

# **A Fair and Healthy Tasmania Cost and Savings Analysis**

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# Overview

## Background

The *Fair and Healthy Tasmania Strategic Review* recommends a combination of policy, programs and interventions across all Tasmanian sectors and communities to improve health and wellbeing outcomes and reduce health inequity. Some of these recommendations are strongly aligned with directly attributable and evidenced economic savings; while others have broader social benefits to the community that will be realised over time.

This cost and savings analysis informs the recommendations by considering the burden that health and social inequity places on Tasmanians and the evidence of where improvements can be made to reduce this. It shows the potential savings that could be realised over time if the *Fair and Healthy Tasmania Agenda* is advanced.

Other activities that inform the combinations of actions recommended by the Strategic Review include:

1. A review of the international evidence and approaches for intersectoral action on health improvement
2. Consultation with government agencies, community sector organisations and interest groups in Tasmania and a review of relevant strategies, programs and policy initiatives
3. The Implications for DHHS of a new commissioning framework, health and social reform agendas, and National Partnership Agreement reporting obligations

See the *Fair and Healthy Tasmania Strategic Review Report* (January 2011) for the full list of recommendations.

## Potential Cost Savings

This cost and savings analysis considers the prevalence of selected health risk factors, their economic and social impact, their relationship to health inequity, types of interventions that may prevent them and the potential savings and benefits to be made by reducing them.

Investing resources into prevention will save the health system and broader community money that could otherwise be spent elsewhere – it reduces waiting list numbers, reduces absenteeism and people living on pensions, reduces crime and reduces suicide.

For example, if all Australians had the same health status as the most affluent 20% of the population, annual health care costs would be around \$3 billion dollars lower, and the government could save close to \$1 billion dollars on the disability support pension annually.<sup>1</sup>

This analysis draws on the best available evidence of opportunity cost savings that could be realised from preventing ill health, and includes the economic and social benefits of the approaches identified in the *Fair and Healthy Tasmania Strategic Review* recommendations.

The 2009 VicHealth Report referenced throughout identifies \$2,334 million<sup>2</sup> in total opportunity cost savings that could be realised over the lifetime of the 2008 Australian adult population if potential risk factor reduction targets are met. (*Savings calculated as the sum of potential health sector offsets and the combined workforce, household and leisure production effects.*)

Evidence also suggests that even a modest investment in prevention will reap significant financial and social returns for communities. For example, a report released in the United States in 2008<sup>3</sup> found that for every

\$1 invested into evidence-based prevention programs (e.g. targeting smoking, physical activity), an estimated \$5.60 in savings and benefits is delivered back into the community within five years.

In addition to these type of potential savings, if Tasmania is able to meet National Partnership Agreement on Preventive Health targets, it will also access reward payments of up to \$7.1255 million across 2013-14 and 2014-15.

It should be noted that the challenge in capturing both sides of the equation – the costs and the savings – has been that many savings cannot accurately be captured because they are not measurable in monetary terms and/or are felt outside of government (e.g. community capacity.) Many interventions and programs also cannot be evaluated in terms of opportunity cost savings.

## **Evidence for Intervention**

This cost and savings analysis identifies some of the major risk factors that are attributable to the burden of morbidity and mortality in Australia - smoking, physical inactivity, poor nutrition, obesity, risky alcohol consumption, early years, psycho-social factors and community connectedness – and the evidence of effectiveness for the interventions to address them.

Prevention programs have made enormous contributions to improving the quality and duration of the lives of Australians. In recent years major improvements have been made in areas such as tobacco control, road trauma and drink driving, skin cancers, immunisation and cardiovascular disease - delivering substantial social and economic benefits.

To give an example, compared to the current rates, deaths from cardiovascular disease have decreased dramatically from the all-time highs experienced in Australia in the late 1960s, 1970s and 1980s – a reduction that has been associated with the introduction of prevention campaigns.<sup>4</sup>

Clearly Tasmania stands to benefit substantially by investing more in prevention.

It is important to remember, however, that not all risk factors are reducible; approximately 30% of the burden of preventable chronic disease is thought to be amenable to risk factor modification through behavioural change.

