1 Tobacco control

1.1 About this chapter

This chapter of the National Cancer Prevention Policy presents information about tobacco-related cancer and tobacco control policies. It will be updated as significant new literature is published or changes in the policy environment occur.

The chapter was developed by Cancer Council Australia's Tobacco Issues Committee in April 2013, and was externally reviewed in July 2013 by Professor Mike Daube, Curtin University and Dr Michelle Scollo, Co-Director of the VicHealth Centre for Tobacco Control. The chapter was endorsed by Cancer Council Australia's principal Public Health Committee and published in July 2013.

Contact: Deshanie Rawlings

1.2 Contents

1. Overview
2. Impact
3. Link between smoking and cancer
4. Policy context
5. Effective interventions
6. Policy priorities
7. Related position statements
2 Overview

Tobacco smoking is the leading preventable cause of cancer burden in Australia, attributable for an estimated 11,308 new cases of cancer and 8,155 cancer deaths in 2005\(^1\). A more recent study estimated 15,525 (13%) cancers in Australia in 2010 were attributable to tobacco smoke\(^2\). Smoking causes an estimated 22% of the nation’s cancer disease burden each year\(^3\). Two of every three deaths in current smokers can be directly attributed to smoking\(^4\).

There is a link between tobacco and 16 different cancer types and a wide range of further conditions. However, lung cancer is the predominant cause of tobacco-related disease and accounts for more than a third (35%) of the tobacco-related burden of disease in Australia\(^5\).

In 2011-12, there were 2.8 million Australians (16.3%) aged 18 years and over who smoked daily\(^6\). In 2013, 12.8% of Australians aged 14 years or older smoked daily\(^7\).

Smoking rates in Australia have declined substantially in recent decades. In 1945, 72% of Australian males and 26% of Australian females smoked\(^8\)\(^9\). By 1991, the proportion of Australians smoking daily was 24.3; this declined further to 12.8% in 2013\(^7\).

Effective tobacco control policies have led to these decreases in smoking rates in Australia, and consequent reductions in tobacco-related mortality rates\(^1\)\(^10\)\(^11\).

This chapter focuses on the impact of smoking, its link to cancer, the policy context and the interventions required to further reduce the population health harms of tobacco use in Australia. It also outlines Cancer Council Australia’s policy priorities for reducing the tobacco-related cancer burden in Australia.

For further information on the major issues in smoking and health in Australia, see Tobacco facts and issues, produced by Cancer Council Victoria.
References


3 Position statement - Tobacco related disparities

"There is a lot of death and suffering ahead of us, but it will be concentrated among those already suffering the most"

- Professor Ron Borland

3.1 Key messages and recommendations

- While smoking rates across Australia have declined substantially to around 17.5% of the population, among the most disadvantaged groups they are up to five times higher than the population average.
- The most disadvantaged groups in Australia bear a disproportionate share of tobacco-related harm. Reducing smoking rates in these populations is an important and pressing public health issue.
- Sustained population-wide tobacco control strategies must be supported by specific interventions targeting disadvantaged populations in order to maximise reach and effectiveness among these groups.
- Effective strategies require a combination of applying best current evidence with being open to exploring the effectiveness of new strategies.
3.1 Key messages and recommendations

- The development of partnerships between tobacco control public health experts and community-based organisations working with targeted populations will help to develop capacity within these organisations to address specific tobacco-related issues, create quit-friendly service environments and integrate attention to smoking into routine practice.
- Obtaining better data on smoking prevalence trends among disadvantaged groups and monitoring progress in this space are integral to reducing disparities in tobacco use. It is critically important that interventions are underpinned by financial support for evaluation of appropriateness and effectiveness.

3.2 Background

While much progress has been made in reducing smoking rates in Australia over the past decades, rates of smoking remain high among people facing multiple disadvantage and challenges. The most disadvantaged groups in Australia include people who, in addition to low income, face a number of other difficulties such as mental illness, sole parenthood, unemployment, domestic violence, homelessness, drug and alcohol problems, criminal justice issues, limited education, and social isolation. These issues often overlap and their effects are compounded.

Smoking rates across Australia have declined substantially to around 17.5% of adults smoking weekly or more often, however among the most disadvantaged groups smoking rates are up to five times higher than the population average. A range of Australian studies indicate high smoking rates among groups such as: single parents (37%), lone mothers 18–29 years of age (59%), people living with psychosis (66%), at-risk young people (63%), Aboriginal and Torres Strait Islander peoples (47%), people with drug disorders (73%), the homeless (73%), intravenous drug users (90%), and prisoners (85%). Many of the most disadvantaged smokers will belong to more than one of these groups.

3.2.1 Links between smoking and disadvantage

Disadvantage is associated with smoking; increased disadvantage is associated with increased smoking prevalence.

Many factors across the life course can combine to embed smoking in the lives of disadvantaged people. Research has shown that individual dimensions of disadvantage contribute independently to the likelihood of being a smoker and to reduce the odds of quitting. For example, women in the UK were at increased odds of being a heavy smoker if they experienced childhood disadvantage, left school aged 16 or less, were a mother at age 22 or younger, or if they experienced severe disadvantage as an adult.

In addition the relationship between smoking and disadvantage has been shown to be cumulative, that is as the number of experiences of disadvantage accrue smoking rates increase. Table 1 maps this association between disadvantage trajectories and smoking status.
Table 1. Cumulative disadvantage and smoking status

<table>
<thead>
<tr>
<th>Sample</th>
<th>Number</th>
<th>Ever smoked (%)</th>
<th>Current smoker (%)</th>
<th>Heavy smoker (% of current smokers)</th>
<th>Former smoker (% of ever smokers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood disadvantage</td>
<td>3800</td>
<td>51.6</td>
<td>35.9</td>
<td>49.6</td>
<td>30.4</td>
</tr>
<tr>
<td>Plus left full time education ≤ 16</td>
<td>2081</td>
<td>61</td>
<td>44.1</td>
<td>53.3</td>
<td>27.7</td>
</tr>
<tr>
<td>Plus a mother at age ≤ 22</td>
<td>744</td>
<td>70.3</td>
<td>54.6</td>
<td>57.1</td>
<td>22.4</td>
</tr>
<tr>
<td>Plus adult disadvantage</td>
<td>405</td>
<td>75.6</td>
<td>62.5</td>
<td>56.1</td>
<td>17.3</td>
</tr>
<tr>
<td>None of these disadvantages</td>
<td>3614</td>
<td>33.3</td>
<td>18.3</td>
<td>34.5</td>
<td>45.1</td>
</tr>
</tbody>
</table>

This table describes smoking rates in women, aged 22-34, England, 1998-2002, n=9936. Each row denotes cumulative disadvantage, incorporating the dimension(s) of disadvantage in the rows above.

Source: Adapted from Graham et al. 2006 [13]

3.2.2 Tobacco burden among disadvantaged populations

The additional burdens imposed by smoking are felt most keenly by those already experiencing disadvantage. Those who are already disadvantaged already bear a disproportionate share of the burden of death and disease caused by tobacco [15][16]. Furthermore, the differentials in smoking rates contribute to widening health, financial and quality of life inequities in our community [12][17][18].

Smoking is a major contributor to the differences in mortality between the least and most advantaged [19]. International research has shown that smoking accounts for more than half the difference in mortality between men in the top and bottom social strata [19]. Disparities in health status between Indigenous Australians and the total population account for 59% of the total burden of disease for Indigenous Australians [20]. Smoking accounts for 17% of this health gap, making it the primary risk factor contributing to health disparities in Indigenous Australians [20]. Unless we address smoking disparities, health inequality will persist [21].

In addition to health impacts, tobacco contributes to poverty and disadvantage through the cost of tobacco-related illness, loss of family breadwinner, impact on family stress and finances, and the impact on children’s education and employment opportunities [22]. Spending on tobacco products, school absence and loss of income due to smoking-related illness reduces the capacity of a household to accumulate assets such as a family home, to insure against losses, to save for financial requirements in retirement and to pass on assets to the next generation, contributing to financial inequalities further [23].
Tobacco exacerbates the impact of poverty by reducing funds available to cover food, clothing and stable housing\textsuperscript{[24][25][26][27]}. Households that smoke are three times more likely to experience severe financial stress and report going without meals and being unable to heat the home than non-smoking households\textsuperscript{[28]}. Children in smoking households are twice as likely to experience food insecurity and three times as likely to experience severe food insecurity than children in non-smoking households\textsuperscript{[25]}. In the lowest-income households, expenditure on tobacco products as a proportion of total household weekly expenditure is over double that in the highest income households\textsuperscript{[29]}.

In addition, higher smoking prevalence among adults in lower socio-economic families is associated with higher uptake of smoking among children from these families\textsuperscript{[22]}. This continues the cycle of financial stress and ill health from tobacco use into the next generation.

### 3.2.3 Environmental drivers

Disadvantaged groups experience multiple drivers to smoke and magnified barriers to quitting. People from disadvantaged groups are more likely to be in environments where smoking is the norm and where little support is provided for quit attempts\textsuperscript{[18]}. Compared to others in the community, they are more likely to be around others who smoke, smoke a greater number of cigarettes and smoke for longer periods of time\textsuperscript{[26][30]}.

