in cars carrying children, and greater support for programs to help pregnant women and Indigenous Victorians quit smoking.

In a world-first initiative, the Victorian Government will invest \$600 million over five years in *WorkHealth* (from surplus WorkCover funds) to screen Victoria's 2.6 million workers for preventable diseases such as diabetes. Those workers found to be at medium or high-risk, or diagnosed with a preventable disease, will be referred to their GP and will also be able to participate in a lifestyle change program. *WorkHealth* will also provide: dollar-for-dollar grants for larger employers (with payrolls over \$10 million) to cover the cost of screening and to provide advice and lifestyle programs at their worksite; lifestyle change and prevention programs for those workers most at risk; and an education campaign.

Community Indicators Victoria (CIV) (<http://www.communityindicators.net.au/>) is a publicly accessible web-based resource which provides social, economic, environmental, democratic and cultural community wellbeing measures, for each local government area in Victoria. This information can be used to better engage the community in decision making, community planning and policy making; inform policy makers (at state and local levels); and help to prioritise community action. CIV uses an integrated set of community wellbeing indicators based on: healthy, safe and inclusive communities; dynamic, resilient and fair economies; sustainable built and natural environments; culturally rich and vibrant communities; and democratic and active citizenship.

Western Australia

The Western Australian Health Promotion Foundation, known as *Healthway*, was established in 1991 as a statutory authority under the *Tobacco Products Control Act 1990*. *Healthway* provides grants to health and research organisations, as well as sponsorships to sport, arts, racing and community groups which encourage healthy lifestyles and advance health promotion programs.

The Premier's Physical Activity Taskforce, established in 2002, and operating under the *Be Active WA* (<http://www.beactive.wa.gov.au/>) brand, brings together representatives from across government, the non-government sector, academics and the community to: support programs and services in schools, workplaces and the community to promote physical activity; plan transport and residential environments to make physical activity easier, more fun and safer; review legislative barriers to physical activity; and support local governments and other groups to increase levels of physical activity in the community.

The WA Government also supports a number of social marketing campaigns, including the *Go for 2&5*[®] (<http://www.gofor2and5.com.au/>) fruit and vegetable campaign, *Crunch and Sip*[®] (<http://www.crunchandsip.com.au/default.aspx>) campaign to promote fruit (and vegetables) and water breaks during class times in schools, and the *Find Thirty*[®] every day (<http://www.findthirtyeveryday.com.au/>) campaign to promote physical activity.

Australian Government

There are a number of new developments nationally which should provide the context for Queensland's response to chronic disease. While Queensland should not wait for the final outcomes of this national work before it acts, it is crucial that Queensland is an active participant and leader in national programs for chronic disease prevention.

The National Preventative Health Taskforce has recently released its discussion paper *Australia: the healthiest country by 2020*, and three technical papers on obesity, tobacco control and alcohol-related harm. The Taskforce proposes a number of targets which can be achieved by 2020:

- Halt and reverse the rise in overweight and obesity
- Reduce the prevalence of daily smoking to 9 percent or less
- Reduce the prevalence of harmful drinking for all Australians by 30 percent, and
- Contribute to closing the 17 year gap in life expectancy between Indigenous and non-Indigenous Australians.

The paper outlines options for reform and seeks public submissions, before delivering its National Preventative Health Strategy to the Australian Government in mid-2009.

Through the national health reform agenda, the Commonwealth Government has instigated a range of initiatives to refocus and realign funding, governance and service delivery arrangements with states and territories to support chronic disease prevention. These include:

- In 2006 the Coalition of Australian Governments (COAG) agreed to a \$1.1 billion package to achieve better health for Australians through the Australian Better Health Initiative (2006-2011). \$500 million has been allocated to promoting healthy lifestyles, supporting early detection of chronic disease and risk factors and lifestyle modification, encouraging active self-management of chronic disease and improving integration and coordination of care for people with chronic disease.
- The National Chronic Disease Strategy provides direction for improving chronic disease prevention and care across Australia.
- The National Primary Health Care Strategy will include providing incentives for GPs to practice quality preventative health care, through longer consultations and evidence-based management of chronic disease, and an increased focus on multi-disciplinary care from primary care teams.
- Medical Benefits Schedule Reform is also underway with a focus on improved management of chronic disease, improved provision of preventative care, and options for chronic disease management.

Canada

The Integrated Pan-Canadian Healthy Living Strategy (2005) is Canada's collaborative plan of action to address chronic disease and obesity. It outlines healthy living targets for physical

Canada Life Assurance began a health and wellness program for its employees in 1978. They reported a decrease in absenteeism, increase in productivity, decrease in turnover and improved employee morale over the duration of the program. More importantly, over 10 years there was a reduction in cardiovascular risk factors, and improved fitness of individuals. The company estimates that for every \$1 invested in the program, it returned \$6.85 in benefits to the company in reduced health claim costs and increased productivity.

activity, healthy eating and healthy weight for the nation and all provinces/territories. It outlines opportunities for action through policies and programs, research and surveillance and public information/social marketing.

British Columbia

Established in 2005, *ActNow BC* (<http://www.actnowbc.ca/>) is British Columbia's health and wellness initiative. Highly regarded for its cross-government, multi-sector partnership-based approach, *Act Now BC* is currently focussed on physical activity, healthy eating, maintaining a health body weight, tobacco-free living and healthy choices in pregnancy.

The initiative recognises the need to be proactive and encourages all British Columbians to act now towards a healthier lifestyle to achieve the living targets established for 2010:

- To increase by 20 percent the proportion of the population who are physically active (from 58 percent to 69.9 percent).
- To increase by 20 percent the proportion of the population who eat the daily recommended level of fruits and vegetables (from 40.1percent to 48.1percent)

- To reduce by 10 percent the proportion of the population that use tobacco (from 16 percent to 14.4 percent)
- To reduce by 20 percent the proportion of the population who are currently overweight or obese (from 42.3 percent to 33.8 percent).

Other key features of the initiative include:

- An investment of more than \$100 million over three years for public health initiatives.
- A Minister for Healthy Living and Sport (within the Ministry of Tourism, Sport and the Arts) is responsible for the program.
- All government ministries are required to include a new chronic disease prevention initiative in their corporate/budget plans annually, and cabinet and budget submissions must identify the impact on chronic disease.
- A sustained coordinated communications campaign including a multi-year multi-media social marketing campaign, integrated website and an ActNow BC Road to Health Tour to 40 communities in BC over a two year period.
- Strong partnerships with local government, the non-government and community sector and business to deliver the range of programs in schools, workplaces and the community.
- Regular evaluation and monitoring of progress against targets.

European Union

The *Health-EU Portal* (http://ec.europa.eu/health-eu/index_en.htm) is a web-based resource which provides easy access to comprehensive information on public health initiatives and programs, including health information for all ages and stages of life, lifestyle issues, health conditions and diseases, environmental health issues, medical care and treatment, and health policies, data and programs for the EU.

In 2007, the city of Paris introduced a new self-service bicycle transit system called Vélib, where people can pick up and drop off bicycles throughout the city. By the end of 2007, there was a Vélib automated rental station (each with 15 or more bikes/spaces) approximately every 300m throughout the city centre at a total of 1,451 locations and 20,600 bikes, making Vélib the largest system of its kind in the world. To access the bikes, riders can select a one-day card, a weekly card or an annual card. The first half-hour is free and an additional 1 Euro is charged for each additional half-hour. The city of Paris has over 371 km of cycling lanes.

Ireland

Released in 2008, *Tackling Chronic Disease – a policy framework for the management of chronic disease* aims to: promote and improve the health of the population and reduce the risk factors that contribute to the development of chronic disease; and promote structured and

integrated care in the appropriate setting that improves the outcomes and quality of life for patients with chronic conditions.

Japan

Under a national law that came into effect in April 2008, Japanese companies and local governments must measure the waistlines of Japanese people between the ages of 40 and 74 years, as part of their annual checkups. Dietary advice to lose weight will be provided to those who exceed the government's waist measurement limits (recommended by the International Diabetes Federation in 2005 as a guide to identifying health risks). To reach its goals of reducing the proportion of the population who are overweight by 10 percent over the next four years and 25 percent over the next seven years, the government will impose financial penalties on companies and local governments that fail to meet specific targets.

New Zealand

A new Public Health Bill will give the New Zealand Government powers to manage a wide range of public health risks, including some provisions (such as the possibility of regulations) to deal with non-communicable/chronic diseases such as cancer, diabetes, cardiovascular disease and obesity.

Healthy Eating – Healthy Action (<http://www.moh.govt.nz/healthyeatinghealthyaction>), released in 2003, is the New Zealand Government's strategic approach to improving nutrition, increasing physical activity and achieving healthy weight for all New Zealanders. Delivered as a partnership between the Ministry of Health and Sport and Recreation New Zealand, the program links to *Push Play* (<http://pushplay.sparc.org.nz/>), the national physical activity program which has been running in New Zealand since 1995.

United Kingdom

In January 2008, the British Government released its obesity strategy, *Healthy Weight, Healthy Lives: a cross-government strategy for England*. With an initial focus on children, the strategy addresses five main policy areas to reduce England's overweight and obesity levels to 2000 levels: promote children's health; promote healthy food; build physical activity into (our) lives; support health at work and provide incentives more widely to promote health; and provide effective treatment and support when people become overweight or obese.

The UK government has established 350 healthy living centres using lottery funds in poorer communities to provide community-based health and wellness programs. The centres offer classes and skills training in exercise and cooking, computer instruction, healthy baby clinics, drug and alcohol counselling and other services.

The Government's investment of an £372 million (2008-2011) is in addition to the £1.3 billion investment in school food, sport and play and £140 million for Cycling England announced for 2008-2011. Some of the initiatives include:

- developing healthy school lunch box policies
- conducting an evidence-based marketing program to support people making lifestyle changes
- assisting companies make healthy workplaces part of their core business
- investing in cycling infrastructure, particularly in areas of high childhood obesity, and
- assisting local authorities manage the proliferation of fast food outlets in particular areas (e.g. near parks and schools) through planning regulations.

Scotland

Health Scotland is the national health improvement agency, established as a Special Health Board in the National Health Services Scotland. Their work covers every aspect of health improvement, from gathering evidence, to planning, delivery and evaluation, and spans the range of health topics, settings and life stages.

Take Life On, One Step at a Time (<http://www.takelifeon.co.uk/>) is the Scottish Government's healthy living program to promote healthy eating, physical activity and responsible alcohol consumption.

Under the *Schools (Health Promotion and Nutrition) Scotland Act*, the Scottish Government has recently introduced regulations to improve the health of school dinners and increase physical activity during the school day.

United States of America

Developed by the US Department of Health and Human Services, *Healthy People 2010* provides a framework for health improvement for the nation and aims to increase the quality and years of healthy life and eliminate health disparities. Ten Leading Health Indicators, reflecting the major health concerns in the US at the beginning of the 21st century, will be used to measure the health of the nation through *Healthy People 2010*, and include: physical activity; overweight and obesity; tobacco use; substance abuse; responsible sexual behaviour; mental health; injury and violence; environmental quality; immunisation; and access to health care.

The President's *HealthierUS* (<http://www.healthierus.gov/>) initiative is a national effort to prevent and reduce the costs of disease, improve people's lives, and promote community health and wellness. The initiative promotes healthy eating, physical activity, preventative screening and making healthy choices. *Steps to a HealthierUS* funds evidence-based community programs and interventions focused on reducing the burden of chronic diseases, including diabetes, obesity, and asthma, and related risk behaviours.