Economic and social determinants also significantly impact on the capacity and capability of individuals to make life and behavioural changes. Those who are most disadvantaged are at least twice as likely to have a long-term health condition, and in some cases up to four or five times more likely.<sup>5</sup>

Another important point is that both healthcare costs and evidence of interventions are more readily demonstrable for certain risk factors that have been researched for longer or are more easily understood. For example, there is good evidence of the effectiveness of anti-smoking interventions which have been pursued in many parts of the world since the 1950s.

Less is known about risk factors that have been more difficult address or study, such as community connectedness or psycho-social factors but this does not mean their impact is not significant or that they cannot be changed. The *Fair and Healthy Tasmania Agenda* strongly recommends that further research, surveillance and monitoring be undertaken to address this imbalance.

Tentative links are beginning to be made between health and wellbeing outcomes and the activities of other sectors outside of health. For example, housing and infrastructure design has been shown to influence community connectedness, while food security is linked to food choices. Again, further evidence is needed.

# Potential Cost Savings by Selected Risk Factor

## Methodology

This section of the report draws on the VicHealth publication *The Health and Economic Benefits of Reducing Disease Risk Factors*<sup>6</sup>. That publication presents national prevalence rates and potential national costs and savings by selected risk factors based on targets identified by VicHealth (e.g. if smoking were reduced by X%, then \$X would be saved per annum). It must be noted that owing to limitations in the available resources and data an in-depth health economics analysis based on Tasmanian information has not been possible.

Assuming the targets described in the VicHealth document are achieved nationwide, the potential annual savings to Tasmania are calculated as a 3% share of the potential national savings. While Tasmania represents only 2.6% of the national population, 3% was selected to account for the greater prevalence of these risk factors in Tasmania. Cost benefits are likely to be much greater than estimated because they are felt by society as a whole rather than just realised by Government or health services alone (e.g. the cost of alcohol to the justice system or within families.)

Figures represent long-term opportunity cost savings based on the lifetime of the 2008 Australian population if risk factor reduction targets are achieved. The term 'DALY' refers to Disability Adjusted Life Year and quantifies the effects of premature sickness or death as a result of disease or injury on a population. Lost productivity and leisure costs include workforce participation, absenteeism, early retirement and household productivity and leisure time. Healthcare costs capture financial savings as a result of fewer people having the risk factor.

Under these estimates the largest potential opportunity cost savings to be gained were from reductions in alcohol consumption, followed by reductions in tobacco smoking, domestic violence, physical inactivity, obesity and lastly from increases in the consumption of fruit and vegetables.

Readers should note that the VicHealth publication used both the Human Capital Approach and Friction Cost Approach to estimate production gains and losses in the economy, together with a number of other research methods to estimate the potential benefits of prevention. Different data analysis approaches can yield different results which may mean that the figures presented in this document differ slightly from others presented elsewhere. Please refer to the VicHealth publication for a detailed explanation of the methodology used.

Contact Population Health for any further information. Additional data sources are used as referenced.

# Smoking

## Australian Prevalence

20.8% of Australian adults are current smokers (1 in 5) and 18.9% of Australian adults smoke daily<sup>7</sup>

## Health Inequity and Tasmania

- 24.9% of Tasmanians are current smokers (1 in 4) and 23.3% smoke daily<sup>8</sup>
- 9% of Tasmanian students aged 12-17 years are smokers<sup>9</sup>
- Australia wide, the highest rates of smoking occur in the younger most disadvantaged groups – a third to nearly three fifths of younger most disadvantaged males smoke and the highest risk of smoking occurs for disadvantaged females aged 25-44 years<sup>10</sup>
- 31.1% of Tasmanians from the lowest socioeconomic quintile are smokers, compared to 8.4% in the highest quintile<sup>11</sup> - this is a 370% increase
- The most discriminating socio-economic factors for smoking are education, housing tenure and income - fewer than 15% of individuals with a tertiary education smoke.<sup>12</sup>