Smoking can be used as a coping mechanism among the lives of people experiencing multiple disadvantage. It is often seen to help deal with difficult and stressful situations such as financial pressure, living in unsafe environments, being a single parent, and limited opportunities for enjoyment and recreation\textsuperscript{[31][32][33]}.

A range of factors reinforce smoking and present barriers to quitting in people facing multiple disadvantage, including:

- heavier nicotine dependence\textsuperscript{[12]};
- experiencing financial stress\textsuperscript{[26]};
- having friends and family who smoke and living in communities with a high prevalence of smoking\textsuperscript{[34][35]};
- facing multiple daily stressors for which smoking is seen as a means of coping\textsuperscript{[32]};
- lack of support for quitting among family and friends\textsuperscript{[30][34]};
- being unaware of, or having misconceptions about, available cessation services\textsuperscript{[31][36]};
- lower levels of confidence in their ability to stop smoking\textsuperscript{[37]};
- regarding smoking as their ‘only pleasure\textsuperscript{[32][34][38]}; and
- specific marketing by tobacco companies\textsuperscript{[39][40][41]}.

While all smokers may experience these factors to some extent, their impact is magnified for the most disadvantaged. Given their collective impact, these factors suggest disadvantaged smokers may need greater support to quit than those people experiencing less disadvantage\textsuperscript{[42]}. Disadvantaged smokers are as interested in quitting as other smokers, but are less likely to succeed without further assistance\textsuperscript{[43][44][45]}. 
3.3 Effective strategies targeting disadvantaged groups

A combination of strategies is required to effectively reduce smoking among the most disadvantaged population groups. Established whole-of-population approaches must be coupled with targeted strategies and emerging promising approaches to reach these groups.

3.3.1 Population-wide strategies

Research demonstrates that tobacco price increases\textsuperscript{[46][47][48]}, advertisements containing highly emotional elements or personal stories\textsuperscript{[49]}, increasing the level of TV advertising\textsuperscript{[50]}, and the extension of smoke-free policies from restaurants to pubs\textsuperscript{[51]} are reported to have a strong impact on smokers in lower socio-economic groups, resulting in reductions in tobacco use and increased calls to Quitline. Importantly, population-wide strategies reduce uptake and experimentation of smoking among all adolescents, but in particular adolescents from low socio-economic groups. During a period of low tobacco-control funding and activity (1992–1996) smoking prevalence increased among 12–15 year olds, with the greatest increase among lower socio-economic groups\textsuperscript{[52]}.

While population-based tobacco control approaches have demonstrated effectiveness among smokers from low socio-economic groups, there is increasing recognition that more targeted strategies are required to reach the most disadvantaged population groups.

3.3.2 Community-based interventions

Research shows that integrating smoking cessation support in social and community organisations already working with disadvantaged groups has been effective in decreasing smoking rates\textsuperscript{[53][54]}. Social and community service organisations have regular and long-term contact with clients, concern for client wellbeing, and skills in supporting behavioural change which make them well suited to provide smoking cessation to their clients\textsuperscript{[30][55][56][57]}. Recommended approaches include reviewing and revising organisational policies, supporting staff to quit, changing practices to de-normalise smoking, making more active quit support for clients part of routine care, and changing systems to record and monitor smoking status\textsuperscript{[58]}. This approach should be applied within both non-government and government social and community services whose clients have high smoking rates, such as prisons, mental health facilities, drug and alcohol services, family services, and homeless shelters\textsuperscript{[34]}.

3.3.3 Improving access to cessation aids

Encouraging better use of existing services and treatments by low income groups shows potential for reducing tobacco related inequalities.
Quitting medications are effective in smokers with high nicotine dependence and when subsided or free, are increasingly used by disadvantaged smokers\(^{[59][60]}\). Evidence demonstrates that the chances of quitting successfully are increased when using quitting medications in combination with a quit counselling service\(^{[61]}\). However, both the cost and the time it takes to access subsidised pharmacotherapies can act as an obstacle to their use by the most disadvantaged\(^{[30][31][62]}\). Alternative systems, such as provision of free Nicotine Replacement Therapy directly through social and community services, or pharmacists, should be explored.

Encouraging better use of existing quit services can be achieved through promoting direct referrals from social and community organisations and delivering cessation support that is sensitive to the diverse needs of different population groups. For example, people from disadvantaged groups have expressed that they want information and practical support to quit smoking but want it delivered in a way that recognises the role of smoking in their lives and in the other issues they are facing\(^{[32][35]}\). Key elements of effective cessation approaches with disadvantaged population groups include: a non-judgemental, holistic and empowering approach; provision of social support; flexibility and accessibility; and well trained staff\(^{[63]}\).

### 3.3.4 Utilising financial incentives

There is growing evidence for incentive-based programs in the UK and US as a way to change unhealthy behaviours including smoking\(^{[64]}\). Financial incentives have been used in smoking cessation initiatives to encourage participation and to support the quitting process including rewarding cessation\(^{[65][66]}\).

Research shows high acceptance of monetary and non-monetary rewards as a smoking cessation strategy among disadvantaged groups\(^{[67][68][69]}\), that financial incentives rewarding participation increase recruitment rates (which may in turn be expected to deliver higher numbers of successful quitters)\(^{[65][70]}\), and has increased quit rates among pregnant women in disadvantaged groups (increasing abstinence more than three-fold)\(^{[66]}\).

Reviews conclude that financial incentives can be effective in promoting behaviour change (i.e. prompting people to quit smoking and to use evidence-based treatment). Further research is required to develop the evidence base in relation to long-term cessation and the practicalities of implementing financial incentives\(^{[64][65][70]}\).

Other areas to explore further include: how to implement financial incentive schemes for promoting smoking cessation within the Australian context, the merits of cash payments versus payments in kind (e.g. grocery vouchers), the most effective type and size of incentives, maintaining incentives to achieve cessation in the long term, and efficacy in different population groups\(^{[65][70]}\).
3.3.5 Supporting social and economic policies

Macro level policies that reduce poverty, enhance family functioning, reduce childhood adversity, improve housing, provide access to quality education and provide access to stable employment have an impact on smoking prevalence as they reduce the negative social conditions that are associated with higher smoking rates and dependence. Leaders in tobacco control and public health should work together with those in the community sector calling for progressive social policies.

3.3.6 Building the evidence

It is important to note current surveys and monitoring tools are not adequately capturing or monitoring smoking rates in disadvantaged populations in Australia and trend data is not routinely collected for these groups. Population based surveys do not capture, for example, people who are homeless, without phone access, who are living in mental health facilities, or who are mentally or physically unable to respond to surveys. Although there is a growing body of smoking prevalence data available for specific disadvantaged groups, this information is often incomplete and discontinuous. Improvements in our data collection systems are required to establish reliable prevalence and to measure prevalence rates over time and could be achieved by adding to existing surveillance tools and mining other databases that are currently underutilised.

Investment in research and evaluation is essential to monitor the impact of our strategies and to add to the evidence base. There are complexities in devising and delivering programs that effectively address smoking among disadvantaged groups. Therefore it is critical that programs include mechanisms to evaluate and assess their effect.

3.4 Recommendations

The serious health, social and financial harm caused by smoking among our most disadvantaged population groups cannot be ignored. The disparities in smoking rates within the community must be considered a social justice issue. Reducing smoking among disadvantaged populations should be a priority. To achieve this goal Cancer Council Australia recommends investment in a range of strategies including:

- maintenance of ‘whole of population’ approaches to reduce uptake and encourage cessation such as legislation and regulation, limiting access to tobacco, increased taxation, and comprehensive and sustained mass media campaigns;
- the introduction of comprehensive policies to address smoking and active quit support for clients and staff within government and non-government social and community services working with disadvantaged populations;
- improved access to quit counselling and affordable pharmacotherapies including all types of Nicotine Replacement Therapy;
- investigating the effectiveness and practicality of financial incentives in promoting smoking cessation in disadvantaged groups;
3.4 Recommendations

- adoption of progressive social policies to reduce the social inequalities in which smoking disparities are embedded; and
- investment in appropriate research and evaluation to build the evidence base around what works in addressing tobacco in disadvantaged populations. This includes investment in improved monitoring and surveillance of smoking prevalence, analysis of disparities between population groups and continued exploration for new strategies.

3.5 References


34. ↑ 34.0 34.1 34.2 34.3 MacAskill S, Stead M, MacKintosh AM, Hastings G. "You cannae just take cigarettes away from somebody and no' gie them something back": can social marketing help solve the problem of low-income smoking? Social Marketing Quarterly 2002 Mar;8:19-34 Abstract available at http://smq.sagepub.com/content/8/1/19.abstract.


4 Policy priorities

There is strong evidence that a sustained, multi-sectoral approach is necessary to reduce the burden of tobacco-related illness in Australia. Involvement from all levels and sectors of government, along with non-government, community and health organisations is central to effective and comprehensive tobacco control. Table 1 summarises the evidence-based policy priorities aimed to continue to decrease the tobacco-related cancer burden in Australia. The evidence to support these recommendations is contained in the Effective interventions section of this chapter.