World Health Organisation

In May 2004, the World Health Assembly endorsed the World Health Organisation's *Global Strategy on Diet, Physical Activity and Health* in recognition of the significant contribution of these two risk factors on chronic disease prevention.

Key Finding 3: Lead by example

Government needs to demonstrate leadership – make the difficult decisions and lead by example. It needs to “walk the talk” and implement a range of programs to support its workforce and the community.

Government's leadership opportunities for preventing chronic disease are vast. Government employees comprise approximately eight percent of the Queensland workforce. It is responsible for all of the State's public schools, hospitals and community health services, mental health and correctional institutions and a significant number of Indigenous community stores. It owns and manages the State's major sport and entertainment venues, funds sporting clubs and licenses child care centres and outside school hours care providers. It builds, funds and maintains our extensive road and rail networks, regulates building and planning of our residential and commercial areas and open spaces, and provides public transport services in the south east.

This is not about creating a “nanny state”, but demonstrating that the Queensland Government is serious about improving the health and wellbeing of all Queenslanders by taking the lead and helping Queenslanders make the healthy choice the easy choice every day, in every way.

Engaging the community

The *Toward Q2* target for reducing obesity, smoking, and heavy drinking by one third provides a unique opportunity to harness collaborative action from all levels of government, the non-government and private sectors, and the community.

In a recent Newspoll survey (September 2008), commissioned by the Heart Foundation, Cancer Council, Public Health Association of Australia and Action on Smoking and Health, an overwhelming 84 percent of those polled supported taxes on alcohol and 88 percent supported tobacco taxes if the funds raised were directed into preventative health programs.

The time is right - it is evident that there is strong public support for prevention programs.

Measuring community wellness

The environmental quality of cities, towns and suburbs will be of critical importance to the health and wellbeing of their communities over the next 12 years to 2020 and beyond.

Worldwide, including Queensland, cities are urbanising at an unprecedented rate, creating denser urban fabric, entailing suburban absorption of natural and rural surrounds, and requiring extensive new road and transport infrastructure. While many regional centres are also coping with greater population growth and development as a result of mining and other industry growth, there are other regional towns which may be contracting as a result of the greater opportunities to be found in Queensland's growing regional and capital cities.

Compounding this is climate change, to which urbanisation and development are major contributors. Climate change is demanding we develop new ways to supply water and manage waste, to reduce greenhouse emissions, and to maintain and enrich biodiversity. The strategies we develop will have significant consequences on the health and wellbeing of our populations.

Increasing our capacity to prevent illness, such as those caused by smoking and obesity, was regarded at the Australia 2020 Summit to be as important as any other future health priority.

The concept of a Wellness Footprint or community wellbeing indicators is proposed as a way of measuring community health and wellbeing at a local level. It would provide a mechanism to more effectively plan and prioritise services, facilities and environmental improvements that would improve the overall quality of life at a local level.

A Wellness Footprint would enable Government and local government authorities to comparatively measure the wellness capacity of cities, towns and suburbs and provide the evidence to prioritise planning and development; services, infrastructure and facilities provision; and environmental improvements.

Wellness is broader than just physical health, and applies to the health of the environment, and the social and economic wellbeing of the community. Community Indicators Victoria (CIV) provides a precedent for this approach, but should be contextualised to provide Queenslanders with relevant information to meet their needs.

The concept is to develop a series of criteria which provides the ability to quantitatively measure the capacity of a community to facilitate and encourage a healthy lifestyle. A preliminary set of criteria (based on the CIV model) - which could assist to measure Queensland's community-level achievements towards all Q2 targets - could include:

Q2 Ambition	Measures
Healthy – making Queenslanders Australia's healthiest people	<ul style="list-style-type: none"> • Personal health and wellbeing (e.g. rates of chronic diseases, smoking, alcohol consumption, physical activity, nutrition, obesity, mental health) • Early childhood development (e.g. child health assessments, breastfeeding rates, immunisations) • Service availability (e.g. access to and satisfaction with healthcare services/providers/support groups, waiting times)
Green – protecting our lifestyle and environment	<ul style="list-style-type: none"> • Access to open space (e.g. accessibility and appearance of open spaces, percent living within 3km open space (metro)) • Transport accessibility (e.g. public transport use, extent and use of walking and cycling networks) • Energy use (e.g. greenhouse gas emissions, household energy use, renewable energy use) • Air quality (e.g. days pollution exceeded guidelines) • Water quality (e.g. water consumption per capita and per sector, condition of waterways) • Biodiversity (e.g. native vegetation cover) • Waste management (e.g. total waste generation per household, recycling per household)
Fair – supporting safe, caring and vibrant communities	<ul style="list-style-type: none"> • Personal and community safety (e.g. incidence of crime and family violence, road accident deaths and injuries) • Community connectedness (e.g. volunteer rates, percent who like living in local community) • Cultural diversity (e.g. community acceptance of people from diverse cultures and backgrounds) • Arts and cultural activities (e.g. access to and participation in arts and cultural activities) • Recreational and leisure activities (e.g. access to and participation in sport and recreational activities)
Smart – delivering world-class education and training	<ul style="list-style-type: none"> • Lifelong learning (e.g. early childhood education, numeracy and literacy rates, school retention rates, VET enrolments and tertiary qualifications)
Strong – creating a diverse economy powered by bright ideas	<ul style="list-style-type: none"> • Economic activity (e.g. business R&D and innovation, retail spending) • Employment (e.g. employment and unemployment rate) • Income and wealth (e.g. per capita income and distribution of income, educational qualifications) • Work-life balance (e.g. adequacy of work-life balance) • Housing affordability (e.g. rental affordability)

This document does not represent Queensland Government policy.

The Wellness Footprint is probably a world-first endeavour to provide a comparative measure that enables certain parts of cities and towns to be prioritised for the provision of infrastructure and services which promote healthy lifestyles.

The concept of a Wellness Footprint was presented by Michael Rayner at the Australia 2020 Summit in Canberra in April 2008. Strongly supported by the former marathon runner Rob de Castella, it was voted onto the Summit Health Agenda as its main 'out-of-the-box' idea for preventative illness and healthy lifestyle. At the Queensland 2020: Ideas to Action Forum held on Thursday 15 May, it was considered to be the primary idea of the Health Stream delegates in Queensland.

It could also be employed as an overlay over existing town plans and local growth management strategies to enable Councils to integrate targeted health lifestyle planning into these broader plans.

Key Finding 4: Wellness must become the social norm

Government will not be able to achieve the Q2 2020 targets alone. It will need to involve the private and non-government sectors and engage the community to create the momentum and sustain community action. Queenslanders have demonstrated that they can pull together to achieve challenging targets as we have done for water (*Target 140*).

The question is how to inspire and engage local communities, foster healthier schools, motivate the workplace and give people the tools to take control of their health (and existing illnesses) and make decisions for their long-term health and wellbeing.

We urgently need to re-orient the social norm towards wellness.

Providing communities with comparative information on their physical, social and environmental health and wellbeing is a vital step in engaging the community in collective action to address chronic disease.

Approaches to tackle chronic disease

There is strong evidence for what needs to be done to prevent chronic disease. We know that we need to stop smoking, drink responsibly, be more physically active, eat healthily (more fruit and vegetables and less of everything else) and maintain a healthy weight.

But we also know that providing people with this information and knowledge is not enough to change behaviour. This is because there are a range of other social and environmental factors which affect how a person makes decisions about their health and all other aspects of their life.

Determinants of health

These are things like their personal history, genetic make-up, personal skills, education and income levels, living and working environments, the sense of control they have over their lives, the communities in which they live, societal norms and the ease in which making a healthy choice is possible.

The determinants of health are often described as a “web of causes”, and explain how the interaction between the social, economic and environmental and genetic aspects of a person’s life impacts on their health behaviours and health status throughout their life. Figure 5 below demonstrates the complexity which surrounds health and health behaviours.

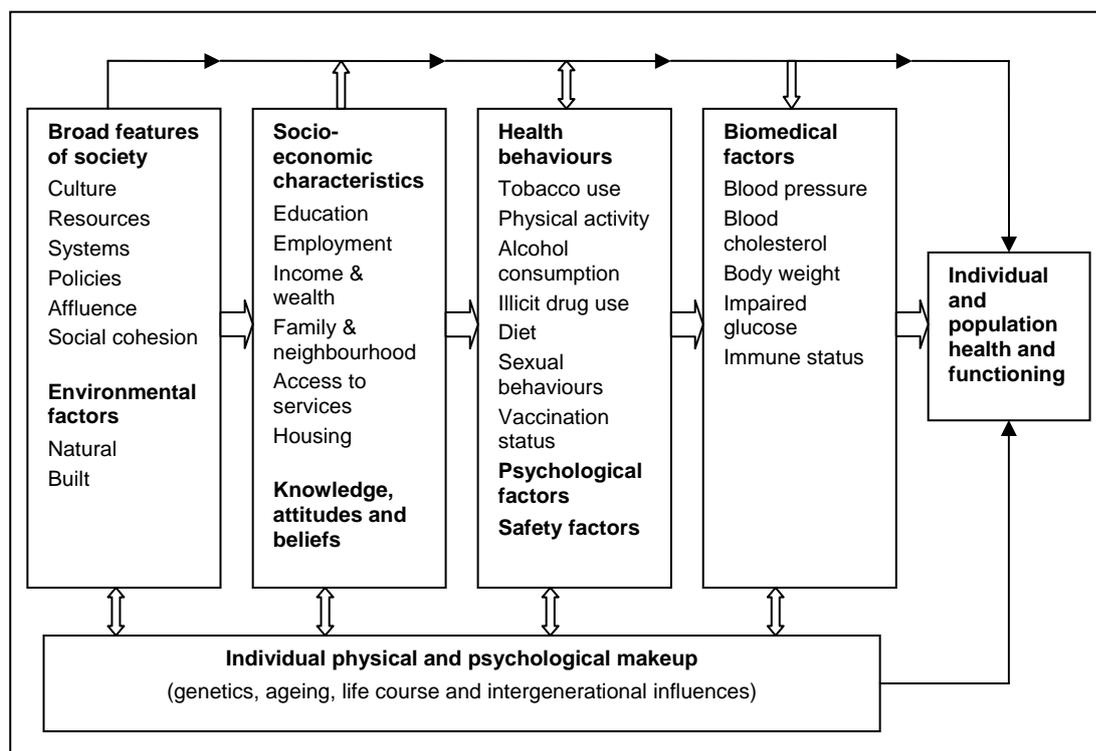


Figure 5: A conceptual framework for determinants of health
 (Source: Australian Institute of Health and Welfare 2008. *Australia's health 2008*. Canberra: AIHW, p. 111.)

Whether or not we can influence a person's health behaviours is determined by this complex range of factors.

Although this report will not add to the significant body of knowledge on health determinants, it is imperative that the determinants of health are integrated into the planning, design and delivery of programs to prevent chronic disease.

Priority population groups

Significantly, the greatest burden of ill health is borne by the most disadvantaged groups in society. The most socio-economically disadvantaged experience worse health than those of higher socio-economic status, for almost every cause of illness and death, for both males and females across the lifespan⁵⁵.

Regional and rural health status

Compared with major cities, regional areas of Australia experience higher prevalence of chronic disease risk factors, such as smoking (11 percent higher) and excess weight (7 percent higher); have higher death rates for coronary heart disease, chronic obstructive pulmonary disease, and diabetes; but have lower prevalence of asthma⁵⁶.