## Australian Cost Burden

- 7.8% of the overall health burden in Australia (e.g. lung cancer, heart disease)
- \$1,412 million in healthcare costs per annum
- \$1,215 million in lost production and leisure costs per annum
- In 2003 an Australia study found that the 30% decline in smoking between 1975 and 1995 had prevented over 400,000 premature deaths and saved costs of over \$8.4 billion – more than 50 times greater than the amount spent on anti-smoking campaigns over that period<sup>13</sup>

<b>Potential Annual Saving (if feasible long-term targets are met)</b>	
<b>Tasmania</b>	<b>Australia</b>
\$14.7 million in healthcare	\$491 million in healthcare
\$12.5 million in lost production and leisure	\$415 million in lost production and leisure
4,740 new cases of disease	158,000 new cases of disease
150 deaths	5,000 deaths
2,130 DALYs	71,000 DALYs

## Tasmania Together Target

- Reduce the proportion of the Tasmanian population aged 18 years or more who are current smokers to 10% by 2020

## Physical Inactivity

### Australian Prevalence

67% of men and 74% of women in Australia are sedentary or have a low level of exercise

### Health Inequity and Tasmania

- Physical inactivity patterns in Tasmania are similar to the rest of Australia, with 72.9%<sup>14</sup> of Tasmanian adults physically inactive<sup>1</sup>
- 38% of Tasmanian children aged 5-12 years do not meet minimum physical activity requirements<sup>15</sup>
- Disadvantaged Australian men and women typically report a lower percentage of individuals undertaking sufficient exercise relative to the most advantaged groups<sup>16</sup>
- Tasmanians in the lowest socioeconomic quintile are more likely to lead sedentary lifestyles (41.9%) than Tasmanians in the highest quintile (17.8%)<sup>17</sup> - this is a 154% increase
- Australian women aged 45-64 years who are most socioeconomically disadvantaged (with the exception of those living in outer regional or remote Australia) are much less likely to undertake sufficient physical activity compared with women who are least disadvantaged<sup>18</sup>

### Australian Cost Burden

- 6.6% of the overall health burden in Australia (e.g. heart disease)
- \$627 million in healthcare costs per annum
- \$1,135 million in lost production and leisure costs per annum

<b>Potential Annual Saving (if feasible long-term targets are met)</b>	
<b>Tasmania</b>	<b>Australia</b>
\$2.9 million in healthcare	\$96 million in healthcare
\$4.9 million in lost production and leisure	\$162 million in lost production and leisure
180 new cases of disease	6,000 new cases of disease
60 deaths	2,000 deaths
750 DALYs	25,000 DALYs

### Tasmania Together Target

- Reduce the proportion of the Tasmanian population aged 18 years or more who do not do enough exercise to avoid chronic disease to 10% by 2020
- Increase the proportion of Tasmanian children aged five to 14 years participating in at least one organised sport (15% increase on 2010 by 2015, 10% increase on 2015 by 2020)

<sup>1</sup> Note: These results are taken from the 2007/08 National Health Survey (NHS). The NHS approach does not include physical activity undertaken whilst at work, therefore may over estimate the proportion of Tasmanians who are insufficiently active.

# Poor Nutrition

## Australian Prevalence

46% of Australian adults eat less than two serves of fruit per day and 86% eat less than five serves of vegetables per day

## Health Inequity and Tasmania

- Nutrition patterns in Tasmania are similar to the rest of Australia
- 63% of Tasmanian children aged 4-12 years do not eat recommended minimum daily serves of vegetables<sup>19</sup>
- Australians of lower socioeconomic status (as measured by income or education) are more likely to have poor nutrition<sup>20</sup>
- The proportion of Australian men who report an inadequate level of fruit and vegetable consumption is consistently high

## Australian Cost Burden

- 2.7% of the overall health burden in Australia can be attributed to inadequate fruit intake and 1.5% to inadequate vegetable intake
- \$206 million in healthcare costs per annum
- \$63 million in lost production and leisure costs per annum