Table 1. Strategy for reducing cancer burden due to tobacco use

Continue to reduce the affordability of tobacco products

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continued, staged increases in tobacco excise and customs duty</td>
<td>Australian Government</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>Minimise strategies to undermine the effects of increases in duty e.g. specialising,</td>
<td>Australian Government</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>discounting, value packs, and 'multi-buys'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure legal sanctions and enforcement strategies are in place to reduce likelihood of</td>
<td>Australian Government</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>future growth in illicit trade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Strengthen mass media campaigns

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund mass media campaigns at appropriate reach and frequency to impact quit attempts</td>
<td>Australian Government, state and territory</td>
<td>Savings from averted health</td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>and smoking prevalence</td>
<td>governments, NGOs</td>
<td>care costs exceed campaign costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please note that this material is only current to the date and time stamped on this document as content is updated continuously. PDF generated at: 24 October 2019
### Continue to reduce the affordability of tobacco products

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximise effectiveness through coordination with other control strategies and other mass media campaigns</td>
<td>Australian Government, state and territory governments, NGOs</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
</tbody>
</table>

### Eliminate remaining advertising, promotion and sponsorship of tobacco products

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardise state requirements regarding display of tobacco products to eliminate exemptions</td>
<td>Australian Government, state and territory governments</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>Restrict internet advertising of tobacco products</td>
<td>Australian Government</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>Enforce tobacco companies to report regularly on expenditure on any form of promotion and marketing activity</td>
<td>Australian Government</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
</tbody>
</table>

### Reduce exceptions to smoke-free environments

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce exceptions to smoke-free environment policies and standardise policy across states and territories</td>
<td>State and Territory Governments</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
</tbody>
</table>

### Strengthen efforts to reduce smoking in disadvantaged populations

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplement mainstream tobacco control programs with evidence-based targeted interventions for high-risk groups</td>
<td>Federal and State governments, Australian National Preventive Health Agency</td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
</tbody>
</table>
### Continue to reduce the affordability of tobacco products

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>organisations with tobacco control expertise and community/health groups working with disadvantaged populations</td>
<td>Governments, NGOs, health and community groups</td>
<td></td>
<td></td>
<td>See Effective interventions</td>
</tr>
<tr>
<td>Target smoking in Indigenous communities to reduce the health gap due to tobacco-related illness</td>
<td>Australian Government, state and territory governments, Indigenous health and community groups</td>
<td></td>
<td></td>
<td>Closing the Gap funding expires mid-2013</td>
</tr>
</tbody>
</table>

### Regulate the contents, product disclosure and supply of tobacco products

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enforce plain packaging laws</td>
<td>Australian Government</td>
<td></td>
<td></td>
<td>See Effective interventions</td>
</tr>
<tr>
<td>Enforce laws prohibiting supply of tobacco products to minors</td>
<td>Australian Government</td>
<td></td>
<td></td>
<td>See Effective interventions</td>
</tr>
</tbody>
</table>

### Provide access to evidence based cessation services

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve access for disadvantaged and high-risk groups, and pregnant women</td>
<td></td>
<td></td>
<td></td>
<td>See Effective interventions</td>
</tr>
</tbody>
</table>

### Research and evaluation

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate and monitor current initiatives for effectiveness</td>
<td>NHMRC, cancer research organisations</td>
<td></td>
<td></td>
<td>See Effective interventions</td>
</tr>
<tr>
<td>Commission research to develop effective targeted tobacco control strategies for disadvantaged populations</td>
<td>NHMRC, cancer research organisations</td>
<td>Modest, funded on a project by project basis</td>
<td></td>
<td>See Effective interventions</td>
</tr>
</tbody>
</table>
## Continue to reduce the affordability of tobacco products

<table>
<thead>
<tr>
<th>Policy priority/action</th>
<th>Agency</th>
<th>Estimated cost</th>
<th>Expected benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commission research to inform regulatory policies on tobacco products</td>
<td>NHMRC, cancer research organisations</td>
<td>Modest, funded on a project by project basis</td>
<td>See Effective interventions</td>
<td></td>
</tr>
<tr>
<td>Disseminate evidence to international tobacco control community</td>
<td></td>
<td></td>
<td>See Effective interventions</td>
<td></td>
</tr>
</tbody>
</table>
5 Effective interventions

Australia has a strong record of tobacco control and has implemented a number of successful interventions for reducing tobacco use. The success of Australian tobacco control policy is reflected in the declining rates of smoking\(^1\). Despite this, more than one in six Australian adults smoke daily, accounting for 2.8 million people in 2011-2012\(^2\).

This section of the chapter focuses on interventions for which there is evidence of a positive effect on smoking initiation, quitting and prevalence, and for which there remain opportunities for improving tobacco control in Australia.

5.1 Overarching frameworks

Effectively reducing the burden of smoking-related cancer in Australia enquires a coordinated, multi-strategy approach with intervention and funding from all levels and sectors of government, as well as non-government, community and health organisations\(^3\).

A number of policy frameworks exist in Australia to address this, including the Council of Australian Government Agreements for Healthcare\(^4\), Preventive Health\(^5\) and Closing the Gap in Indigenous Health Outcomes\(^6\). These agreements are designed to facilitate Federal and State and Territory Government cooperation.

The National Tobacco Strategy 2012-2018 is a policy framework designed to provide a platform for government at all levels to work with non-government, community and health organisations\(^7\).

See the Policy context section of this chapter for more on the current policy environment in Australia.
5.2 Taxation

Tax increases have been one of the most effective tobacco control strategies in Australia and globally\(^8\)\(^9\). With increases in taxes on tobacco products, the size of the resulting price increase leads to a proportional fall in demand\(^10\).

Tobacco taxation, including federal excise, customs duty and state franchise fees has been a central tobacco control strategy in Australia. In Australia, excise, customs duty and GST make up around 60% of the final price of leading brands of cigarettes\(^8\)\(^11\). The Australian Government has regularly indexed tobacco excise by the Consumer Price Index. However, from 2014 onwards, tobacco excise is to be indexed on the basis of changes in Average Weekly Earnings. In April 2010, a 25% tax increase on tobacco products was introduced. In 2013, the Government announced it would introduce staged 12.5% increases in tobacco excise over four years from 2013-2016, in addition to the increases that will occur under indexation arrangements. The first two 12.5% increases commenced on 1 December 2013 and 1 September 2014, and the remaining 12.5% increases will occur on 1 September 2015 and 1 September 2016, respectively.

Analysis by Federal Treasury found that the 2010 tobacco tax increase in Australia exceeded the set objective of a 6% decrease in tobacco consumption, with a decline of 11% two years after implementation. There was insufficient data to determine whether the increase met the objective of decreasing the number of smokers by 2-3%\(^12\). The analysis concluded that the excise increase supported other policy, price and taxation measures aimed at reducing the harms of tobacco consumption in Australia\(^12\).

The two main reasons smokers in Australia cited for changing their smoking behaviour in 2010 were because smoking was affecting their health (44.3%) and because it was costing too much money (44.1%). The proportion of people nominating cost as a factor increased significantly from 35.8% in 2007 to 44.1% in 2010 when the tax increase was introduced\(^11\).

The 2010 tax increase saw increased numbers of people attempting to quit, and decreases in the number of cigarettes smoked by regular smokers\(^13\)\(^14\). The effect was strongest in younger smokers and people in the lowest socioeconomic tier\(^13\)\(^14\). Directly following the tax increase (May 2010), one study reported 22% of the study sample quit smoking, compared with 12% at the same time in the previous year and 13% in the previous month\(^15\). This increased number of people quitting was evident for a short time, however this was not sustained further than three months following the tax increase\(^15\).

5.3 Mass media campaigns

Mass media campaigns, including social marketing, can have a significant impact on reducing tobacco use\(^16\)\(^17\). Mass media campaigns play a role through education, changing attitudes, prompting quit attempts and decreasing smoking prevalence\(^16\). They have a direct impact smokers by prompting quit attempts and avoidance of smoking, and also have an indirect effect by de-normalising smoking in society\(^17\).
Television campaigns remain the primary mass media channel for reaching and influencing adult smokers\textsuperscript{[16]}. Developing sustained mass media campaigns, such as repeated cycles of advertising, are the most effective medium for reducing the burden of tobacco-related cancer\textsuperscript{[18]}. There is evidence that while mass media campaigns are effective at increasing quit attempts, the impact does not last beyond a few months of the campaign ending\textsuperscript{[18]}. Adequate campaign intensity is especially important for vulnerable population subgroups\textsuperscript{[17]}.

Mass media campaigns are highly cost-effective, as they have high reach into populations\textsuperscript{[17]}. The savings from averted health care costs associated with tobacco control mass media campaigns exceed campaign costs\textsuperscript{[17]}.

Mass media campaigns are a particularly effective component of comprehensive tobacco control strategies\textsuperscript{[19]}. Their effectiveness is maximised when coordinated with other tobacco control programs to reinforce the messaging and promote awareness. Mass media campaigns and pictorial health warnings running concurrently may have a complementary effect on increasing awareness of the harms of smoking and motivation to quit\textsuperscript{[19]}.

### 5.4 Eliminating tobacco advertising, promotion and sponsorship

While many avenues of tobacco advertising, promotion and sponsorship have been restricted, there still remain avenues by which tobacco companies seek to promote their products. The rise of new media and lack of relevant regulations have created an environment in which tobacco control is hampered by the tobacco industry denormalising public health strategies and policies\textsuperscript{[20]}. Eliminating remaining forms of promotion such as internet advertising, price specials, public relations activities, incentive programs and exemptions to point-of-sale display restrictions is an obligation under the World Health Organization Framework Convention on Tobacco Control\textsuperscript{[21]}.  