Socio-economic status and health⁵⁷

Socio-economic status is a strong predictor of health and risk of injury. There is a strong association between socio-economic status and smoking, physical inactivity, obesity and high risk drinking. That is, rates for these risk factors are higher in the lowest socio-economic groups. Except for females, where the rates of high-risk drinking were higher in the most advantaged areas.

For example, Australian's from the least advantaged areas were almost twice as likely to smoke than Australian's from the most advantaged areas; more than one-and-a-half times as likely to be physically inactive and obese; and one-and-a-quarter times more likely to drink alcohol at high-risk levels.

Compared with areas of high socio-economic status, people who live in less advantaged areas experience higher rates of diabetes, asthma, heart disease and arthritis; and have higher death rates from most chronic conditions.

⁵⁵ Harper C, Cardona M, Bright M, Neill A, McClintock C, McCulloch B, Hunter I, Bell M. 2004. *Health Determinants Queensland 2004: at a glance*. Brisbane: Public Health Services, QH.

⁵⁶ Australian Institute of Health and Welfare 2006. *Chronic disease and associated risk factors in Australia, 2006*. Canberra: AIHW.

⁵⁷ Ibid.

Health of Aboriginal and Torres Strait Islander peoples

Aboriginal and Torres Strait Islander peoples suffer a burden of disease that is two-and-a-half times greater than that for the total Australian population. Some of this is partly due to the higher death rates from infectious diseases, injuries and poisonings in the Indigenous population⁵⁸. However, if Indigenous Australians experienced the same burden of disease as other Australians, 29 percent of the total Indigenous Australian burden of disease could be avoided. There is a large potential for health gain⁵⁹.

Compared with other Australians, Aboriginal and Torres Strait Islander peoples have higher prevalence of smoking, risky alcohol use and excess weight; and experience higher rates of asthma, arthritis, diabetes and kidney disease^{60,61}.

- Although smoking had declined in the non-Indigenous Australian population to 17.4 percent in 2004-05, nearly half (49 percent) of Indigenous Australians smoked daily at this time. While smoking rates have continued to decrease for other Australians to 16.6 percent in 2007, there has been no significant change in smoking rates for Indigenous Australians.
- Although the levels of long-term risky/high risk alcohol consumption were similar for both Indigenous and other Australians, Indigenous Australians were twice as likely to consume alcohol at short-term risky/high risk levels than other Australians.
- Fifty-seven percent of Indigenous people aged 15 years and over were overweight or obese in 2004-05, compared to 54 percent of other Australians.
- Indigenous Australians were also more likely to report very low levels of physical activity (i.e. sedentary) than other Australians, at 75 percent compared with 70 percent.
- Although Indigenous Australians are less likely to meet the recommended intake of fruit (55 percent) compared to other Australians (46 percent), there was little difference in the rates of Indigenous (89 percent) and non-Indigenous Australians (86 percent) who did not meet the recommended daily intake of vegetables.
- Indigenous people experience 10 times the prevalence of kidney disease and three times the prevalence of diabetes than non-Indigenous Australians⁶².

The relative socio-economic disadvantage of Aboriginal and Torres Strait Islander peoples (including lower levels of education, employment, housing and income) puts them at greater risk of exposure to health risk factors and ill health.

⁵⁸ Australian Institute of Health and Welfare 2006. *Chronic disease and associated risk factors in Australia, 2006*. Canberra: AIHW.

⁵⁹ ABS and AIHW 2008. *Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples*. Canberra: Commonwealth of Australia

⁶⁰ Australian Institute of Health and Welfare 2006. *Chronic disease and associated risk factors in Australia, 2006*. Canberra: AIHW.

⁶¹ ABS and AIHW 2008. *Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples*. Canberra: Commonwealth of Australia.

⁶² Ibid.

Maternal and foetal health⁶³

In April 2008, the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) release a report on Aboriginal and Torres Strait Islander maternal, foetal and post-natal health, the findings of which have relevance to this report.

The report finds that the "health of the adult begins in the womb", and demonstrates that maternal illness, poor diet and exposure to toxins (such as tobacco smoking and alcohol) adversely affect the health of the growing foetus and can have long term consequences into childhood and adult life. In addition, the social, emotional and physical environment in the early years of life also has a significant impact on health in later years.

This has particular relevance for Aboriginal and Torres Strait Islander people, in whom deleterious environmental factors during pregnancy and early life (resulting in low birth-weight and poor health outcomes in young infants) are likely to contribute to the high rates of chronic disease and early death.

The report finds that:

- 22.7 percent of all Aboriginal and Torres Strait Islander mothers are teenage mothers, compared with 3.9 percent of non-Indigenous mothers
- Aboriginal and Torres Strait Islander mothers are more likely to smoke during pregnancy and five times more likely to die around the time of delivery
- compared to non-Indigenous babies, Aboriginal and Torres Strait Islander babies are:
 - three times as likely to die before their first birthday
 - twice as likely to be of low birth-weight
 - almost three times as likely to suffer from foetal growth restriction
 - almost twice as likely to be born preterm, and
- Aboriginal and Torres Strait Islander mothers and babies have:
 - poor access to, and uptake of, antenatal care
 - lack of options for safe, culturally appropriate birthing, and
 - fragmented care during pregnancy, the delivery and the post-natal period.

The provision of culturally appropriate smoking cessation programs; education programs to prevent drinking alcohol during pregnancy; programs to teach cooking skills and healthy eating and provision of fresh foods would make a significant impact on the short- and long-term health of Aboriginal and Torres Strait Islander mothers and their babies.

⁶³Prime Minister's Science, Engineering and Innovation Council, 2008. *PMSEIC Working Group report on Aboriginal and Torres Strait Islander health focusing on maternal, fetal and post-natal health*. Canberra: Commonwealth of Australia.

Healthy settings - places where we live, learn, work and play

As outlined earlier in this chapter, a healthy and productive life is determined by two sets of factors: those factors and risks over which individuals have control like health behavior, and those caused by the social, physical and economic environment surrounding individuals. It is this latter set of health determinants which are addressed in healthy settings⁶⁴.

A setting is a place where people gather for a specific purpose or activity; it generally has a physical boundary, and a defined structure and roles for the people within it. Settings are places where we live, learn, work and play – schools, workplaces, hospitals, towns and cities.

Around the world, the development of healthy settings have been used to promote health. Settings provide the opportunity for the health sector and other sectors to work together to address 'place-based' health and related issues which often cut across traditional lines of responsibility. This approach enables us to reach individuals and groups within communities, gain access to and coordinate services, and bring together governments, non-government and private sectors and the community.

There appears to be a detrimental shift in the way work places and schools are permitted to be used that reduces the opportunity for physical activity. For example, regulation in office buildings have tightened to preclude the use of stairwells for inter-floor connection, and in schools, concerns over injury risks are culminating in instructions to restrain active play and limit out-side school hours access to idle facilities.

Much of the Working Group's discussions have been on the importance of improving access to existing facilities to create greater opportunities for physical activity. In particular, enabling the use of stairs rather than elevators in office buildings, opening up school facilities for community use, and addressing our risk adverse culture to encourage active play are a number of low-cost options to encourage physical activity.

Actions to create healthy places often involve changes to the organisational culture (e.g. community use of school facilities), including changes to the physical environment (e.g. access to stairwells in work places) or to the organisational structure and administration (e.g. a single coordination point for local health and community services)⁶⁵.

Healthy settings was a common theme of a number of the consultation sessions held by the Working Group in the development of this report. Many representatives proposed that workplaces, schools and local communities should be the primary places for health interventions to occur (see Appendix 4 for details).

Every \$1 spent on workplace health generates approximately \$5 in savings from reduced absenteeism, improved productivity and lower workers' compensation costs⁶⁶.

Using a settings approach to address chronic disease will facilitate better coordination and cooperation across government and the community, and lead to better health outcomes for all Queenslanders.

⁶⁴ World Health Organisation website <http://www.searo.who.int/en/Section23/Section24/Section25.htm>. Accessed 3 November 2008, 4:37pm.

⁶⁵ World Health Organisation website http://www.who.int/healthy_settings/about/en/. Accessed 29 October 2008, 1:09pm.

⁶⁶ The Health and Productivity Institute of Australia. Media release: Using the workplace to fight chronic disease. 16 June 2008.

Framework for action

The history of public health in Australia demonstrates that efforts in prevention are most effective when particular conditions are met: political and technical leadership; targeted, sustained intervention strategies; adequate funding, workforce, evidence and program delivery structures; bipartisan support; and community engagement. Where efforts are inadequately funded, and characterised by compartmentalisation and short-term ad hoc responses, success is far harder to achieve⁶⁷.

We must heed these lessons and apply what we have learned from public health action on tobacco, HIV/AIDS and road safety to chronic disease prevention.

Figure 6 for example, demonstrates the success achieved in reducing tobacco smoking in Australia through an integrated approach by all levels of government and the non-government sector, applying a combination of health promotion/social marketing campaigns to raise awareness of the detrimental effects of tobacco smoking, legislation and regulation to restrict tobacco advertising and smoking in public places, and taxation to increase the cost of cigarettes.

Although there is limited data that demonstrates successful large-scale public health interventions, this is mostly because such interventions are only recently being trialed in an attempt to stem the tide of chronic disease around the world. More action-based research and trialing and evaluation of such population-wide interventions is required.

However, the recent Cuban experience of the 1990's demonstrated clearly that dramatic reductions in chronic diseases can occur within a few years. With food and petrol shortages, created as a result of US trade embargos, energy intake decreased by 30 percent and moderate physical activity increased from 30 percent to 67 percent of the population. Over a five year period, these changes were sustained with population average weight loss of five kilograms, and all cause mortality decreased by 18 percent, stroke deaths decreased by 20 percent and coronary heart disease deaths by 35 percent⁶⁸. The great challenge is for Queenslanders to voluntarily make similar changes in eating less and exercising more.

⁶⁷ Lin V, Smith J and Fawkes S with Robinson P and Chapman S 2007. *Public Health Practice in Australia: the Organised Effort*. Sydney: Allen and Unwin.

⁶⁸ Franco M et al. *American Journal of Epidemiology* 2007; 166: 1374-80.