<b>Potential Annual Saving (if feasible long-term targets are met)</b>	
<b>Tasmania</b>	<b>Australia</b>
\$2.2 million in healthcare	\$71 million in healthcare
\$0.6 million in lost production and leisure	\$21 million in lost production and leisure
75 new cases of disease	2,500 new cases of disease
48 deaths	1,600 deaths
567 DALYs	18,900 DALYs

## Tasmania Together Target

- Increase the proportion of the Tasmanian population aged 18 years or more who eat at least two serves of fruit per day to 70% by 2020
- Increase the proportion of the Tasmanian population aged 18 years or more who eat at least five serves of vegetables per day to 40% by 2020

# Obesity

## Australian Prevalence

62% of men and 45% of women in Australia are overweight or obese

## Health Inequity and Tasmania

- Rates of obesity in Tasmania are similar to the rest of Australia
- Around 25-30% of disadvantaged Australian women aged 25-44 years are obese, compared to 20% of women in the most advantaged socio-economic classes<sup>21</sup>
- 49.4% of Tasmanians aged over 15 years from the lowest socioeconomic quintile are overweight or obese, compared to 45.6% in the highest quintile
- Obesity rates for Australians living in public housing are three times higher than home owners<sup>22</sup>

## Australian Cost Burden

- 7.5% of the overall health burden in Australia (e.g. Type 2 diabetes, heart disease)
- \$812 million in healthcare costs per annum
- \$742 million in lost productivity and leisure costs per annum
- Annual healthcare cost per person increases from \$1,472 for those of healthy weight, to \$2,788 for those who are obese<sup>23</sup>
- In 2005, overweight and obese individuals received \$35.6 billion in government subsidies<sup>24</sup>
- A comparison of cost by weight change since 1999-2000 found that those who remained or became overweight by 2004-2005 had highest annual healthcare costs compared to those who lost weight<sup>25</sup>

Potential Annual Saving (if feasible long-term targets are met)	
Tasmania	Australia
\$2.7 million in healthcare	\$90 million in healthcare
\$2.5 million in lost productivity and leisure	\$82 million in lost productivity and leisure
270 new cases of disease	9,000 new cases of disease
30 deaths	1,000 deaths
750 DALYs	25,000 DALYs

## Tasmania Together Target

- Reduce the proportion of the Tasmanian population aged 18 years or more who are overweight to 20% by 2020
- Reduce the proportion of the Tasmanian population aged 18 years or more who are obese to 10% by 2020

# Risky Alcohol Consumption

## Australian Prevalence

13% of Australian adults drink at risky or high levels

Australians also drink more alcohol per capita per year (9.8 litres)

## Health Inequity and Tasmania

- Tasmanian alcohol consumption patterns are similar to the rest of Australia
- 21% of Tasmanians aged 12-15 years, and 48% aged 16-17 years consume alcohol<sup>26</sup>
- Tasmania's alcohol-related death rate for persons aged 15-24 years is the third highest in Australia<sup>27</sup>
- Since the 1990s, male alcohol-related death rates have shown declining trends across Australia, with the exception of ACT and Tasmania, where rates have been increasing (as of available data from 2009)<sup>28</sup>
- The likelihood of being a high risk drinker for young Australian adults who left high school early is 1.5 to two times higher than that for those with a tertiary qualification<sup>29</sup>
- 40% of young Australian women living in public rental accommodation have high risk alcohol consumption – three times the likelihood of women living in their own home being 'problem' drinkers<sup>30</sup>
- Australian men and young women living in outer regional and remote areas are 30% more likely to be high risk drinkers than those living in major cities<sup>31</sup>