The role of tobacco advertising remains important particularly in smoking initiation. A recent meta-analysis demonstrated that non-smoking adolescents who were more aware of tobacco advertising were more likely to experiment with cigarettes and to become smokers\textsuperscript{[22]}.

Enforcing plain packaging laws, which commenced in Australia on 1 December 2012, is an important strategy to reduce young people’s exposure to tobacco promotion. In an environment where the majority of advertising streams for tobacco products are blocked, product packaging is an important marketing tool for tobacco companies\textsuperscript{[23]}\textsuperscript{[24]}.

Early indications suggest that plain packaging of tobacco products is associated with lower smoking appeal and higher urgency to quit among adult smokers\textsuperscript{[25]}. Smokers using plain packs are 81% more likely to have thought about quitting at least once a day during the previous week, and to rate quitting as a higher priority compared with those using branded packs\textsuperscript{[25]}. Smokers using plain packs were 66% more likely to think their cigarettes were poorer quality than a year ago and 70% more likely to say they found them less satisfying\textsuperscript{[25]}.

See the Quit Victoria and Cancer Council Victoria Plain packaging review of evidence for more information.
5.5 Smoke-free environments

Polices that create smoke-free environments are effective at reducing tobacco-related illness on a number of levels. Smoke-free environments protect individuals from second-hand smoke exposure\textsuperscript{[26]}, denormalise smoking behaviour\textsuperscript{[27]}, help prevent smoking experimentation and uptake among youth\textsuperscript{[27][28][29]}, and provide an environment that helps promote quit attempts.

The creation of smoke-free environments has had a net benefit to businesses, with no adverse effect on sales in hospitality industry\textsuperscript{[29]}. Flow-on effect of smoke-free policies is an increasing number of smoke free homes, which has an important impact on reducing exposure to second-hand smoke, particularly among children\textsuperscript{[30][29]}. See the section on Links between smoking and cancer for more information.

Commonwealth regulations ban smoking on domestic and Australian-operated international flights. However, the majority of regulation of smoke-free areas is implemented at a state level. Differences in regulations and definitions result in inconsistencies in regulations across Australia. See Table 1 for a brief overview of state regulations.

### Table 1. Overview of state level smoke-free environment regulations

<table>
<thead>
<tr>
<th>State/territory</th>
<th>Enclosed public places*</th>
<th>Outdoor eating/drinking areas</th>
<th>In cars (children present)</th>
<th>Outdoor public venues</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>Banned</td>
<td>Banned (exception for designated areas)</td>
<td>Banned</td>
<td>Dependent on local council jurisdiction</td>
</tr>
<tr>
<td>NSW</td>
<td>Banned</td>
<td></td>
<td>Banned</td>
<td>Banned</td>
</tr>
<tr>
<td>NT</td>
<td>Banned</td>
<td>Banned</td>
<td>Banned</td>
<td>Banned in stadiums, children’s playgrounds, patrolled beaches. Additions dependent on local council jurisdiction</td>
</tr>
<tr>
<td>Qld</td>
<td>Banned</td>
<td>Banned (exception for designated areas)</td>
<td>Banned</td>
<td>Banned in children’s playgrounds, public transport stations</td>
</tr>
<tr>
<td>SA</td>
<td>Banned</td>
<td></td>
<td>Banned</td>
<td>Banned in sporting and cultural venues, beaches and children’s playgrounds</td>
</tr>
<tr>
<td>Tas</td>
<td>Banned</td>
<td>Banned</td>
<td>Banned</td>
<td>Banned in public transport stations. Additions dependent on local council jurisdiction</td>
</tr>
<tr>
<td>Vic</td>
<td>Banned</td>
<td></td>
<td>Banned</td>
<td>Banned at beaches and children’s playgrounds</td>
</tr>
<tr>
<td>WA</td>
<td>Banned</td>
<td>Banned</td>
<td>Banned</td>
<td>Banned</td>
</tr>
</tbody>
</table>
5.6 Targeting disadvantaged and high-risk groups

Smoking rates in highly-disadvantaged groups are significantly higher. These communities bear a disproportionate burden of tobacco-related illness. See the Impact section of this chapter for more information.

Tobacco control measures effectively used in the general population may or may not be effective in specific high-risk populations. A recent meta-analysis of cessation support programs in highly disadvantaged groups cited the lack of high-quality evidence in these populations, particularly among the homeless, Indigenous Australians and prisoners[^31]. Similarly, a review of mass-media campaigns targeting disadvantaged populations reported a lack of high quality evidence, particularly for highly disadvantaged communities[^32]. Evaluation of the effectiveness of population-based tobacco control strategies in these specific populations, and appropriate tailoring where appropriate, is necessary to effectively target tobacco-related disparities.

Alliances between expert organisations in tobacco control and social services, mental health services, correctional facilities and government are key to assisting disadvantaged groups. These partnerships are important for the development of capacity in community organisations and for the implementation of targeted strategies for specific populations to complement mainstream programs. Current examples include the Cancer Council NSW Tackling Tobacco program which partners community organisations to promote quit attempts and the Break Free Alliance in the US who unite health departments with community organisations and public health advocates.

See the Cancer Council Australia position statement on Tobacco related disparities for more information.

5.7 Product and supply regulation

Tighter regulation of tobacco products can increase understanding of the health impacts, counter misconceptions of ‘healthier’ options, decrease take-up and increase quit attempts.

The introduction of pictorial warnings in Australia resulted in an increase in people noticing and reading health warnings, considering the health risks, smoking fewer cigarettes, and quitting[^30]. The pictorial warnings also stimulated stronger cognitive responses and more reports of reduced tobacco consumption than text-only health warnings in the UK[^30].

Monitoring and enforcing compliance with regulations on the supply of tobacco products are key strategies for targetting smoking initiation. In Australia, higher merchant compliance from 1997–2003 predicted lower levels of daily smoking in adolescents[^33]. A 20.8% reduction in the odds of smoking among 10th graders during this period was attributed to the improvement in merchant compliance[^33].
5.7.1 Disclosure

All government jurisdictions in Australia have endorsed the National Tobacco Strategy 2012-18, which includes a commitment to “consider further regulation of the contents, product disclosure and supply of tobacco products and alternative nicotine delivery systems”[34].

The Commonwealth Department of Health and Ageing is leading two projects to assess the feasibility of improved tobacco product regulation in Australia. One is focused on the scientific, technical and practical feasibility of regulating the disclosure of tobacco product ingredients and emissions data in Australia. Public consultations are currently underway. There is also a literature review and research into the relationship between tobacco product ingredients, palatability and smoking behaviour.

Since September 2010, all cigarettes in Australia have been required to meet a reduced fire propensity standard.

See Cancer Council Australia position statements on Dangers of 'reduced-harm' cigarettes for more information.

5.8 Cessation services

Close to three in 10 (29%) smokers in Australia tried unsuccessfully to quit smoking in 2010[1]. Almost 40% reduced the amount they smoked in a day[1].

Behavioural interventions such as individual, group and telephone counselling may be effective at improving smoking cessation, as measured at six and twelve months after quitting[35][36]. Pharmacotherapy-based interventions such as nicotine replacement therapy can improve smoking quit rates by 50–70%[37] and a combination of behavioural and pharmacotherapy interventions can increase smoking cessation success even further[38].

Given the effectiveness of cessation services, improving access to such services is an important strategy to reduce the burden of tobacco-related illness. This is particularly important for reducing the tobacco burden in disadvantaged groups. Understanding the barriers to uptake of cessation services among disadvantaged groups is an important step in increasing their access and use. See Targeting disadvantaged and high-risk groups for more information.

Further development of existing services is important for integration of cessation support into routine care, tailoring of services for specific high-risk groups, implementing best-practice and improving awareness and uptake.

See the Cancer Council Australia position statement on Stopping smoking for more information.

5.9 Research and monitoring

Ongoing research and monitoring of current interventions is important to assess and improve intervention effectiveness, and to enable the dissemination of evidence within the international tobacco control community.
5.10 References


<table>
<thead>
<tr>
<th>No.</th>
<th>Reference</th>
</tr>
</thead>
</table>
6 Policy context

## Contents

6.1 International .......................................................... 32
   6.1.1 Framework Convention on Tobacco Control .................................................. 32
6.2 Current policy environment in Australia ............................................................... 33
   6.2.1 Government commitments ................................................................. 33
   6.2.2 National Preventative Health Taskforce .................................................. 33
   6.2.3 National Tobacco Strategy ................................................................. 34
   6.2.4 Policy targeting high-risk groups .......................................................... 34
6.3 References .............................................................................. 34

### 6.1 International

#### 6.1.1 Framework Convention on Tobacco Control

The World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) was the first international treaty negotiated under the auspices of WHO. The FCTC came into force in February 2005. There are currently 176 states party to the FCTC, all of which are legally bound to perform obligations set under the treaty. Australia became a signatory to the FCTC in December 2003, and became a full party when the treaty came into force in 2005.