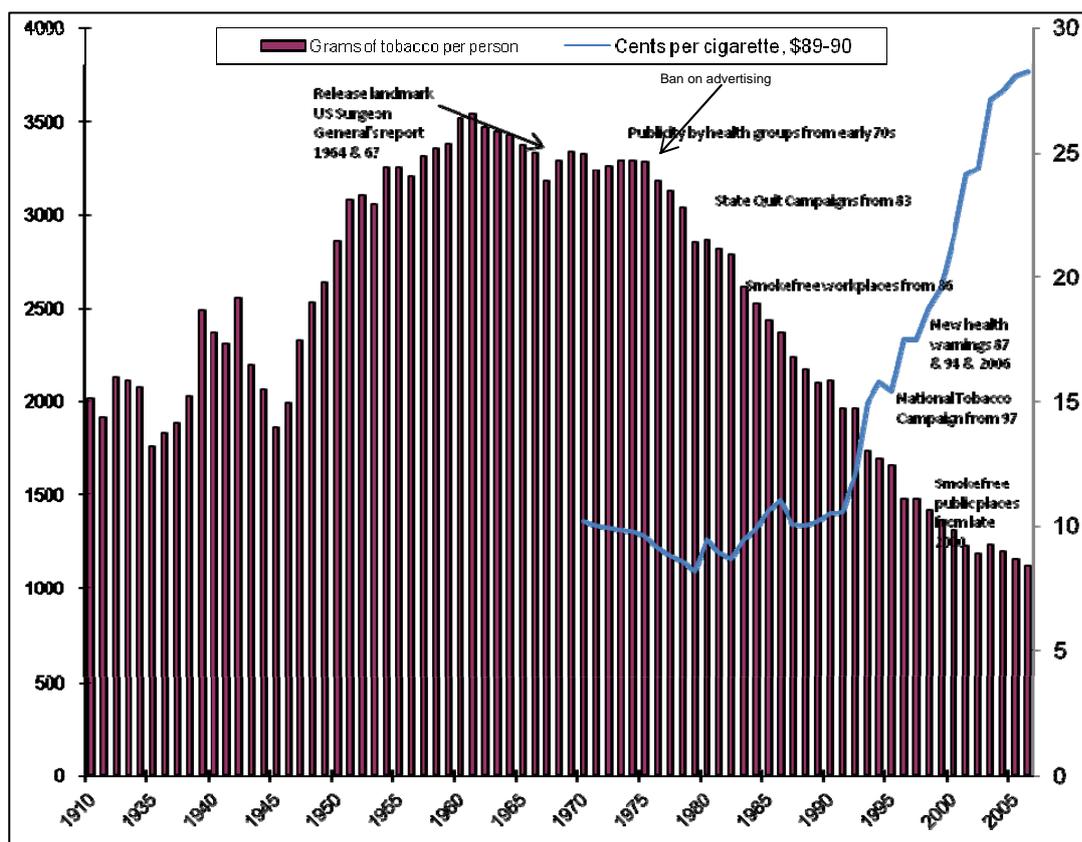


Figure 6: Relationship between tobacco use and public health measures to reduce smoking
(Source: Scollo, M. VicHealth Centre for Tobacco Control)

State-wide health outcomes could be achieved for Queenslanders by applying these principles, to health promotion and disease prevention programs which:

- address the underlying behavioural, social and environmental causes of disease, illness and disability
- using multiple approaches simultaneously – education, social and community supports, laws, economic incentives and disincentives
- at a range of levels – individuals, families, schools, workplaces, communities and nations
- in a range of settings – where people live, learn, work and play
- recognising the specific needs of target high risk groups (e.g. indigenous, disadvantaged groups, rural and remote communities)
- over the long-term – because change takes time and needs generational support
- involving a variety of sectors, not traditionally associated with health, such as business, media, transport, planning and others.

This document does not represent Queensland Government policy.

Key finding 5: Target people where they live, learn, work and play

Individual and community health is determined by a complex interaction between the individual and the environment and society. A comprehensive multi-strategy approach is required.

Those who are the most vulnerable in our society also experience the worst health. It is imperative that we focus our disease prevention and health improvement programs to meet the needs of different groups within the Queensland community, to provide them with the best opportunity to improve their health, in places where Queenslanders live, learn, work and play.

Early detection and early intervention

Early detection and early intervention programs (secondary prevention) are important to identify individuals with early stages of disease before symptoms occur, and/or those with an early stage disease/condition, and to prevent progression of the disease/condition by prompt and effective interventions. These types of strategies include:

- health risk profile and assessments for at-risk or high-risk individuals (i.e. people with a number of risk factors but not necessarily the disease yet);
- community-wide screening programs for certain cancers (and possibly genomic testing in the future)
- lifestyle modification programs, and
- chronic disease self-management programs.

Risk factor assessment

Knowing an individual's risk of developing a chronic disease helps doctors and other health care professionals decide what interventions or treatment, may be needed to help prevent the onset of disease⁶⁹. This type of approach can help individuals avoid developing a disease, such as cardiovascular disease, and ease the strain on our health care system.

A person's risk can be assessed in a number of ways, such as measuring their blood pressure, cholesterol, weight, age, smoking status and whether or not they have a family history of chronic disease.

Generally, as the number of risk factors a person has for a particular condition increases, so does his or her risk of developing that condition. Monitoring multiple risk factors can help identify people at greater risk and therefore indicate those who might benefit most from early intervention⁷⁰.

As an example, those who are identified as being at 'higher' risk of cardiovascular disease may be provided with healthy lifestyle advice and often the use of medications, such as blood pressure and cholesterol lowering drugs.

One way of determining someone's risk of developing a chronic disease, such as cardiovascular disease, is by using the 'absolute risk' approach. This approach requires the assessment of multiple risk factors (including age, gender, diabetes status, smoking status, blood pressure and blood lipid levels), which are considered together, rather than in isolation from each other⁷¹.

The 'absolute risk' can be expressed as the chance of an individual experiencing a cardiovascular event (including a heart attack or stroke), expressed as a percentage over a particular period of time (typically 5-10 years). The alternative method is the use of a 'relative

⁶⁹Draft summary document of the National Vascular Disease Prevention Alliance, 2008 (unpublished).

⁷⁰Australian Institute of Health and Welfare, 2006. *Chronic disease and associated risk factors in Australia*, 2006. Canberra: AIHW.

⁷¹Draft summary document of the National Vascular Disease Prevention Alliance, 2008 (unpublished).

risk' approach which considers the risk an individual has of developing a particular disease compared to someone who does not have that risk factor. This approach does not consider the interaction of multiple risk factors.

Implementation of an 'absolute risk' assessment tool would provide a quick and effective way to identify and prevent chronic diseases for those most at risk, and result in substantial gains in health, reduce the burden of disease and offer governments long-term cost benefits⁷².

An Australian-specific tool, however, is not yet available. Encouraging the use of this approach, by extension of the Medicare item number for the "well-person's health check for people 45-49 years old" to those over 49 years, would provide a comprehensive approach to chronic disease prevention and early intervention for all Australians.

Appendix 5 provides an example of the 'absolute risk' calculator being used by general practitioners in New Zealand. (Note that an individual's risk will be higher if they have depression, or of a low socio-economic standing in addition to being an Indigenous Australian). An example of a Screening Protocol which could be used by Australian general practitioners is at Appendix 6.

Population screening programs

In Australia, there are three national population screening programs – for breast, cervical and bowel cancer. These programs aim to reduce death and illness from these cancers by as early-as-possible detection of cancer and pre-cancer abnormalities and effective follow-up treatment⁷³.

The programs are provided free of charge for people in the target age group (for breast and bowel cancer screening) or are covered by a Medicare rebate for cervical screening. The programs are:

- BreastScreen Australia – using mammography to detect breast abnormalities
- National Cervical Cancer Screening Program – using pap tests conducted by general practitioners, and
- National Bowel Cancer Screening Program – using faecal occult blood tests.

BreastScreen Queensland Program

Breast cancer was the most common cancer diagnosed among women and the second most common cause of cancer death, after lung cancer, among Queensland women in 2005⁷⁴. The causes of breast cancer are not known at this stage. However, age is the best indicator of risk with 94 percent of new cases diagnosed in women over 40 years.

⁷²Draft summary document of the National Vascular Disease Prevention Alliance, 2008 (unpublished).

⁷³Australian Institute of Health and Welfare 2008. *Australia's health 2008*. Canberra: AIHW

⁷⁴Queensland Cancer Registry, 2008. *Cancer in Queensland: incidence and mortality 1982-2005*. Brisbane: Queensland Cancer Registry, Queensland Cancer Fund.

The most effective proven method of intervention to reduce the mortality and morbidity from breast cancer is through regular screening of women at risk using screening mammography. The BreastScreen Queensland Program is part of the National BreastScreen Australia Program, established in 1991.

The participation rate in BreastScreen Queensland for women aged 50-60 years for the two year period to 2005-06 was 57.9 percent. In general, participation rates for women in rural and remote locations are higher (60.9 percent) than metropolitan locations (55.8 percent). Sixty-eight percent of women from culturally and linguistically diverse backgrounds were screened through BreastScreen Queensland in 2005-06, but only 54.1 percent of Aboriginal and Torres Strait Islander women were screened through this service during this time.

In Queensland, death rates from breast cancer in the 50-69 year age group have fallen from 54.9 per 100,000 in 1996-2000 to 51.2 per 100,000 women in 2001-2005. It is clear that an increase in participation in the BreastScreen Queensland Program will result in further declines in death rates from breast cancer through early detection of the disease.

Over the next 18 months, BreastScreen Queensland technology will be updated to digital imaging, enabling images taken through mobile services to be checked immediately and limiting the need for re-screening if there is a technical issue or abnormality detected.

Queensland Bowel Cancer Screening Program

Queensland and Australia have one of the highest rates of bowel cancer in the world. Overall, bowel cancer is the second most common cause of cancer related death for Queenslanders after lung cancer.

Lifestyle factors which may increase a person's risk of bowel cancer include eating foods high in fat and low in fibre, smoking, drinking excessive amounts of alcohol, lack of regular exercise, obesity and poorly controlled diabetes⁷⁵.

There is strong evidence to show that population screening using Faecal Occult Blood Testing can reduce colorectal cancer deaths by 15-33 percent in average risk individuals without obvious symptoms. Biennial Faecal Occult Blood Testing screening for people over 50 years has been estimated to save \$26,000 per year per life saved. This is similar for the estimates of cost-effectiveness for the national breast cancer and cervical cancer screening programs.

Bowel cancer screening programs are currently in trial phase, with national testing for men and women who turned either 55 or 65 years of age between 1 May 2006 and 30 June 2008. Program evaluation for Queensland indicates the screening program has prevented 593 bowel cancers, demonstrating that the Program has the potential to significantly reduce deaths, and the impact on individuals, their families and the healthcare system.

⁷⁵Health and Medical Research Council 2008. Clinical practice guidelines for the prevention, early detection and management of colorectal cancer. The Cancer Council of Australia and Australian Cancer network and Cancer Network, Sydney.

Future technologies

Science and technology are beginning to provide revolutionary insights into medicine through a comprehensive molecular understanding of human health and disease. However, as discussed throughout this report, the promise of better health for all is undermined by the growing cost of medical treatments which threaten the very viability of healthcare systems around the world.

The challenge we face is to use our new knowledge to improve patient outcomes while reducing the costs of healthcare. This is possible by realigning science to meet the needs of healthcare. Current economic incentives assure that companies will develop the most expensive new therapeutics and devices while neglecting the power of new diagnostics to improve healthcare at reduced cost.

Critical opportunities exist in all diseases for better molecular diagnostics to improve patient outcomes while reducing healthcare costs, for example:

- Risk assessment: Identifying individuals at greater risk of developing specific diseases will enable the implementation of preventative measures that could eliminate both the suffering from disease and the costs associated with treatment.
- Early detection: For many diseases, diagnosis at earlier stages of disease progression allows intervention when there is a greater likelihood of effective treatment and cure (e.g. in nearly all forms of cancer, early diagnosis can lead to cure at a fraction the cost of ineffective treatments for late stage disease).
- Definitive diagnosis: The diagnosis of many diseases is challenging due to a lack of distinctive symptoms. Improved diagnostics will allow more rapid and effective implementation of appropriate treatments for those who will benefit while preventing adverse side effects and the costs of treatment for those who won't.

Over the next 10-15 years, healthcare will become increasingly tailored to the individual. Existing and new molecular technologies will allow genomic, proteomic and other "omic" data to be collected rapidly and cost-effectively. Combined with advanced informatics, individuals will routinely be screened for risk of disease, to personalise treatment regimes, and to track response to treatment.

These technologies are already in use with certain types of cancer, but will increasingly be applied to chronic diseases including obesity and diabetes, and in mental health (e.g. depression and Alzheimer's disease). They will be applied in community and remote situations, at all stages of medical treatment, and in conjunction with imaging and other diagnostic modalities²⁰.