## Annual Australian Cost Burden

- 2.3% of the overall health burden in Australia (e.g. alcohol dependence, suicide and self harm, accidents)
- \$2,275 million in healthcare costs per annum
- \$1,224 million in lost production and leisure costs per annum
- \$1.6 billion in costs associated with crime per annum<sup>32</sup>
- Heavy drinking costs the Australian population an estimated \$13 billion per annum in out of pocket costs outside of healthcare, including forgone wages and productivity<sup>33</sup>
- Alcohol is involved in 62% of all police attendances, 73% of assaults, 77% of street offences, 40% of domestic violence incidents and 90% of late night calls (10pm to 2am)<sup>34</sup>
- The health and wellbeing, social and legal costs of alcohol misuse ripples through communities – in 2005, 367 Australians died and close to 14,000 were hospitalised because of the drinking of others; over 70,000 were victims of alcohol-related domestic violence; and almost 20,000 children were victims of alcohol-related abuse<sup>35</sup>
- Almost three-quarters of the adult Australian population report having been affected in the last year as the result of someone else's drinking - a total of 16% of Australians have been affected by the drinking of someone they live with or are intimate with (a family member or romantic partner)<sup>36</sup>
- If the National Preventative Taskforce's target of reducing the proportion of risky and high-risk drinkers by 30% by 2020 is met, 330,00 fewer hospitalisations and 1.5 million associated bed days would be saved<sup>37</sup>

<b>Potential Annual Saving (if feasible long-term targets are met)</b>	
<b>Tasmania</b>	<b>Australia</b>
\$23.7 million in healthcare \$13.1 million in lost production and leisure 2,940 new cases of disease 11 deaths 630 DALYs	\$789 million in healthcare \$435 million in lost production and leisure 98,000 new cases of disease 380 deaths 21,000 DALYs

#### **Tasmania *Together* Target**

- Reduce the proportion of 14-24 year olds at risk of short term alcohol related harm : 15% reduction on 2010 by 2015, 20% on 2015 by 2020

# Early Years

## Australian Prevalence

23.5% of Australian children are developmentally vulnerable on one or more of the Australian Early Development Index (AEDI)<sup>2</sup> domains as they enter school and 11.8% are vulnerable on two or more<sup>38</sup>

## Health Inequity and Tasmania

- Rates of developmental vulnerability on AEDI domains are slightly lower in Tasmania (21.8% on one or more and 10.8% on two or more)<sup>39</sup>
- Rural and remote, Indigenous, linguistically diverse and lower socioeconomic groups score lower across AEDI domains
- A number of disadvantaged Tasmanian communities score lower across AEDI domains<sup>40</sup>
- Boys score significantly more vulnerable than girls (30.1% developmentally vulnerable on one or more AEDI domain compared to 16.7%)
- One in five Australian children do not attend any form of early childhood program until the age of four<sup>41</sup>
- Mothers of children not attending an early childhood program are less well educated and more likely to be unemployed; have lower weekly income; have more financial stress; have larger numbers of children living in the household; reside in less advantaged neighbourhoods; and are likely to be from an Indigenous, non-English speaking or lone parent household<sup>42</sup>

## Australian Cost Burden

Comparable data is not available

Potential Annual Saving (if feasible long-term targets are met)	
Tasmania	Australia
Not calculated	Not calculated For every dollar invested at an early stage a return on investment of up to \$12 in savings is made, largely in reduced costs associated with crime reduction and school remedial services <sup>43</sup>

## Tasmania Together Target

- Decrease the proportion of Tasmanian born infants with a birth weight of less than 2,500 grams below the national proportion
- Increase the proportion of all children meeting the Kindergarten Development Check of early childhood development to 84% by 2020

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<sup>2</sup> The Australian Early development Index (AEDI) domains are physical health and well being, social competence, emotional maturity, language and cognitive skills, communication skills and general knowledge.

## Domestic violence

### Australian Prevalence

In any one year, 4% of Australian women have been reported to experience intimate partner violence (IPV)  
An estimated 27% of Australian women experience IPV in their lifetime

### Health Inequity and Tasmania

- Younger women are more likely to experience IPV
- There is some suggestion that women from lower educational backgrounds are more susceptible to IPV
- Rural and remote, Indigenous and pregnant women have been identified as more vulnerable to IPV<sup>44</sup>

### Australian Cost Burden

- 1.1% of the overall health burden in Australia (e.g. anxiety and depression)
- \$207 million in healthcare costs per annum
- \$1,801 million in lost production and leisure costs per annum