The FCTC outlines a set of seven guiding principles for involved parties, including that:[1]

- every person be informed of the health consequences of smoking and effective measures be implemented to protect all people from exposure;
- strong political commitment is necessary to develop and support tobacco control measures;
- international cooperation is an important part of the Convention;
- comprehensive and multisectoral responses are essential;
- issues relating to liability are an important part of tobacco control;
- technical and financial assistance for people in the tobacco industry should be addressed; and
- the participation of civil society is essential in achieving the objectives of the Convention.

The core provisions of the FCTC address the reduction of both supply and demand of tobacco products. Key demand reduction provisions include price and tax measures to reduce demand, regulation of product and packaging, and education, among others. Key supply reduction provisions address sales to minors and the illicit tobacco trade[1].
6.2 Current policy environment in Australia

6.2.1 Government commitments

Federal, and State and Territory Governments in Australia have committed to reducing the national smoking rate to 10% of the population by 2018 and halving the Indigenous smoking rate (from the 2009 baseline of 47.7%) by the same year[2][3].

This commitment has been made through two key agreements of the Council of Australian Governments (CoAG): The 2008 National Partnership Agreement on Preventive Health (NPAPH)[3] and the 2012 National Healthcare Agreement[2] in response to the recommendations of the National Preventative Health Taskforce. These agreements provide a platform for the Federal Government, and State and Territory Governments to work together.

A central purpose of the NPAPH is the development of infrastructure to monitor and evaluate preventive health interventions and includes the establishment of the Australian National Preventive Health Agency. The NPAPH provides $103 million for tobacco control, specifically focused on social marketing strategies.

6.2.2 National Preventative Health Taskforce

In 2009, the National Preventative Health Taskforce made a recommendation that the Australian Government commit to a target of reducing the number of Australians who smoke by at least one million people by 2020, to no more than 9% of people aged 14 and over[4].

The strategy, Making Smoking History focuses on a number of key initiatives[4]:

- Revenue measures to reduce the affordability of tobacco products;
- Legislative reforms to address current deficiencies in tobacco regulation;
- Expenditure measures focusing on social marketing campaigns;
- Indigenous tobacco control;
- Other initiatives to reduce social disparities in smoking;
- Health system interventions;
- Reinvigoration of the Australian National Tobacco Strategy; and
- Overseas development focusing on countries receiving aid.

Taking Preventative Action, the Australian Government’s response to the report of the National Preventative Health Taskforce was released in 2010. The Government responded to each of the recommendations made by the Taskforce and committed to[5]:

- introducing mandatory plain packaging of tobacco products;
- prohibiting tobacco advertising on the internet; and
- working with states and territories to develop an action plan for ending other forms of tobacco promotion.
6.2.3 National Tobacco Strategy

The National Tobacco Strategy 2012–2018 is a policy framework for the Australian Government, and State and Territory Governments to work with non-government agencies to reduce the burden of tobacco-related harm in Australia. The goal of the strategy is to improve the health of Australians though reducing the smoking rate, and the health, social and financial costs associated with tobacco use\(^6\).

In accordance with CoAG agreements\(^2\)\(^3\), the Strategy aims to reduce the national adult daily smoking rate to 10% of the population by 2018, and to halve the adult daily smoking rate among Indigenous Australians by 2018, from the 2009 baseline rate\(^6\).

The Strategy outlines nine priority areas for action, through evidence-based tobacco control measures to\(^6\):

- protect tobacco control policies from tobacco industry interference;
- strengthen mass media quit campaigns and reshape social norms about smoking;
- continue to reduce the affordability of tobacco products;
- reduce smoking rates among Indigenous Australians;
- reduce smoking rates in high-prevalence groups;
- eliminate remaining advertising, promotion and sponsorship of tobacco products;
- consider further regulation of tobacco products and supply;
- reduce exceptions to smoke-free environments; and
- provide greater access to cessation services.

Progress will be monitored through a number of specific indicators including smoking among young people and adults, number of quit attempts, exposure of young people and adults to second-hand smoke, and smoking rates in high-prevalence groups\(^6\).

6.2.4 Policy targeting high-risk groups

The National Tobacco Strategy 2012–2018 identified high smoking rates in Indigenous and disadvantaged populations as key areas for intervention\(^6\). Likewise, the strategy of the National Preventative Health Taskforce prioritises Indigenous tobacco control and reducing social disparities in smoking\(^4\).

The CoAG National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes committed $1.57 billion over four years to improving Indigenous health, with funding expiring mid-2013\(^3\). The strategy focuses on tobacco control, as one of five major initiatives, through tailoring mainstream tobacco control programs for Aboriginal and Torres Strait Islander Australians\(^3\).

6.3 References


7 Link between smoking and cancer

Landmark studies on the evidence for the carcinogenicity of tobacco were published in 1950\cite{1,2}. Comprehensive epidemiological studies over many years have established a clear link between tobacco smoking and a number of cancer types. There are over 60 known carcinogens in cigarette smoke, the most important of which are polycyclic aromatic hydrocarbons, N-nitrosamines, aromatic amines, 1,3-butadiene, benzene, aldehydes, and ethylene oxide due to their carcinogenicity and levels\cite{3}.

Tobacco smoking and tobacco smoke, smokeless tobacco and second-hand tobacco smoke are all classified by the International Agency for Research on Cancer (IARC) as Group 1 carcinogens (carcinogenic to humans)\cite{4}. IARC first classified tobacco smoking as a Group 1 carcinogen in 1986\cite{5}, and has since published monographs on the carcinogenic risk of smokeless tobacco\cite{4,6}, and updated evidence for tobacco smoking\cite{4,7}. The summary of IARC classifications of evidence for the link between tobacco and specific cancer types can be found in Table 1.

There is sufficient evidence that smoking is a risk factor for 16 cancer types: lung, oral cavity, pharynx, oesophagus, stomach, bowel, liver, pancreas, nasal cavity and paranasal sinuses, larynx, uterine cervix, ovary, urinary bladder, kidney, ureter and bone marrow (myeloid leukaemia)\cite{4}. There is limited evidence for a link between tobacco smoking and breast cancer\cite{4}.

There is sufficient evidence that smokeless tobacco (such as chewing tobacco and snuff) are risk factors for cancers of the oral cavity, oesophagus and pancreas\cite{4}.

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Sufficient evidence of carcinogenicity</th>
<th>Limited evidence of carcinogenicity</th>
<th>Evidence suggesting lack of carcinogenicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco smoking</td>
<td>Oral cavity, pharynx, oesophagus, stomach, bowel, liver, pancreas, nasal cavity and paranasal sinuses, larynx, lung, uterine cervix, ovary, urinary</td>
<td>Female breast</td>
<td>Endometrium (postmenopausal),</td>
</tr>
<tr>
<td>Risk factor</td>
<td>Sufficient evidence of carcinogenicity</td>
<td>Limited evidence of carcinogenicity</td>
<td>Evidence suggesting lack of carcinogenicity</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Second-hand smoke</td>
<td>bladder, kidney, ureter, bone marrow (myeloid leukaemia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smokeless tobacco</td>
<td>Lung</td>
<td>Larynx, pharynx</td>
<td></td>
</tr>
<tr>
<td>Parental smoking (cancer in the offspring)</td>
<td>Oral cavity, oesophagus, pancreas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hepatoblastoma</td>
<td>Childhood leukaemia</td>
<td></td>
</tr>
</tbody>
</table>


The IARC monograph and US Surgeon General’s report on the health consequences of smoking contain detailed reviews of the epidemiological evidence for the link between tobacco and specific cancer types[4][8].

Meta-analyses of the evidence linking tobacco use with cancer show that the risk of developing cancer increases with the amount of tobacco smoked, duration of smoking and earlier starting age[9][10][11][12].

Studies have also demonstrated that the risk of developing cancer decreases with increased time since quitting[9][12][13]. Recent studies have reported that among current smokers, life expectancy drops by 10 years or more[13][14]. However, adults who quit smoking regained some years of life compared with those who continued to smoke[13][14]. Adults who had quit smoking at 25 to 34 years of age gained around 10 years, those who quit aged 35 to 44 gained nine years and those who quit aged 45 to 54 gained about six years of life, compared with those who continued to smoke[13].

Given that a number of cancer types associated with tobacco use, such as pancreatic cancer, are often diagnosed at an advanced stage and cannot be prevented through any other known lifestyle changes or interventions, avoiding exposure to tobacco smoke is one of the only measures available for actively reducing individual risk[8].

7.1 Biological mechanisms

The U.S. Surgeon General’s report How Tobacco Smoke Causes Disease outlines a number of biological mechanisms involved in the major established pathways of cancer causation by cigarette smoking, involving[3]:

1. The exposure of the body to carcinogens in the aerodigestive tract, blood, and urine;
2. The formation of covalent bonds between these carcinogens and DNA (known as DNA adducts); and
3. The resulting accumulation of permanent mutations in critical genes which lead to uncontrolled cell growth and the development of cancer.
There are over 60 established carcinogens in tobacco smoke. Polycyclic aromatic hydrocarbons (PAH), N-nitrosamines such as 4-(methylNitrosamino)-1-(3-pyridyl)-1-butanone (NNK) and N'-nitrosonornicotine (NNN), aromatic amines, 1,3-butadiene, benzene, aldehydes, and ethylene oxide are among the most important carcinogens because of their carcinogenicity and their high levels in cigarette smoke[3].

A number of these carcinogens, and the products that they are metabolised into, are found in the blood, breath and urine of smokers. Most carcinogens in cigarette smoke require metabolic activation to convert them into the form that binds DNA, forming DNA adducts[3].