Challenges [∞]

The challenges to ensuring that these new technologies are made available as widely as possible to improve the health of all Queenslanders include:

- **Data management and informatics:** It is critical to ensure that genomic, proteomic and similar, imaging and other health data on each individual are managed efficiently, and interpreted in conjunction with evidence-based guidelines and process knowledge. This will require the integration of new methods, some of which are computationally intensive.
- **Genomics and transcriptomics:** Over the next 3-5 years, next-generation genomic and transcriptomic technologies will become widespread and very inexpensive: the \$1000 genome will arrive and the \$100 genome will be targeted. These technologies generate very large data, and new algorithms and methods will be required to manage and understand the output. These larger-scale data have great potential to reveal pre-disposition to disease and to provide meaningful molecular readouts of health and disease in near real-time.
- **Biomarkers and screening programs:** The above technologies will generate many new biomarkers (molecules that indicate the presence or extent of diseases such as cancer) to aid in diagnosis and management of chronic disease, both in targeted application and in population-wide screening.
- **Pharmacogenomics:** Already in certain cancers, the drug treatments given to a patient is matched to his or her genetic signature. More drugs will be approved for targeted use based on genetic data, and this will require more information to move securely among patient, healthcare provider and biomedical research.
- **Alzheimer's and schizophrenia research:** The impact of genetics on the disposition to, and progression of, mental illness such as Alzheimer's and schizophrenia is still under investigation.

Genomics, proteomics and other “-omics” research in Queensland is some of the best in the world, with strong research capability at the Queensland Institute of Medical Research (proteomics), Australian Genome Research Facility (genomics) and the Australian Institute for Bioengineering and Nanotechnology (metabolomics). The Government's previous investments have also ensured Queensland is a national leader in informatics research, particularly in relation to bioinformatics and e-health. Key research centres include: the ARC Centre of Excellence in Bioinformatics; Australian e-Health Research Centre; Queensland Facility for Advanced Bioinformatics (QFAB); Institute of Health and Biomedical Innovation; and the Queensland Health Linkage Centre (being established to provide population health and clinical data linkage capability).

[∞] Information kindly provided by Mark Ragan (Institute for Molecular Bioscience, The University of Queensland), David Hansen (Australian eHealth Research Centre) and Gillian Bushell (Science, Environment, Engineering and Technology, Griffith University).

Opportunities

It is timely to consider leveraging this position, to enhance capacity and increase communication between researchers and clinicians, and provide the avenue for rapid translation of research findings into practice.

An example of this approach is KOALA, a project that spans medical treatment and medical research in childhood obesity. Obese children are referred by general practitioners in the South Brisbane division to a specialised clinic at the Mater Hospital, from where they are monitored, with data collected by QFAB. Parents can enroll these children in a program of research encompassing a wide range of medical research at The University of Queensland including genomics, proteomics and psychometrics. These data will lead to a better understanding of the environmental and genetic risk factors in childhood obesity. In an unexpected but welcome extension of the project's original aims, general practitioners are now using the KOALA web portal (<http://koala.imb.uq.edu.au>) to find the most recent advice on the treatment of childhood obesity, illustrating the potential of informatics to bridge primary, secondary and tertiary healthcare and the university / research institute sector[∞].

These technologies provide two outstanding opportunities for Queensland to make significant advances, both domestically and internationally.

Key Finding 6: Early detection is vital

(a) Population-wide screening programs and risk assessments have demonstrated their value in reducing the burden of chronic disease for individuals and the community. Greater use of risk factor assessment and population screening programs is required for the prevention and early intervention of chronic disease.

(b) There are many areas in healthcare and medical treatment where Queensland research can be leveraged more efficiently, and applied more quickly, than is presently the case. Improving the interaction between Queensland researchers and international partners, and among existing research facilities and the health system will reduce the uptake time for important new technologies, and yield better outcomes for Queenslanders.

Key findings and recommendations

There are no quick-fix solutions.

It is the view of the Working Group that the actions needed to combat preventable chronic disease will require long-term commitment and investment; must be better led and coordinated; and should be delivered as a partnership between the Government and the community.

The key findings and recommendations of the Working Group are:

Key Finding 1. Prevention is critical

The old adages “prevention is better than cure” and “a stitch in time saves nine” could never be truer. It makes sense that it is better to keep people healthy and prevent illness, than to wait until people are sick to treat it. And it’s the right thing to do.

We know that to be healthier, we need to move more, eat less, quit smoking, and drink in moderation.

There is no quick fix or magic bullet. The problems created over decades will not be repaired overnight or over a political term. It will take urgent, sustained, coordinated and concentrated effort across all levels of government, the non-government and private sectors, and the community over a number of years.

The Government must be bold enough to act and commit sufficient funds over the long term.

Recommendation 1. Invest in prevention

Queensland’s per capita investment in public health is one of the lowest in the country, at \$79.77 per person. Assuming a continued 4.2 percent annual growth rate, the Queensland and Australian Governments would need to increase expenditure on public health in Queensland by 25 percent (to \$100 per person) in 2009-10, in order to move Queensland ahead of New South Wales, Victoria and Western Australia, but still behind South Australia, Tasmania and the Territories .

1.1 Increase the Queensland and Australian Government investment for public health and wellbeing and disease prevention to \$100 per capita (approximately \$400 million per annum) by 2010.

However, if Queensland is to achieve its Q2 ambition of becoming Australia’s healthiest State, further significant and targeted investment in public health and wellbeing, and disease prevention is required over the long-term. Our per capita investment in prevention should be one of the largest in the country if we are serious about becoming Australia’s healthiest people.

1.2 Increase this investment to 5 percent of Queensland’s recurrent health expenditure (approximately \$800 million in today’s terms) by 2012.

Key Finding 2. Coordination is required

There appears to be a lot of 'activity' across government (and the private and non-government sectors) which is attempting to address the issue of chronic disease prevention. However, there appears to be little or no coordination of this activity, resulting in duplication of effort, gaps in service delivery, poor cost effectiveness and program efficiency, and lack of impact of initiatives.

Chronic disease prevention is not just the business of the health sector. It requires a truly whole-of-Government approach to be effective, and commitment and coordinated action from education, sport and recreation, local government, environment, infrastructure and planning, housing, communities, employment and industrial relations, transport, main roads and others.

To achieve the ambition of Queenslanders being Australia's healthiest people and reach the target for reducing chronic disease, there must be better coordination across government – underpinning policy platform for chronic disease prevention and overarching coordination – a high level champion / driver and budgetary support. It is imperative that Q2's clear goals and targets drive urgent action.

Recommendation 2. Drive enduring change

Political imperative, a high profile leader within Government, and community champions are needed to drive the cultural change needed for Queensland to meet the Q2 targets for cutting chronic disease.

The Queensland Government must provide leadership, coordination and focus on good health and wellbeing, and create the environment for Queenslanders to become Australia's healthiest people.

For these reasons it is recommended that the Queensland Government:

2.1 Appoint a Minister for Healthy Living

The Minister will provide leadership and drive whole-of-government action to achieve the Q2 2020 targets for chronic disease prevention.

2.2 Establish a separate agency for healthy living and wellbeing to better coordinate whole-of-Government policy and action.

Responsible to the Minister for Healthy Living, the agency would coordinate whole-of-government policy and action, and would be responsible for implementing the recommendations of this report.

Ideally the agency would be a small coordinating body with the authority and imprimatur to direct whole-of-Government action in this area.

2.3 Develop a comprehensive, whole-of-Government and community plan to reduce chronic disease.

To achieve the ambition of Queenslanders being Australia's healthiest people, requires a wide-ranging set of actions from direct health-related actions, to efforts to improve the environment and address climate change, and to changes in the physical and social fabric of our cities, towns and communities.

There are too many short term and small scale projects being undertaken in an uncoordinated way across government. To be effective these must be scaled-up and delivered within a comprehensive and coordinated forward looking plan. Strategies need to be multi-sectoral, multi-layered and targeted at population groups and settings.

There are also a range of programs and resources which have been developed by non-government organisations, such as the Heart Foundation, and other state and territory governments which could easily be adopted in Queensland – there is no need to reinvent the wheel.

2.4 Apply a “health in all policies” approach to government decision making

The Minister would ensure that all Cabinet decisions, legislation and government policies identify potential impacts on health and wellbeing. This approach would acknowledge that health is affected by factors outside the health sector, such as the environment, education, child development, social capital, housing, transport and employment.

Key Finding 3. Lead by example

Government needs to demonstrate leadership – make the difficult decisions and lead by example. It needs to “walk the talk” and implement a range of programs to support its workforce and the community.

Government's leadership opportunities for preventing chronic disease are vast. Government employees comprise approximately eight percent of the Queensland workforce. It is responsible for all of the State's public schools, hospitals and community health services, mental health and correctional institutions and a significant number of Indigenous community stores. It owns and manages the State's major sport and entertainment venues, funds sporting clubs and licenses child care centres and outside school hours care providers. It builds, funds and maintains our extensive road and rail networks, regulates building and planning of our residential and commercial areas and open spaces, and provides public transport services in the south east.

This is not about creating a “nanny state”, but demonstrating that the Queensland Government is serious about improving the health and wellbeing of all Queenslanders by taking the lead and helping Queenslanders make the healthy choice the easy choice every day, in every way.

Recommendation 3. Make the healthy choice the easy choice

Government has a number of levers it can use to generate action – legislation, regulation, policy and funding – providing it with a range of “carrot and stick”, low-cost and no-cost options which can be implemented in reasonably short timeframes.

It is fundamental that Government leads by example in implementing healthier living strategies and policies in its own departments and facilities, and provide the policy environment for this to occur in the wider community.

(Further detail on these sub-recommendations[#] can be found in Appendix 3).

3.1 Increase community awareness of healthy living and disease prevention

- Run a sustained and comprehensive social marketing campaign/s which provide Queenslanders with information and “how to” on healthy behaviours, focusing on physical activity, healthy eating, stopping smoking and responsible drinking.
- Create a healthy living (web) portal to make it easier for Queenslanders to find information about healthy living and disease prevention[#].
- Phase in a ban on alcohol advertising.

3.2 Grow healthy kids for life

- Require all Queensland Government licensed child care centres, home based day care and outside school hours care providers to provide healthy food and drink choices, promote Healthy Lunchbox policies and programs, and implement age-appropriate physical activity programs[#].
- Expand healthy eating and physical activity programs in Queensland schools[#].
- Require all sport and recreation clubs and associations in receipt of Queensland Government funding to provide healthy food and drink choices through canteens/food outlets[#].
- Ban “junk food” advertising during children’s television viewing times*.

3.3 Build environments for active and healthy living

- Establish planning and development guidelines for healthy communities, including ‘healthy by design’ principles and guidelines in regional and urban planning instruments for Government and Local Authority regulations[#].
- Create incentives, such as fast-tracking approval processes, for developers to undertake exceptional healthy environments strategies.
- Develop a ‘Health Star’ rating system for healthy planning and design, comparable to the ‘Green Star’ rating system for environmental planning and design.

- Consider establishing an 'Australian Business Health Foundation' in Queensland, comparable to the Australian Business Arts Foundation (ABAF) which encourages philanthropy from the business and development communities towards specific health and wellness projects.
- Increase investment in pedestrian and cycling facilities, end of trip facilities, and public transport to promote active and public transport.
- Give pedestrians, cyclists and active transport the highest priority when developing or maintaining roads.

The Development sector has embraced environmental imperatives in both planning new communities and in building design, especially for residential and office development using the Green Star rating system. In tandem, both the State Government and Local Authorities have been rigorous in requiring minimum standards of their own developments and through approval processes. The Working Group's discussion with development industry representatives indicates that there would be a comparatively strong commitment to planning and design with a health and wellness focus should Government and Local Authorities express the need for prioritisation of health and wellness goals.