<b>Potential Annual Saving (if feasible long-term targets are met)</b>	
<b>Tasmania</b>	<b>Australia</b>
\$1.14 million in health care	\$38 million in healthcare
\$9.99 million in lost production and leisure	\$333 million in lost production and leisure
180 new cases	6,000 new cases
2 deaths	74 deaths
150 DALYs	5,000 DALYs

### Tasmania Together Target

- Reduce the incidence of family and domestic violence recorded to Tasmania Police (10% reduction on 2010 by 2015, 10% reduction on 2015 by 2020)

# Psycho-social factors

## Australian Prevalence

One in 10 Australians report a long term mental or behavioural problem

A significant proportion of the Australian population report high or very high levels of psychological distress (12.9%)<sup>45</sup>

## Health Inequity and Tasmania

- One in 9 Tasmanians report a long-term mental or behavioural problem
- Levels of psychological distress in Tasmania are similar to the rest of Australia
- More females than males report high or very high levels of psychological distress (15.0% compared to 10.8%)
- 20.3% of Tasmanians from the lowest socioeconomic quintile report high or very high levels of psychological distress, compared to 5.0% in the highest quintile – this is a 150% increase
- Homelessness, racial discrimination, lower socioeconomic status, unemployment and Indigenous status has been linked to increased vulnerability for mental illness<sup>46</sup>
- 43% of Australians who have a common mental disorder (depression, anxiety or substance abuse) also have a physical illness<sup>47</sup>
- Tasmania's youth suicide rates are amongst the highest in the nation – from 1978 to 2006, 28% of Tasmanian suicides were from the 15 to 19 year age range, the second highest age-standardised suicide rate of all jurisdictions after the Northern Territory<sup>48</sup>

## Australian Cost Burden

Comparable data is not available

Potential Annual Saving (if feasible long-term targets are met)	
Tasmania	Australia
Not calculated A 10% reduction in suicide rates in Tasmania (8 fewer deaths per annum) would equate to a reduction in total cost to the government and society of \$2,920,000 /year <sup>49</sup>	Not calculated Little evidence of cost savings are currently available Further sources of data to be reviewed

## Tasmania Together Target

- Reduce the proportion of the Tasmanian population aged 18 years or more who report their level of psychological distress as high or very high (10% reduction on 2010 by 2015, 10% reduction on 2015 by 2020)

## Community Connectedness

### Australian Prevalence

When supportive networks are missing, people are more likely to experience isolation and exclusion which in turn can impact negatively on their physical and mental health and wellbeing<sup>50</sup>

### Health Inequity and Tasmania

- National comparisons tell us that Tasmania has high need relative to other jurisdictions<sup>51</sup>
- More than any other State, our relatively high dependence on Commonwealth income support payments, lower skills and educational engagement and poorer health status all heighten the risks of social exclusion<sup>52</sup>

### Australian Cost Burden

Cost benefit analyses of community capacity building work have rarely been carried out as the effects are long term and diverse. A Social Return on Investment analysis of community development work, based on a common outcomes framework<sup>53</sup> has been published in the UK but no comparative analysis is available for Australia.

<b>Potential Annual Saving (if feasible long-term targets are met)</b>	
<b>Tasmania</b>	<b>Australia</b>
No evidence of cost savings available	No evidence of cost savings available Further sources to be researched

### Tasmania Together Target

- 'Feeling a part of the community' indicator currently under development

# Australian Evidence for Intervention by Selected Risk Factor

## Methodology

In line with the previous section, the evidence for intervention by selected risk factors summarised below is drawn from the VicHealth publication *The Health and Economic Benefits of Reducing Disease Risk Factors*<sup>54</sup>. In order to calculate the potential national costs and savings from reducing selected risk factors, VicHealth undertook a comprehensive analysis of the Australian evidence base, which allowed for the identification of practical risk factor reduction targets.

As stated in the overview, it is important to note that evidence of interventions are more readily demonstrable for certain risk factors that have been researched for longer or are more easily understood, such as anti-smoking and alcohol risk reduction campaigns.