Persistent DNA adducts can cause miscoding during normal DNA replication. Gene mutations can cause the loss of normal functions that control the growth of cells. Ultimately, this uncontrolled growth leads to cancer[3].

The U.S. Surgeon General’s report outlines the link between a number of tobacco carcinogens and the specific cancer types they are associated with[3]:

- PAH and NNK are major factors in the development of lung cancer.
- The particulate phase of cigarette smoke is linked to cancers of the larynx, potentially due to PAH.
- PAH, NNK, and NNN are the most likely causes of oral cancer.
- N-nitrosamines, as well as acetaldehyde and formaldehyde, are likely candidates for causing nasal tumours.
- NNK, several other N-nitrosamines and furan are carcinogenic in the liver.
- NNK and its major metabolite, known as NNAL, are the only known pancreatic carcinogens in tobacco products.
- NNK and PAH can reach the cervix in humans and are metabolically activated in these tissues.
- 4-aminobiphenyl and 2-naphthylamine are known human bladder carcinogens, and aromatic amines are thought to be the major cause of bladder cancer in smokers.
- The most probable cause of leukaemia in smokers is exposure to benzene.

Further to the action of these specific carcinogens, cigarette smoke causes oxidative damage to cells and alters a range of immunological functions, both of which have the potential to affect tobacco carcinogenesis[3].

### 7.2 Second-hand tobacco smoke

A study of 2004 data found that in one year, over 600,000 deaths worldwide were attributable to second-hand smoke, accounting for 1.0% of worldwide mortality. The majority (47%) of deaths from second-hand smoke occurred in women, 28% in children, and 26% in men[15].

Involuntary smoking (exposure to second-hand smoke) is classified by IARC as a Group 1 carcinogen. There is sufficient evidence that exposure to second-hand or ‘environmental’ tobacco smoke causes lung cancer in humans, and some limited evidence for a link between exposure to second-hand smoke and cancers of the larynx and pharynx[4][7] (see Table 1). Long-term exposure to second-hand tobacco smoke in the home or workplace can elevate lung cancer risk in a non-smoker by up to 30%[16].
Some studies have suggested that second-hand tobacco smoke may also be a risk factor for cancers of the nasal sinus, naso-pharynx, breast, cervix, bladder and kidney\textsuperscript{[16,17]}. Pre- and postnatal exposure to second-hand tobacco smoke may also increase the risk of brain tumours, lymphomas, and acute lymphocytic leukaemia in children\textsuperscript{[16,18,19]}

### 7.3 Smoking and alcohol

Smoking and alcohol together have a synergistic effect on upper gastrointestinal and aero-digestive cancer risk, meaning the combined effects exceed the risk from either alone\textsuperscript{[20]}. It has been estimated that over 75% of cancers of the upper aero-digestive tract in developed countries can be attributed to this effect. For example, compared non-smoking non-drinkers, the approximate relative risks for developing mouth and throat cancer are up to seven times greater for those who use tobacco, up to six times greater for those who use alcohol, and 35 times greater for those who are regular heavy users of both tobacco and alcohol\textsuperscript{[21]}

While alcohol is an independent risk factor for oral, pharyngeal, laryngeal and oesophageal cancers, the risk is significantly higher when combined with tobacco smoke\textsuperscript{[22]}

### 7.4 References


8 Smoking and tobacco control position statements

Tobacco related disparities
Electronic cigarettes
Mental health services and smoking cessation
Addressing smoke infiltration in multi-unit housing
Reducing the palatability of tobacco products
9 Position statement - Electronic cigarettes

Contents

9.1 Overview ............................................................................................................................................................... 44
  9.1.1 Key health concerns ........................................................................................................................................ 44
9.2 Recommendations ................................................................................................................................................ 45
  9.3 Recommendation 1 – Ban the retail sale of non-nicotine electronic cigarettes (unless the product has been
    approved by the TGA) ........................................................................................................................................ 46
    9.3.1 Evidence and rationale .................................................................................................................................. 46
  9.4 Recommendation 2 – Ensure smoke-free laws in each state and territory cover electronic cigarette use .... 49
    9.4.1 Evidence and rationale .................................................................................................................................. 49
  9.5 Recommendation 3 – Prohibiting advertising and promotion of electronic cigarettes, consistent with tobacco
    advertising prohibitions ........................................................................................................................................ 50
    9.5.1 Evidence and rationale .................................................................................................................................. 50
9.6 Background: what are electronic cigarettes? ........................................................................................................ 52
9.7 Relevance of the WHO Framework Convention on Tobacco Control ................................................................... 52
9.8 Current regulation of electronic cigarettes in Australia .......................................................................................... 53
  9.8.1 Commercial retail sale and personal possession/use of nicotine electronic cigarettes .............................. 53
  9.8.2 Commercial importation and retail sale of non-nicotine electronic cigarettes ........................................... 54
  9.8.3 Importation of nicotine electronic cigarettes for personal use ................................................................. 54
  9.8.4 Importation of non-nicotine electronic cigarettes for personal use ........................................................... 55
  9.8.5 Applicability of tobacco control laws ........................................................................................................... 55
9.9 International context .................................................................................................................................................. 55
  9.9.1 United States ...................................................................................................................................................... 56
  9.9.2 Europe .............................................................................................................................................................. 57
  9.9.3 United Kingdom ............................................................................................................................................... 58
  9.9.4 New Zealand and Canada .............................................................................................................................. 59
9.10 References ............................................................................................................................................................ 59
9.1 Overview

Research relevant to the potential impacts of electronic cigarettes on public health is continuing to evolve, including in areas such as safety of the product, cessation efficacy and trends in awareness and use. Cancer Council Australia and the Heart Foundation of Australia recommend that, based on past experience in tobacco control and early research on electronic cigarettes, there is sufficient information to act on three particular regulatory gaps in order to prevent uptake and use of electronic cigarettes by young people and other risks to public health. Areas in need of priority attention for this purpose include the proper regulation of: (a) non-nicotine electronic cigarettes; (b) use in smoke-free environments; and (c) advertising.

On 26 August 2014, the World Health Organisation released a report that makes a number of recommendations to governments worldwide, which are consistent with our position\[1\].

Cancer Council Australia and the Heart Foundation of Australia will continue to monitor research on electronic cigarettes and will provide updated recommendations on other aspects of electronic cigarettes accordingly.

9.1.1 Key health concerns

The limited evidence available points to a risk that widespread electronic cigarette use could undo the decades of public policy work in Australia that has reduced the appeal of cigarette use in children. Already there are anecdotal reports of electronic cigarettes being confiscated in Australian schools.

The short and long term health effects of electronic cigarette use remain unknown. Products currently on the market in Australia have not been approved by the Therapeutic Goods Administration for safety, quality and efficacy, even though the products deliver substances to the lung. This is unfair and a significant risk to consumers, who may be under the false impression that electronic cigarettes available for sale have been proven safe to use.

Cancer Council and the Heart Foundation are also concerned about unsubstantiated claims that electronic cigarettes can assist smokers in quitting. The appropriate avenue for such claims is the Therapeutic Goods Administration, an agency that could independently analyse the evidence and ensure electronic cigarettes, if shown to be safe and effective, were manufactured and marketed according to strict therapeutic controls. While there are anecdotal claims of electronic cigarettes as an aid to quitting, there are also reports of users increasing their nicotine addiction, of dual use (electronic cigarettes and smoked tobacco) and of electronic cigarettes as a pathway for tobacco and nicotine addiction.

Major tobacco companies are investing heavily in electronic cigarettes as a product line and are deploying sophisticated marketing strategies mirroring those previously used to glamorise and promote smoking to young people. This marketing trend could normalise the use of an unproven product and, given electronic cigarettes are designed to simulate the act of smoking, risks re-normalising and re-glamorising the act of smoking more broadly.
The sale and possession or use of electronic cigarettes containing nicotine is unlawful in all Australian jurisdictions under poison control legislation. However, smoke-free laws do not apply to electronic cigarettes. They can therefore be readily used where smoking tobacco is prohibited - behaviour which could enhance their appeal to young people. Also of great concern is the fact that there are virtually no restrictions on electronic cigarettes without nicotine, which are clearly promoted to young people with their fruit, confectionery and energy drink flavours as well as varieties mimicking smoked tobacco.

Given the serious risks, Cancer Council and the National Heart Foundation are advising extreme caution on electronic cigarettes. As outlined in this document, there is a case for tighter controls on electronic cigarette use to help ensure young people are protected from the erosion of Australia's world-leading efforts in tobacco control.

9.2 Recommendations

Cancer Council Australia and the National Heart Foundation of Australia recommend the following public policy measures be considered to assist in protecting young Australians from the potential harms of widespread electronic cigarette use:

1. **Ban the retail sale of non-nicotine electronic cigarettes (unless the product has been approved by the TGA).** It is currently unlawful to sell electronic cigarettes that contain nicotine in any form. This is because nicotine is a scheduled poison and can only be lawfully sold in the form of legal tobacco products (a historical anomaly) and approved nicotine replacement products. This position could change in the future for individual nicotine electronic cigarette products that receive approval from the TGA. Similar restrictions should also apply to non-nicotine electronic cigarettes, which come in a variety of fruit, confectionery and other flavours that appeal to children. Laws in South Australia, Western Australia and Queensland prohibit the sale of products that resemble tobacco products. There are no such laws in other states and territories, meaning that non-nicotine electronic cigarettes (when marketed without therapeutic claims) can be lawfully sold, including to young people.