The Urban Development Institute of Australia has published a special periodical on this potential, and several developers have expressed willingness to form a 'healthy communities taskforce'. It is recommended the Government formally engages with Development Industry organisations, such as the Urban Development Institute of Australia and Property Council of Australia to implement the above recommendations.

3.4 Create a healthy public sector

- Require all Queensland Government departments, statutory authorities and Government Owned Corporations to provide workplace health and wellness programs for employees[#].
- Use surplus WorkCover^{*} funds to provide tax incentives and/or other financial support to employers who provide workplace health and wellness programs to their employees.
- Adopt Queensland Health's *A Better Choice Food and Drink Supply Strategy* in all Queensland Government owned facilities (including hospitals*, mental health and correctional facilities).
- Require all Queensland Government owned sport and entertainment venues (including Stadiums Queensland), to provide healthy food and drink choices at food outlets and vending machines[#].
- Prioritise funding for whole-of-government chronic disease prevention initiatives from the Government's Prevention and Early Intervention Fund[^].
- Improve access to affordable and nutritious foods in Indigenous and remote communities by subsidising transport of fresh foods[#].

^{*} WorkCover Queensland is the main provider of workers' compensation insurance in Queensland. A statutory body owned by the Queensland Government, WorkCover operates as an independent, commercial enterprise, with income derived from premiums paid by employers and investment returns.

^{*} Initiative currently being implemented.

[^] In the 2008/09 Budget, the Queensland Government established a prevention and early intervention incentives pool of \$70M over four years to 2011/12 to fund innovative, new or untested pilot projects, in the human services and justice areas.

Key Finding 4. Wellness must become the social norm

Government will not be able to achieve the Q2 2020 targets alone. It will need to involve the private and non-government sectors and engage the community to create the momentum and sustain community action. Queenslanders have demonstrated that they can pull together to achieve challenging targets as we have done for water (*Target 140*).

The question is how to inspire and engage local communities, foster healthier schools, motivate the workplace and give people the tools to take control of their health (and existing illnesses) and make decisions for their long-term health and wellbeing. We urgently need to re-orient the social norm towards wellness.

Providing communities with comparative information on their physical, social and environmental health and wellbeing is a vital step in engaging the community in collective action to address chronic disease.

Recommendation 4. Map Queensland's Wellness Footprint

A Queensland Wellness Footprint will provide the Government and local communities with information on the physical, social, economic and environmental health and wellbeing of all Queensland communities. Critically, this data will provide the basis, for communities and governments alike, to make decisions about those services, facilities and environmental improvements that will enhance individual and community wellbeing and quality of life.

It will provide the information for communities to measure their progress against others, and stimulate community action.

4.1 Develop a Queensland Wellness Footprint

The Wellness Footprint will provide specific data and information on the health and wellness qualities and characteristics of communities across Queensland, and serve as the basis to identify "Queensland's healthiest town". It can provide the information and analysis to inform future community-wide health and wellbeing interventions.

It may be based upon precedents, such as Community Indicators Victoria, and should build on and fast-track the current work being done on the Community Indicators Queensland project, but must be unique to Queensland and targeted at areas for which actions can be determined and improvements measured regularly up to and beyond 2020. The project should be progressed as a collaboration between the Government, the research, non-government and private sectors, local government and community representatives.

The Queensland Wellness Footprint should be viewed as a staged undertaking over a defined period of time. There is a range of existing data which is available through various sources, which could readily be used to map the wellness of local government areas around the State. This should form the first phase of such a project and should begin immediately. The second phase would be to develop a process for collecting that information which is not currently readily available.

To be effective, the information must be readily available via a publicly accessible website, in a format which is useful to inform local level decision making.

Key finding 5. Target people where they live, learn, work and play

Individual and community health is determined by a complex interaction between the individual and the environment and society. A comprehensive multi-strategy approach is required.

Those who are the most vulnerable in our society also experience the worst health. It is imperative that we focus our disease prevention and health improvement programs to meet the needs of different groups within the Queensland community, to provide them with the best opportunity to improve their health, in places where Queenslanders live, learn, work and play.

Recommendation 5. Focus on people and places

It is recommended that, in implementing the recommendations of this report, the Queensland Government should prioritise the most vulnerable groups within the Queensland community. Consideration should be given to the express needs of these groups in the planning, design and delivery of programs to prevent disease and improve health. Priority groups include:

- Children and young people, and the unborn
- Aboriginal and Torres Strait Islander peoples
- Lower socio-economic groups
- Rural and remote communities.

It is also recommended the Government should take a 'settings' approach to the planning, design and delivery of programs in places where Queenslanders live, learn, work and play.

Key Finding 6. Early detection is vital

- (a) Population-wide screening programs and risk assessments have demonstrated their value in reducing the burden of chronic disease for individuals and the community. Greater use of risk factor assessment and population screening programs is required for the prevention and early intervention of chronic disease.
- (b) There are many areas in healthcare and medical treatment where Queensland research can be leveraged more efficiently, and applied more quickly, than is presently the case. Improving the interaction between Queensland researchers and international partners, and among existing research facilities and the health system will reduce the uptake time for important new technologies, and yield better outcomes for Queenslanders.

Recommendation 6. Encourage early detection and support future technologies

Early identification of people at risk of developing chronic diseases, and helping them to prevent progression of the disease, is also an important part of the suite of strategies the Queensland Government must implement to achieve the 2020 targets to cut chronic disease.

6.1 Develop a state-wide health check

A state-wide web-based chronic disease risk factor assessment program or "health check" would enable all Queenslanders to undertake self-assessment of their health by answering a series of questions about their health and wellbeing. It would identify those at risk of disease and refer them to appropriate health professionals. It would also link to information on the healthy living web portal (see 3.1).

The health check should be linked to a community awareness and education program and support for disease prevention and treatment.

Development of an 'absolute risk' assessment tool for use by health professionals is also recommended.

6.2 Improve participation in population screening programs

- (i) Target programs to increase participation of women from SEQ and Aboriginal and Torres Strait Islander communities in the BreastScreen Queensland program:
 - Establish an online and/or email booking or re-booking system and SMS reminders to improve participation in the BreastScreen Queensland program for 50-69 year old women in SEQ (where participation is lower).
 - Develop a mobile service to meet the cultural and geographical needs of Indigenous women in rural and remote communities (54 percent participation). A mobile service would entail a 4WD fitted out with digital mammography unit, and portable private outdoor room.
- (ii) Increase participation of men from rural and remote Queensland in bowel cancer screening and other preventive health programs:
 - Trial the Pit Stop Men's Health Package in selected communities.

Developed in WA the Pit Stop Package tries to engage men in taking an interest in their own health by using mechanical analogies to run a series of simple health checks (e.g. hip-waist ratio, smoking, alcohol consumption, BP, skin, prostate and bowel cancer awareness, coping skills). The program would target men over 50 years in either a community-based or workplace setting, in a select number of rural/remote communities, and be evaluated for future roll-out across the State.

6.3 Fund a six-month demonstration project to build a repository of information linking basic and applied research with clinical need

Breast cancer would be an appropriate area for this short-term introductory project, as expertise is available in Queensland across research, informatics and clinical practice, and molecular data are already being organised.

This data would be accessed via a web portal not unlike the KOALA portal, which will provide an avenue for Queensland clinicians to interact with researchers and vice-versa. (QFAB, for example, is qualified to manage this project in cooperation with Queensland Health, research institutes and other partners).

A likely outcome will be improved delineation of the nexus among molecular information, informatics and clinical need. This will drive research and clinician engagement, help to direct research, and reduce the time required for translation into practice. The experience from this initial project will be invaluable in designing one or more longer-term projects in chronic disease.

6.4 Utilise Queensland's biomedical research base to take a leadership position in the identification of early stage biomarkers for cancers and other chronic diseases

Queensland is in a position to leverage international partnerships (through the Partnerships for Personalised Medicine program) in biomarker technology for the early detection of prostate cancer - the most common type of cancer that affects Australian men and the second highest cause of cancer deaths in men.

The potential partnership provides the opportunity to again leverage Queensland's substantial investment in biotechnology into a significant disease area, provide access to other international efforts, and achieve real health outcomes for Queenslanders. This partnership approach will also require a better linkage between research capabilities and the healthcare system (and could draw on the outcomes of recommendation 6.3).

Appendices

Appendix 1: Definitions

There are a number of different approaches we can take to help to prevent chronic diseases, and help patients manage the disease once it occurs. This report focuses on primary and secondary prevention measures.

- **Primary prevention:** describes programs to prevent diseases or conditions from occurring (e.g. community wide vaccination programs; community wide public health programs targeting lifestyle behavioural risk factors). That is, programs to stop the risk factors and diseases occurring in the first place.
- **Secondary prevention:** describes early detection and early intervention programs to identify high-risk individuals and those with an early stage disease/condition to prevent progression of the disease/condition (e.g. population-based screening programs for certain cancers (could include the genomic testing in the future); health risk profile and assessments for at-risk or high-risk individuals (i.e. people with a number of risk factors but not necessarily the disease yet); lifestyle modification programs; chronic disease self-management programs. That is, identify those at risk and reduce the risk factors and likelihood of getting the disease.
- **Tertiary prevention:** describes programs to manage a diagnosed disease or condition to limit its severity or deterioration (e.g. case management and care coordination for individuals with chronic disease or complex conditions).
- **Demand management (hospital avoidance/substitutions/diversion):** describes programs to manage treatment of patients with conditions more appropriately treated in non-hospital settings (e.g. home based care, community outreach and rehab services, and primary care (i.e. GP) settings).

Appendix 2: State and territory comparisons

HEALTH STATUS (2004-2006)										Ranking (8=best; 1=worst)
NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aus		
Life expectancy (years)										
Life expectancy at birth (M)	78.6	79.3	78.5	78.6	79.1	77.4	72.1	80.0	78.7	3 (8)
Life expectancy at birth (F)	83.4	83.7	83.4	83.6	83.8	82.3	78.1	83.9	83.5	3 (8)
CAUSE OF DEATH (2004-2006)										
Main causes (per 100,000 population)										
Cancer	177	179	180	179	177	204	200	187	179	4 (8)
Ischaemic heart disease	109	102	120	108	102	117	136	90	109	2 (8)
Stroke	57	49	58	52	46	45	47	61	53	2 (8)
Selected diseases										
Lung cancer (M)	48	48	51	48	51	58	55	41	49	3 (8)
Lung cancer (F)	22	22	24	22	24	27	29	21	23	3 (8)
Breast cancer (F)	24	23	22	24	21	26	17	28	23	6 (8)
Prostate cancer (M)	32	34	35	31	30	36	26	35	33	2 (8)
Skin cancer	8	6	10	5	9	8	6	8	8	1 (8)
Ischaemic heart disease (M)	142	132	152	145	136	155	161	125	142	3 (8)
Ischaemic heart disease (F)	82	78	92	79	74	86	106	62	82	2 (8)
Diabetes mellitus	13	19	16	16	18	28	42	18	17	5 (8)
RISK FACTORS (2004-2005)										
Drinking and smoking (percent population 18 years and over)										
Risky/high-risk drinkers (M)	14.8	13.0	16.1	15.9	20.2	13.2	n.p.	15.6	15.2	2 (7)
Risky/high-risk drinkers (F)	11.1	11.3	12.4	13.4	12.1	10.1	n.p.	12.7	11.7	3 (7)
Current smokers (M)*	25.1	26.5	28.8	26.8	23.3	28.1	n.p.	19.6	26.2	1 (7)
Current smokers (F)*	20.2	20.5	20.5	19.7	19.6	24.7	n.p.	14.3	20.4	2 (7)
Diet and exercise (percent population 15 years and over)										
Overweight/obesity (M)	59.3	58.6	60.3	60.2	59.4	58.1	62.6	57.0	59.4	2 (8)
Overweight/obesity (F)	43.2	44.1	41.3	45.1	41.4	48.2	28.9	44.9	43.1	7 (8)
Low usual intake of fruit (M)	51.8	50.5	55.0	56.7	49.5	53.1	66.6	52.7	52.4	3 (8)
Low usual intake of fruit (F)	40.9	38.1	40.8	45.2	39.1	42.1	52.2	39.3	40.4	5 (8)
Sedentary/low exercise (M)	65.9	64.5	67.7	67.6	63.8	67.7	59.5	58.5	65.8	1 (8)
Sedentary/low exercise (F)	75.1	72.4	72.4	76.2	70.3	69.3	72.4	69.1	73.3	3 (8)
High blood pressure (percent population 18 years and over)										
Hypertension (M)	13.3	13.5	13.1	13.5	15.7	14.1	n.p.	13.1	13.6	5 (7)
Hypertension (F)	13.4	14.2	13.6	13.9	14.0	17.0	n.p.	16.2	13.8	6 (7)

Table 1: Comparison of Australian state and territory health status
(Source: Australian Bureau of Statistics 2008. *Australian Social Trends, 2008*. Canberra: ABS.)