## Smoking

There is high-quality evidence that the disease risk from smoking is significantly reduced following smoking cessation.<sup>55</sup>

Meta-analyses of randomised controlled trials of behavioural therapies, nicotine replacement therapies, other anti-smoking medications and individual and group counselling demonstrate effectiveness in promoting abstinence from smoking at 6 and 12 months. (However, impact on whole of population prevalence is unknown.)

In addition to reducing the number of cigarettes smoked, increasing the price of tobacco products has clearly reduced numbers of people smoking across the whole of population and would be likely to increase use of medications that improve success rates.

Advertising in mass media can greatly increase use of telephone Quitlines and internet-based quitting resources. Campaigns shaped by behavioural and communications research can be highly effective in reducing smoking prevalence and in Australia have been shown to be highly cost-effective in reducing tobacco-related disease.

In recent years in Australian populations with comprehensive tobacco control programs including adequately-funded media education campaigns and legislation (such as banning smoking in public places), smoking prevalence has been reducing by about 1% per year. (In Tasmania this decline has plateaued over the past 12 years due to a lack of investment.)

Less than one-fifth of men smoke now (compared to three-quarters in the 1950s) and as a result deaths in men from lung cancer and obstructive lung disease have plummeted from peak levels seen in the 1970s and 1980s.<sup>56</sup>

Recent studies show that tax on tobacco is highly supported and likely to disproportionately benefit lower socioeconomic smokers.<sup>57</sup>

## Physical Inactivity

Community wide campaigns can reduce the number of people who are inactive by 4%. There is no current available evidence of the economic benefit of other interventions including the programs currently targeted at schools and communities, and recommended for further expansion.

It is evident that features of the built environment that encourage walking and cycling are associated with increased physical activity, that is, people are more likely to walk more in walkable neighbourhoods.<sup>58</sup>

## Poor Nutrition

Evaluated interventions have led to increased consumption of fruit and vegetables of about 17% (equivalent to 0.6 servings per day for adults). Some regulatory changes such as the addition of iodine to bread and the fluoridation of water have attributable benefit in health outcomes.

Many of the health and economic costs and benefits associated with the consumption of fruit and vegetables are experienced in the older, non-working population.<sup>59</sup>

Evaluations of Department of Health and Human Services' community nutrition programs and programs funded through the Food Security Council under the Social Inclusion Unit of the Department of Premier and Cabinet will provide an interesting future source of data.

## Obesity

Interventions can bring about decreases in body weight of up to 5kg but long term change is difficult. Early prevention in childhood, and increasing the physical activity and nutrition for children and families is likely to improve longer term outcomes.

Amongst overweight and obese Australians with impaired glucose tolerance, medication (metformin) combined with intensive lifestyle intervention has been shown to bring about substantial improvements in lifetime clinical outcomes, to delay or prevent the onset of Type 2 Diabetes.<sup>60</sup> This research shows that this form of prevention is good value for money and may lead to long term cost savings.

## Risky Alcohol Consumption

Brief alcohol interventions in primary care can reduce alcohol consumption by 10% (approximately four standard drinks of alcohol per week), but other interventions have not demonstrated long-term change.

Three major reviews of alcohol risk reduction strategies have shown that at the whole of population level:

- Alcohol advertising and promotion increases the likelihood that adolescents will start to use alcohol, and to drink more if they are already using alcohol<sup>61</sup>
- There is a causal link between exposure to alcohol commercials and role models on acute alcohol consumption<sup>62</sup>
- Among young people who had previously not drunk alcohol, ownership of alcohol branded merchandise is independently associated with susceptibility to, and initiation of, drinking and binge drinking<sup>63</sup>

## Early Years

Recent research into brain development in young children has highlighted the importance of secure and supportive relationships for children's healthy development.<sup>64</sup> Children that have secure relationships with their parents are more able to regulate their own emotions, learn through exploration and cope with difficulties when they arise. This gives them the resilience and skills needed for success at school and in later life.

There is a broad consensus that investment in the early years and primary prevention can have substantial pay offs over time.<sup>65</sup> The types of programs and interventions are broadly in the health promotion field, and include child health and parenting skills.