2. **Ensuring smoke-free laws in each state and territory cover electronic cigarette use.** The purchase, possession or use of electronic cigarettes containing nicotine is currently unlawful under state and territory poisons and public health laws. However, these laws are complicated and difficult to enforce. Prohibiting use of all electronic cigarettes under smoke-free laws would make the law clear for the community and ensure that both nicotine and non-nicotine electronic cigarettes are not used in places where smoking tobacco is prohibited.

3. **Prohibiting advertising and promotion of electronic cigarettes, consistent with tobacco advertising prohibitions.** Electronic cigarettes are being aggressively promoted, with young people and children clearly identified as a target market. Electronic cigarette advertising should be subject to similar restrictions as tobacco products.
9.3 Recommendation 1 – Ban the retail sale of non-nicotine electronic cigarettes (unless the product has been approved by the TGA)

It is currently unlawful to sell electronic cigarettes that contain nicotine in any form. This is because nicotine is a scheduled poison and can only be lawfully sold in the form of legal tobacco products (a historical anomaly) and approved nicotine replacement products. This position could change in the future for individual nicotine electronic cigarette products that receive approval from the TGA. Similar restrictions should also apply to non-nicotine electronic cigarettes, which come in a variety of fruit, confectionery and other flavours that appeal to children. Laws in South Australia, Western Australia and Queensland prohibit the sale of products that resemble tobacco products. There are no such laws in other states and territories, meaning that non-nicotine electronic cigarettes (when marketed without therapeutic claims) can be lawfully sold, including to young people.

9.3.1 Evidence and rationale

(a) The health effects of electronic cigarette use are currently unknown and should be subject to proper evaluation

While it is widely acknowledged that electronic cigarettes are likely to be less dangerous than tobacco products, the health effects of their use remain unknown\textsuperscript{2}. Products inhaled directly to the lung are normally only approved after extensive safety and efficacy evaluation due to the serious issues that can potentially arise with this form of substance delivery\textsuperscript{3}. A formal approval process also ensures that consumers are provided with specific guidance on safe and appropriate use\textsuperscript{3}. Electronic cigarettes currently on the market in Australia have not gone through these kinds of assessment processes.

Many electronic cigarette products differ in contents and manufacturing processes, so studies on individual varieties cannot be generalised across products\textsuperscript{2}\textsuperscript{3}\textsuperscript{4}. The World Health Organization (WHO) and other researchers are concerned about the safety of the chemical combinations used across the variety of products available. These chemical combinations have not been evaluated for either short-term or long-term safety; and manufacturers have not fully disclosed the chemicals used\textsuperscript{3}\textsuperscript{5}. Recent research (yet to be formally published) gives rise to concerns that electronic cigarettes may cause or worsen acute respiratory diseases among youth. The study found that up to 40 per cent of particles emitted by an electronic cigarette can deposit in the deepest areas of youth’s lungs, and that chemicals contained in these particles may irritate airways or worsen pre-existing respiratory conditions such as asthma and bronchitis\textsuperscript{6}.

In addition, testing conducted by New South Wales Health found 70% of e-liquids sampled contained high levels of nicotine despite the fact that the retail sale of electronic cigarettes containing nicotine is currently unlawful\textsuperscript{7}. Research also demonstrates that a number of products are unlikely to meet basic consumer product safety standards (including around design features, packaging, accuracy and clarity of labelling and quality of instruction on use)\textsuperscript{8}.

Given the tobacco industry’s history of deceptively promoting “safer” tobacco products\textsuperscript{9}, it is important to note that a number of major tobacco companies have recently entered the global electronic cigarette market. This includes Philip Morris with the brand ‘Mark10’\textsuperscript{10}; British American Tobacco with the brand ‘Vype’\textsuperscript{11}; Lorillard
with the brand ‘blu eCig’; Reynolds American with the brand ‘Vuse’; Japan Tobacco International with the brand ‘Ploom’; and Imperial Tobacco with the brand ‘Puritane’ (and the purchase of patent rights and subsequent litigation to enforce those rights against multiple product competitors). Both nicotine and non-nicotine electronic cigarette products are often promoted to be “safer” than tobacco products as well as fun recreational products that can be used ‘anywhere’. This is the case, even though the products have not passed through the kinds of formal safety assessment processes that are normally undertaken with lung delivery products.

In light of these issues, non-nicotine electronic cigarettes should be treated in a similar way to nicotine electronic cigarettes and banned from retail sale unless their use has been approved by the Therapeutic Goods Administration (TGA). At the same time, government regulators should be cautious of the possibility that tobacco industry engagement in the electronic cigarette market is part of a broader attempt to re-normalise its community standing so that it can re-establish engagement with policy makers, researchers and other public health stakeholders. Care must be taken so that tobacco industry engagement in the electronic cigarette market in Australia, including under a medicines framework, does not allow the tobacco industry to re-enter the policy space and consumer market in a way that offends Article 5.3 of the WHO Framework Convention on Tobacco Control, which aims to protect public health from the commercial and other vested interests of the tobacco industry.

(b) Non-nicotine electronic cigarettes have potentially high appeal and can be lawfully sold to young people, despite the health and social impacts remaining unknown

Children are at particular risk of the potential harms of electronic cigarettes, which are designed to be inhaled into the lung and have not been subject to appropriate safety assessment. Despite this, electronic cigarettes come in a variety of flavours including fruit, confectionery, chocolate, red bull and other flavours which appeal to children (they also come in tobacco and menthol flavours with broader appeal to smokers). Flavoured tobacco products are currently restricted in order to reduce their appeal to children; therefore, because most non-nicotine electronic cigarettes are flavoured, they should also be prohibited, consistent with the child-protective intention of restrictions on flavoured tobacco products.

(c) Electronic cigarette use is growing at significant rates, particularly among young people, giving rise to an urgent need for regulation

A topline research report (publication pending) prepared by the Centre for Behavioural Research in Cancer, Electronic Cigarette Use in Victoria 2010 to 2013 (March 2014), found that 7.3% of Victorian adults had used electronic cigarettes in the past 12 months in 2013. This is a significant increase compared to 3.6% in 2012, 1.8% in 2011 and 0.7% in 2010 (landline data). Use was significantly more likely in younger age groups (compared to older adults aged 30-49 years and 50+ years), with 53.8% of current smokers, 30.5% of former smokers and 4.8% of never smokers aged 18-29 years having used an electronic cigarette in the past year (2013, dual frame).

In the US there is an alarming trend towards electronic cigarette use among children. A recent study showed experimentation and use doubled among US middle and high school students between 2011 (3.3%) and 2012 (6.8%). Among those who had tried electronic cigarettes, 9.3% reported never smoking tobacco cigarettes.
A recently published study on electronic cigarette use among Korean adolescents found that in 2011, a total of 9.4% of Korean adolescents had ever used electronic cigarettes and 4.7% were current electronic cigarette users – more than 75% of whom were dual using with tobacco cigarettes. A previous study showed that 0.5% of Korean adolescents had ever used electronic cigarettes in 2008; therefore, the 2011 study demonstrated that ever use had increased almost 20 fold in three years. Those who had made an attempt to quit tobacco cigarettes were significantly more likely to use electronic cigarettes but much less likely to no longer smoke tobacco cigarettes. Further, electronic cigarette use was strongly associated with current and heavier smoking. The authors observed that the significant association between current electronic cigarette use and higher levels of tobacco cigarette consumption compared with ever and never electronic cigarette users "suggests that electronic cigarettes do not have a role in reducing harm among these teens, and in fact may be increasing harm"[23].

The above findings highlight the urgent need to prevent widespread uptake of electronic cigarettes among children and young adults in Australia.

(d) Nicotine and non-nicotine electronic cigarette products should only be available for use as cessation aids and only if proven effective for that purpose

The TGA is the appropriate body to determine whether specific nicotine or non-nicotine electronic cigarette products are effective as aids for tobacco cessation. To date, no electronic cigarette product has been shown in studies with adequate methodological design to be effective as a cessation aid; further clinical studies are needed to add to the evidence base around this issue. If the products are not effective as cessation aids, smokers using them to assist in quitting tobacco may not be successful and may maintain a tobacco addiction that might have been broken using other proven quitting methods[3]. There is also the potential for electronic cigarettes to be used intermittently by tobacco smokers rather than as a means to quit smoking tobacco entirely; therefore, dual use is another potential barrier to tobacco smoking cessation[21].

Marketing a product for purely recreational purposes on the basis that it is "safer" or more pleasant compared to tobacco use might turn out to have damaging public health impacts in the longer term in the event that use proves to be harmful and other effective cessation strategies are undermined[24]. This is particularly the case where the marketing of recreational electronic cigarettes leads to use by tobacco smokers who would otherwise have quit altogether without switching to electronic cigarettes and use by non-smokers or ex-smokers[24]. As noted above, the misleading promotion of tobacco products designed to be more attractive to smokers, such as "light" and "mild" cigarettes, turned out to be a highly damaging distraction to cessation efforts[9][25][26]. For these reasons, nicotine and non-nicotine electronic cigarettes should be marketed as cessation aids, rather than recreational products, if proven effective for that purpose.