* The 2007 National Drug Strategy Household Survey shows smoking rates of 18.9 percent for men and 15.4 percent for women.

Appendix 3: Make the choice the easy choice – information on selected sub-recommendations

3.1 Increase community awareness of healthy living and disease prevention

- Create a single web portal on healthy living (to support the campaign) to make it easier for Queenslanders to find information about healthy living. The web portal should encompass information for individuals, schools, child care providers, businesses, developers and planners, health professionals, and employers and provide the entry point to existing information.

3.2 Grow healthy kids for life

- Require all Queensland Government licensed child care centres, home based day care and outside school hours care providers to adopt Education Queensland's *Smart Choices* policy (for food provided by the centre), promote Healthy Lunchbox policies and programs, and implement Sport and Recreation Queensland's age-appropriate physical activity programs.
- Expand healthy eating and physical activity programs (including the existing Smart Choices and Smart Moves programs) in Queensland schools to include: expansion of Smart Moves to children in all grades; greater support for teachers and P&C associations implementing the programs; Healthy Lunchbox policies; "free fruit Fridays"; cooking skills for middle-school students; greater community access to school sport and recreation facilities; and school travel plans which include safe walking, cycling and active public transport options.
- Require all sport and recreation clubs and associations in receipt of Queensland Government funding to comply with Education Queensland's *Smart Choices* policy if providing food and drink through canteens/food outlets.

3.3 Build environments for active and healthy living

The guidelines for planning and developing healthy communities should include such considerations as:

- prioritising public transport, walking and cycling connectivity over vehicular travel
- providing diverse recreational spaces and quality facilities in those spaces which promote physical activity
- prioritising healthy food establishments
- focusing upon shopping streets over enclosed shopping malls, and
- including community service facilities, health care facilities, community sports facilities, and health and fitness facilities.

The guidelines for healthy buildings should combine existing environmental rating elements that promote health and wellness, such as air quality and cycling facilities, with new guidelines aimed

at promoting physical activity, such as use of stairways over lifts, and rooftop recreational and fitness provisions.

3.4 Create a healthy public sector

- Require all Queensland Government departments, statutory authorities and GOCs to implement workplace health and wellness programs. These would include: access to stairwells in Government owned buildings; providing free pedometers to employees to encourage walking; ensuring buildings provide adequate end of trip facilities for active transport; encouraging active transport to and from meetings; supporting membership to fitness centres/programs; supporting staff to quit smoking; and adopting Queensland Health's *A Better Choice Catering Guidelines for Meetings and Functions*.
- Require all Queensland Government owned sport and entertainment venues (including Stadiums Queensland), to provide healthy food and drink choices at food outlets and vending machines. This should be consistent with Queensland Health's *A Better Choice Food and Drink Supply Strategy* or Education Queensland's *Smart Choices Healthy Food and Drink Supply Strategy*.
- Improve access to affordable and nutritious foods in indigenous and remote communities by subsidising transport of fresh foods and provide point of sale information about nutrition content of foods.

Appendix 4: Consultation – participants and session summaries

Consultation session 1: Molecular futures molecular futures – what is the role of genomics and mass screening in prevention and early intervention to reduce chronic disease?

- Gillian Bushell, Griffith University
- Lyn Griffiths, Genomics Research Centre, Griffith University
- David Hansen, Australian e-Health Research Institute
- Peter Isdale, IMBcom Pty Ltd
- Jennifer Muller, Senior Director, Cancer Screening Services, Queensland Health
- Mark Ragan, Institute of Molecular Bioscience, University of Queensland
- Peter Riddles, Queensland Biotechnology Advisory Council
- Christine Wells, Griffith University
- Ross Young, Institute for Health and Biomedical Innovation, QUT.

Three key themes:

1. Screening

- engaging people and having them take responsibility for their own health is one of the biggest issues
- best successes with breast and bowel cancer screening – participation rate in Breast Screen Qld is 57.9 percent of target group; participation rate in current (limited) bowel cancer screening program is 38.9 percent of men and 44.5 percent of women in target group.

2. New technologies and innovations

- chronic diseases are not detected by a single genomic test, however, can use genomic information throughout the disease process to help identify appropriate and patient specific treatment
- the \$1000 genome is probably 2 years away, but would make population level genomic testing more cost effective
- population genomics can be used for testing:
 - disease susceptibility – early identification of disease to help determine treatment modality
 - disease treatment – identify specific disorders through diagnostics which can inform the type of treatment best suited to the patient
 - treatment response – provide information on how people will respond to a particular treatment and can help identify appropriate treatment through the predicted response from the genetic profile

This document does not represent Queensland Government policy.

- Queensland researchers and innovators are world leaders in this area.

3. Data linkage

- electronic health record would make diagnosis and treatment easier/seamless
- linking genomics information with clinical information and interfacing with clinical setting/population setting is important for translating new innovations into clinical practice
- data sharing and IT infrastructure are barriers.

Consultation session 2: Environments for healthy living – how can the planning and development of built environments contribute to prevention of chronic disease?

- Peter Berkley, Integrated Transport Planning, Queensland Transport
- Andrew Borger, Leighton Contractors
- Matthew Burke, Urban Research Program, Griffith University
- Rachel Cole, Health Promotion Unit, Queensland Health
- Philip Follent, Queensland Government Architect
- Gavin Litfin, Property Solutions
- Matthew Miller, FKP
- Neville Owen, Cancer Prevention Research Institute, University of Queensland
- Cameron Prout, Heart Foundation Queensland
- Nancy Spencer, Eat Well Be Active Supportive Environments for Healthy Living Taskforce, Department of Local Government, Sport and Recreation
- Michael Tilse, Health Promotion Unit, Queensland Health
- Jim Varghese, Health City and Education City, Greater Springfield.

Three key themes:

1. Infrastructure

- clear and consistent guidelines and regulations for developers and planners to make it easier for them to build communities which support healthy and active living (activity and food outlets)
- guidelines for end of trip facilities which make it easier / more convenient (and more pleasant) for staff to actively commute (cycle or walk) to work or be active during the work day
- aesthetic attributes of environment increases the odds of people being active
- maintenance of facilities is important to perception and use of public spaces
- legal structure – prioritise person, bike and car as road users
- need to create a shift in the car dependent culture (e.g. idea of a CBD bike depot to reduce car trips in the CBD)

This document does not represent Queensland Government policy.

- need also to change attitudes and behaviours, as providing the infrastructure does not guarantee its use.

2. Data

- need an objective measure of how our communities (local areas) are going and whether what we're doing is making a difference
- provide the evidence to guide investment and monitor activities
- Wellness Footprint / Community Indicators Queensland project are examples.

3. Governance

- high level whole-of-government policy and leadership required
- public-private, state-local and whole-of-government – a need to break down the silo culture and thinking.

Consultation session 3: Social and personal responsibility for chronic disease prevention – current thinking and ideas for change.

- Taryn Black, Diabetes Australia Queensland
- Toby Ford, Ford Health
- Rachel Foreman, Heart Foundation Queensland
- Katrina Giskes, Institute for Health and Biomedical Innovation, QUT
- Trish Glasby, Curriculum Division, Education Queensland
- David Hansen, Australian e-Health Research Institute
- Amanda Lee, Health Promotion Unit, Queensland Health
- Ann Maree Liddy, General Practice Queensland
- Alison Marshall, School of Public Health, QUT
- Rob Seljak, Teachers Union Health Fund (Australian Health Insurance Association representative)
- Marian Sullivan, Psychiatrist
- Michelle Trute, Diabetes Australia Queensland
- Geoff Woolcock, Urban Research Program, Griffith University.

Three key themes:

1. Workplaces

- keeping people in the workforce healthy and productive is a strong economic imperative for employers
- programs need to be holistic/comprehensive (not just screening) to be more effective

- consider incentives (tax) to encourage workplaces to support health promotion programs.

2. Community action

- social marketing to stimulate community action – increase awareness and provide with tools to help change behaviour
- elevate the profile of health (not sickness), and focus on wellness
- need socialisation that healthy behaviours are the 'norm'
- self-management (of your own health) is an important concept to encourage
- Community Wellbeing Indicators project
- social determinants of health, particularly socioeconomic status need to be considered when developing population level programs
- electronic patient record (linking private and public systems) is instrumental in assisting individuals and health professionals manage health
- service directories for health professionals.

3. Funding and governance

- requires holistic, multi-strategy and collaborative approach across government, the health sector, industry and the community
- dedicated funding for health promotion/preventive health
- Queensland Government entity outside of Queensland Health to drive health promotion/preventive health.

Individual consultations and submissions

- Geoffrey Annison, Australian Food and Grocery Council
- Wendy Brown, Department of Human Movement Studies, University of Queensland
- Guy Gibson, Property Council of Australia (Queensland Division)
- Sally Redman, Sax Institute.