## Domestic violence

Few studies have evaluated the outcomes or cost benefits of interventions in this area. Health promotion, education and social action programs are recommended.

## Psycho-social Factors

Promotion, prevention and early intervention activities can improve mental health across the population and reduce the burden of mental health problems and disorders<sup>66</sup>.

## Community Connectedness

Health promotion approaches which allow communities to work as equal partners and decision makers have shown more positive health outcomes.

Social connectedness has been shown to consistently impact on the percentage of individuals undertaking sufficient weekly exercise<sup>67</sup>

## Relationships between Health and Wellbeing and Other Sectors

While there is still a lack of demonstrable evidence for certain behavioural risk factors, tentative links are being made between health and wellbeing outcomes and the activities of other sectors outside of health (see summary below). For example, food security has been linked to food choices, while housing and infrastructure design has been shown to influence community connectedness and physical activity.

### Inter-relationships between health and wellbeing across sectors<sup>68</sup>

Sectors and Issues	Inter-relationships between health and wellbeing
Economy and employment	<ul style="list-style-type: none"><li>• Economic resilience and growth is stimulated by a healthy population. Healthier people can increase their household savings, are more productive at work, can adapt more easily to work changes, and can remain working for longer.</li><li>• Work and stable employment opportunities improve health for all people across different social groups.</li></ul>
Security and justice	<ul style="list-style-type: none"><li>• Rates of violence, ill-health and injury increase in populations whose access to food, water, housing, work opportunities and a fair justice system is poorer. As a result, justice systems within societies have to deal with the consequences of poor access to these basic needs.</li><li>• The prevalence of mental illness (and associated drug and alcohol problems) is associated with violence, crime and imprisonment.</li></ul>
Education and early life	<ul style="list-style-type: none"><li>• Poor health of children or family members impedes educational attainment, reducing educational potential and abilities to solve life challenges and pursue opportunities in life.</li><li>• Educational attainment for both women and men directly contributes to better health and the ability to participate fully in a productive society, and creates engaged citizens.</li></ul>

Agriculture and food	<ul style="list-style-type: none"> <li>• Food security and safety are enhanced by consideration of health in food production, manufacturing, marketing and distribution through promoting consumer confidence and ensuring more sustainable agricultural practices.</li> <li>• Healthy food is critical to people's health and good food and security practices help to reduce animal-to-human disease transmission, and are supportive of farming practices with positive impacts on the health of farm workers and rural communities.</li> </ul>
Infrastructure, planning and transport	<ul style="list-style-type: none"> <li>• Optimal planning for roads, transport and housing requires the consideration of health impacts as this can reduce environmentally costly emissions, and improve the capacity of transport networks and their efficiency with moving people, goods and services.</li> <li>• Better transport opportunities, including cycling and walking opportunities, build safer and more liveable communities, and reduce environmental degradation, enhancing health.</li> </ul>
Environments and sustainability	<ul style="list-style-type: none"> <li>• Optimising the use of natural resources and promoting sustainability can be best achieved through policies that influence population consumption patterns, which can also enhance human health.</li> <li>• Globally, a quarter of all preventable illnesses are the result of the environmental conditions in which people live.</li> </ul>
Housing and community services	<ul style="list-style-type: none"> <li>• Housing design and infrastructure planning that take account of health and well-being (e.g. insulation, ventilation, public spaces, refuse removal, etc.) and involve the community can improve social cohesion and support for development projects.</li> <li>• Well-designed, accessible housing and adequate community services address some of the most fundamental determinants of health for disadvantaged individuals and communities.</li> </ul>
Land and agriculture	<ul style="list-style-type: none"> <li>• Improved access to land can support improvements in health and well-being for Indigenous people as Indigenous people's health and well-being are spiritually and culturally bound to a profound sense of belonging to land and country.</li> <li>• Improvements in Indigenous health can strengthen communities and cultural identity, improve citizen participation and support the maintenance of biodiversity.</li> </ul>

For further information about the inter-relationships between health and wellbeing and various sectors, including the potential for intersectoral action to have a positive impact upon health see the A Fair Go Strategic Review Working Paper (September 2010).

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