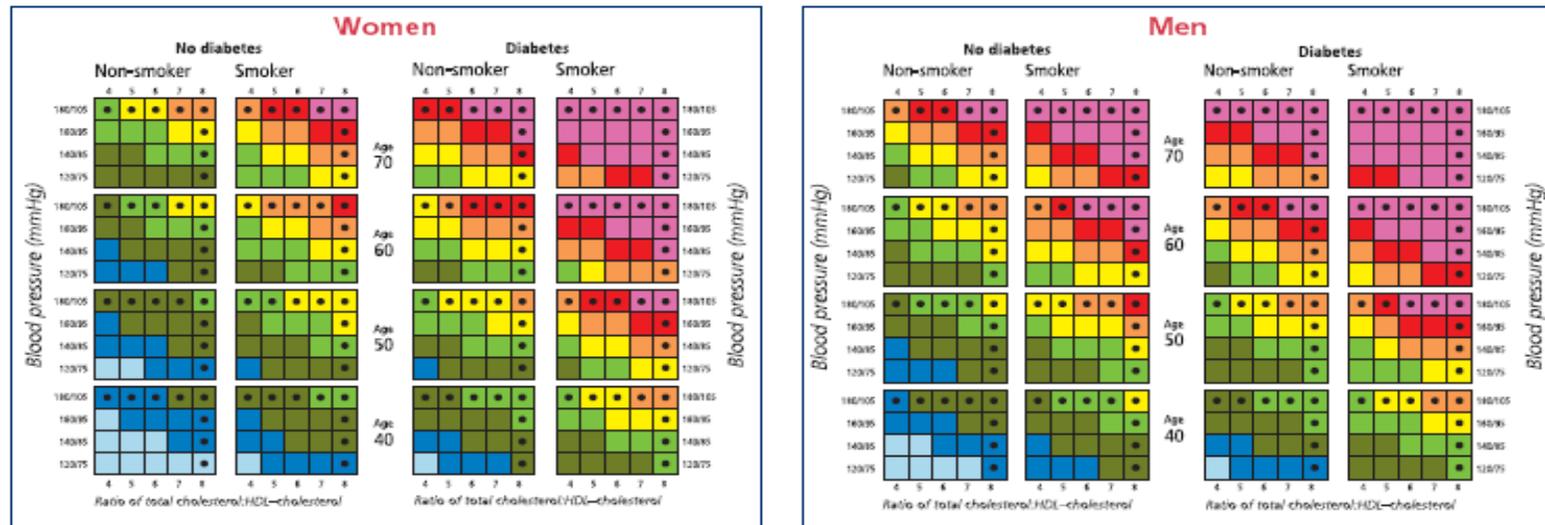
Appendix 5: Risk calculator

New Zealand Cardiovascular Risk Calculator

Assessing cardiovascular risk and treatment benefit



National Prescribing Service Limited



Cells with this marker (*) indicate patients with either a very high total cholesterol or very high blood pressure. In these patients the tables may underestimate true risk.

Absolute 5-year CV risk (fatal and non-fatal)	
Very high	> 30%
	25–30%
High	20–25%
	15–20%
Moderate	10–15%
	5–10%
Mild	2.5–5%
	< 2.5%

Risk level 5-year CV risk (fatal and non-fatal)	Benefits: NNT ^a for 5 years to prevent one event ^b (CVD events prevented per 100 people treated for 5 years)		
	1 Intervention (25% risk reduction)	2 Interventions (45% risk reduction)	3 Interventions (55% risk reduction)
30%	13 (7.5 per 100)	7 (14 per 100)	6 (16 per 100)
20%	20 (5 per 100)	11 (9 per 100)	9 (11 per 100)
15%	27 (4 per 100)	15 (7 per 100)	12 (8 per 100)
10%	40 (2.5 per 100)	22 (4.5 per 100)	18 (5.5 per 100)
5%	80 (1.25 per 100)	44 (2.25 per 100)	36 (3 per 100)

^a Number needed to treat

^b Based on the conservative estimate that each intervention: aspirin, blood pressure treatment (↓ SBP by 10 mmHg) or lipid modification (↓ LDL-cholesterol by 20%) reduces CV risk by approximately 25% over 5 years.

New Zealand Cardiovascular Risk Calculator

adapted with permission from New Zealand Guidelines Group^a

How to use the risk calculator

Find the colour block which best describes your patient's:

- gender
- age (age shown is mean for that category e.g. 60 represents those 55–64 years old)
- smoking status (regular daily smoking or having stopped in the previous 12 months)
- diabetes status (on insulin, oral hypoglycaemics, or fasting blood glucose > 8.0 mmol/L)
- BP (mean of two readings on at least two occasions)
- total cholesterol/HDL-cholesterol ratio.

Cell colour estimates a person's absolute 5-year risk of a cardiovascular event i.e. newly diagnosed angina, myocardial infarction (MI), coronary heart disease death, stroke or transient ischaemic attack (TIA).

Who does not need their risk calculated?

Very high-risk patients as determined clinically do not need to have their risk calculated. These patients are assumed to have a cardiovascular disease (CVD) risk > 20% over 5 years.

- All patients with symptomatic CVD^b
- Those with diagnosed left ventricular hypertrophy^c
- Those with genetic lipid disorders^d
- Those with diabetes and evidence of renal disease.^e

For age > 75 years, the absolute risk of a cardiovascular event is > 15% at 5 years in nearly all individuals.

Where risk may be underestimated

The following patient groups are likely to be at greater risk than the tables indicate. For these patients, consider increasing estimated risk by one colour level or treating at a lower CVD risk level:

- Those with a strong family history of CVD (first degree relative: i.e. a male with CVD before 55 years, or female before 65 years)
- Those of Aboriginal^c, Torres Strait Islander^c, Maori or Pacific Islander origin and people from the Indian sub-continent
- Those who are obese (BMI \geq 30 kg/m²)
- Those with very high levels of total cholesterol (> 8.5–9 mmol/L)
- Those with very high blood pressure (> 170/100 mmHg).

^a See the New Zealand Guidelines Group at: http://www.nzgg.org.nz/guidelines/0035/CVD_Risk_Full.pdf

^b Angina, MI, previous coronary revascularisation procedure, heart failure, stroke, TIA, peripheral vascular disease.

^c See: Hypertension Management Guide for Doctors 2004. National Heart Foundation of Australia; 2004. <http://www.heartfoundation.com.au>

^d Familial hypercholesterolaemia, familial defective ApoB and familial combined dyslipidaemia.

^e Microalbuminuria = 30 microg/min and/or proteinuria = 200 mg/day and/or glomerular filtration rate (GFR) < 60 mL/min^{1.73}.

National Prescribing Service ACN 082 034 393

Level 7 / 418A Elizabeth Street Surry Hills NSW 2010

Phone: 02 8217 8700 | Fax: 02 9211 7578 | email: info@nps.org.au | net: <http://www.nps.org.au>

Appendix 6: Example screening protocol for use in asymptomatic patients*

Age	Tests	Routine Management
20 years+	<ul style="list-style-type: none"> - BPⁱ - Weight and Waist Measurement, plus BMI (every 2-5 years)ⁱⁱ - Consider STI screening - Women – Pap smear every 2 yearsⁱⁱⁱ 	<ul style="list-style-type: none"> - Diet - Exercise - No Smoking
40 years+	<ul style="list-style-type: none"> - Blood Tests^{iv,v} - BPⁱ - Examination of Skin for Melanoma Skin Cancer^{vi} - Weight and Waist Measurement, plus BMI (every 2-5 years)ⁱⁱ - Women – Pap smear every 2 yearsⁱⁱⁱ 	<ul style="list-style-type: none"> - Diet - Exercise - No Smoking
50 years +	<ul style="list-style-type: none"> - Blood Tests^{iv,v} - BPⁱ - Weight and Waist Measurement, plus BMI (every 2-5 years)ⁱⁱ - Examination of Skin for Melanoma Skin Cancer^{vi} - Women – Mammogram^{vii}, Pap smear (every 2 years)ⁱⁱⁱ - Faeces – occult blood test^{viii} - Urinalysis^{ix} - If on a moderate exercise programme, manage with known 'risk factors' - If on a vigorous exercise programme, stress test every 2 years^x - Women – Bone Density^{xi} 	<ul style="list-style-type: none"> - Diet - Exercise - No Smoking - Women: Calcium 1300mg/day (via supplement or diet)^{xii} - Men: Consider aspirin 100mg; Fish Oil 500mg/day (via diet or supplement)^{xiii}
60 years +	<ul style="list-style-type: none"> - Blood Tests^{iv,v} - BPⁱ - Weight and Waist Measurement, plus BMI (every 2-5 years)ⁱⁱ - Examination of Skin for Melanoma Skin Cancer^{vi} - Women – Mammogram^{vii}, Pap smear (every 2 years)ⁱⁱⁱ - Faeces – occult blood test^{viii} - Urinalysis^{ix} - If on a moderate exercise programme, manage with known 'risk factors' - If on a vigorous exercise programme, stress test every 2 years^x - Consider screen for dementia and depression - Women – Bone Density^{xi} <p>Repeat Every 2 years</p>	<ul style="list-style-type: none"> - Diet - Exercise - No Smoking - Women: Calcium 1300mg/day (via supplement or diet)^{xii} - Men: Consider aspirin 100mg; Fish Oil 500mg/day (via diet or supplement)^{xiii}

* Screening is most efficient and cost-effective when cost-effective when opportunistically incorporated into General Practice as 80% of Australians visit their GP each year.

ⁱ National Heart Foundation of Australia. Guidelines to Management of Hypertension 2008.

www.heartfoundation.org.au

ⁱⁱ National Health and Medical Research Council. Overweight and Obesity in Adults: A Guide for General Practitioners. Canberra: NHMRC, 2003; Guidelines for Preventative Activities in General Practice (6th Edition). Melbourne: Royal Australian College of General Practitioners, 2005.

ⁱⁱⁱ National Cervical Screening Policy - www.health.qld.gov.au/cervicalscreening/health_professionals/ncsp.asp; Commonwealth Department of Health and Family Services – Screening for the Prevention of Cervical Cancer. Canberra: AGPS, 1998.

^{iv} E/LFTs, HDL-C (includes Creatinine, eGFR <Kidney>, Glucose, Liver Functions Test), FBC (includes haemoglobin, white cell count)

^v National Heart Foundation of Australia. Lipid Management Guidelines – 2001. MJA 2001; 175: S57-S90.

^{vi} National Health and Medical Research Council. The Management Cutaneous Melanoma; Clinical Practice Guideline: Canberra: NHMRC. National Health and Medical Research Council. Overweight and Obesity in Adults: A Guide for General Practitioners. Canberra: NHMRC, 2003; Guidelines for Preventative Activities in General Practice (6th Edition). Melbourne: Royal Australian College of General Practitioners, 2005.

^{vii} National Breast Cancer Centre Position Statement August 2004 – Early Detection of Breast Cancer. www.nbocc.org.au/resources/documents/EDP_earlydetectionposition0804.pdf. National Health and Medical Research Council. Overweight and Obesity in Adults: A Guide for General Practitioners. Canberra: NHMRC, 2003; Guidelines for Preventative Activities in General Practice (6th Edition). Melbourne: Royal Australian College of General Practitioners, 2005.

^{viii} National Health and Medical Research Council. Clinical Practice Guidelines for the Prevention, Early Detection and Management of Colo-Rectal Cancer. NHMRC Canberra: 2005. National Health and Medical Research Council. Overweight and Obesity in Adults: A Guide for General Practitioners. Canberra: NHMRC, 2003; Guidelines for Preventative Activities in General Practice (6th Edition). Melbourne: Royal Australian College of General Practitioners, 2005

^{ix} Eknoyan G, Hostler T, Bakris G et al. Proteinuria and Other Markers of Chronic Kidney Disease: A Position Statement of the National Kidney Foundation (NKF) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Am J Kidney Dis 2003; 42: 617-22.

^x National Heart Foundation of Australia www.heartfoundation.org.au, American College of Cardiology www.acc.org

^{xi} O'Neill S, MacLennan A, Bass S, et al. Guidelines for the Management of Post-Menopausal Osteoporosis for GPs. Aust Fam Position 2004; 33(11): 910-919. National Health and Medical Research Council. Overweight and Obesity in Adults: A Guide for General Practitioners. Canberra: NHMRC, 2003; Guidelines for Preventative Activities in General Practice (6th Edition). Melbourne: Royal Australian College of General Practitioners, 2005

^{xii} Calcium & Vitamin D in Bone Health Summit. Melbourne. July 2008.

^{xiii} Colquhoun D, et al. Fish, fish oils, n-3 polyunsaturated fatty acids and cardiovascular health. Heart Foundation; August 2008. Hung J, et al. Aspirin for cardiovascular disease prevention. MJA 2003; 179(3): 147-152.