(e) There are concerns that electronic cigarette use could act as a gateway to tobacco use

This is particularly the case with respect to nicotine-based products[22][27]; however, whether the use of non-nicotine electronic cigarettes could re-normalise smoking behaviour and encourage use of tobacco cigarettes, including among young people, requires further research. Further analysis of the data on US middle and high school student usage of electronic cigarettes (referred to at (c) above) led researchers to conclude that use of
electronic cigarettes does not discourage, and may encourage, use of tobacco cigarettes among US adolescents [28]. Data demonstrated that ever and current use of electronic cigarettes was associated with very high odds of experimentation with tobacco cigarette smoking as well as ever and current tobacco cigarette smoking. In 2011, 49.7% of current electronic cigarette users were current smokers of tobacco cigarettes with similar levels of 49.8% in 2012. Ever-use of electronic cigarettes was associated with planning to quit tobacco smoking; however, current electronic cigarette use was not. Neither ever or current electronic cigarette use was significantly associated with having made an attempt to quit tobacco cigarettes in the past 12 months [28].

9.4 Recommendation 2 – Ensure smoke-free laws in each state and territory cover electronic cigarette use

The purchase, possession or use of electronic cigarettes containing nicotine is currently unlawful under state and territory poisons and public health laws. However, these laws are complicated, not well understood by the community and are difficult to enforce. Prohibiting use of all electronic cigarettes under smoke-free laws would make the law clear for the community and ensure that both nicotine and non-nicotine electronic cigarettes are not used in places where smoking tobacco is prohibited.

9.4.1 Evidence and rationale

(a) Public use could normalise smoking in school students

Smoking among Australian school students is at an unprecedented low, with only 4% of 12-15 year-olds and 13% of 16-17 year-olds identifying as smokers in 2011 – compared with 20% of 12-15 year-olds and 30% of 16-17 year-olds in 1984 (figures 3.4 and 3.5) [29]. The reduction in smoking among Australian school students is one of the great public health successes of the past 30 years. Smoking as a behaviour has become "de-normalised" among this age group. It would be a retrograde outcome if this trend were to be reversed by the promotion of electronic cigarettes. By simulating the act of smoking, electronic cigarette use in smoke-free areas risks giving the impression to young people that the act of smoking is aspirational [30]. Moreover, the use of electronic cigarettes in smoke-free places could confuse people into believing that smoking is permitted and make enforcement of smoke-free policies more difficult [31]. Electronic cigarette manufacturers are actively promoting the use of their products in smoke-free areas [17][18], potentially accelerating the re-normalisation of smoking behaviour [2]. This imposes serious risks on the health of young Australians.

(b) Public use and promotion could undermine quit attempts

There are potential risks that electronic cigarette use could elicit cravings and trigger tobacco smoking relapse among smokers who use them and for smokers seeking to quit, who are cued to smoke tobacco cigarettes by observing their use by others or through promotion [32]. Electronic cigarettes could also delay a person’s desire to quit because the nicotine-based products allow nicotine addiction to be maintained, including through use in places where tobacco use is prohibited [21][27][31][33][34]. These issues require further research.

(c) The health impacts of exposure to second-hand vapour are unknown
There is limited research into whether electronic cigarette use impairs indoor air quality or causes passive exposure and negative health impacts in non-users. Early research concludes that indoor electronic cigarette use poses a new source of volatile organic compounds and ultrafine/fine particles in indoor environments, meaning that there is potential for passive inhalation by non-users. Researchers warn that these pollutants could be of health concern to both users and those exposed second-hand. These issues require further research.

**d) There is early evidence from Victoria that the community supports prohibiting use of electronic cigarette in smoke-free areas**

The Topline Research Report asked Victorian adults whether they agreed or disagreed with banning electronic cigarette use in places where regular cigarettes are banned. More than two-thirds (69.0%) strongly agreed or agreed with the suggestion of a ban on electronic cigarettes in smoke-free areas. Majority support was found in all smoking categories with 72.5% of never smokers, 70.7% of former smokers and 52.9% of current smokers supporting bans.

### 9.5 Recommendation 3 – Prohibiting advertising and promotion of electronic cigarettes, consistent with tobacco advertising prohibitions

Electronic cigarettes are being aggressively promoted, with young people and children clearly identified as a target market. Electronic cigarette advertising should be subject to similar restrictions as tobacco products.

#### 9.5.1 Evidence and rationale

**a) Current electronic cigarette marketing seeks to glamorise the products to young people**

Young people are likely to be susceptible to the advertising techniques and new technology associated with electronic cigarettes\(^\text{[19]}\)[38]. Given that electronic cigarettes resemble tobacco cigarettes and allow users to simulate the physical behaviour of smoking tobacco cigarettes, images of smoking behaviour in electronic cigarette advertisements could re-normalise smoking behaviour among young Australians and encourage children to use tobacco cigarettes\(^\text{[38]}\).

Significantly, electronic cigarette brands, including those owned by tobacco companies, are increasingly becoming involved in sophisticated promotional arrangements reminiscent of strategies previously used to glamorise tobacco\(^\text{[38]}\)[39][40]. For example, 'Vuse', owned by tobacco company Reynolds American, has been announced as the official vapour product of the 2014 South by Southwest festival in Austin Texas\(^\text{[41]}\). Blu eCigs, owned by tobacco company Lorillard, has various promotional activities. The Democrats US House of Representatives Committee on Energy and Commerce reports that "at the Bonnaroo Music Festival, blu eCigs..."
ran a 'Vapor Lounge' where guests watched musical performances and sampled free e-cigarettes. Blu eCigs has also sponsored the popular Governors Ball Music Festival, SXSW, and the Sasquatch! Music Festival. The Committee also reports that Blu eCigs, along with other electronic cigarette companies, Swisher, and Green Smoke all have NASCAR sponsorships. Blu has sponsored numerous NASCAR races where it distributes e-cigarette samples, Green Smoke has sponsored stock car driver T.J. Bell and Swisher sponsors Reed Sorenson and the 'e-Swisher racing team'.[39]

The aggressive marketing strategies of the electronic cigarette industry prompted the US National Association of Attorneys General to write to the FDA requesting urgent regulation of electronic cigarettes to prevent further marketing to young people.[42] The promotion and glamorisation of electronic cigarettes has the potential to erode the strong social norms against smoking behaviour and risks normalising the use of a potentially harmful product.[21][43]. Urgent regulation is therefore needed to curb the emergence of similar promotional relationships in Australia.

(b) Current marketing strategies are highly inappropriate and potentially misleading

Current marketing of electronic cigarettes is designed to appeal to youth,[43] seeks to glamorise an addictive product[19]) and makes unsubstantiated and misleading claims about health impacts, safe use and tobacco cessation[3][44]. It also encourages widespread recreational use and seeks to recruit new nicotine users.[27][37][43]. This form of marketing is occurring in retail outlets, on radio, on television and over the internet in Australia (and overseas). This is highly inappropriate for unproven products, particularly those containing an addictive and potentially toxic substance such as nicotine[3][43][45].

(c) Adults in Victoria recall of advertising of products

The Topline Research Report asked Victorian adults who had heard of electronic cigarettes about whether they had noticed any advertising for the products in the last six months. Electronic cigarette advertising was most commonly recalled on television (24.5%), inside shops (18.7%), on the internet (18.4%), in newspapers and magazines (14.9%) and also on radio (6.8%) and on posters or billboards (6.1%).

(d) Advertising/promotion should only be permitted if products are approved as therapeutic goods for smoking cessation

Nicotine replacement therapies and products inhaled to the lung should only be marketed in a manner that promotes safe and effective use, is socially responsible and does not mislead or deceive the consumer.[3]. This is consistent with the principles underlying the Therapeutic Goods Advertising Code 2007[46]. If electronic cigarette marketing were to be approved on this basis, advertising and promotion should also be consistent with the provisions of the Tobacco Advertising Prohibition Act 1992 (Cth) to prevent the deliberate or inadvertent promotion of smoking.
9.6 Background: what are electronic cigarettes?

Electronic cigarettes are designed to deliver nicotine and/or other chemicals to the user via an aerosol vapour through devices designed to simulate the act of smoking tobacco cigarettes. The devices do not generally contain tobacco and products vary in terms of ingredients and designs. Non-nicotine products are also available and many brands (both nicotine and non-nicotine) come with fruit, confectionery and other flavours. The ‘Ploom’ product (part owned by Japan Tobacco International) differs from other brands in that it contains tobacco and is described as being designed to heat tobacco and release flavour and nicotine in the form of a vapour. Electronic cigarettes are often marketed (online and through television, radio and print) as recreational products that are safer alternatives to tobacco cigarette smoking as well as products that can be used in places where smoking tobacco is prohibited. In many instances, including for products marketed in Australia, it is claimed or at least strongly implied that electronic cigarettes can help with quitting smoking.

9.7 Relevance of the WHO Framework Convention on Tobacco Control

The WHO Framework Convention on Tobacco Control (FCTC) was the first global health treaty negotiated under the auspices of the WHO and is one of the most widely embraced treaties in United Nations history, reflecting the drastic nature of the global tobacco epidemic. The FCTC was adopted on 21 May 2003 and entered into force on 27 February 2005. The treaty sets out key tobacco control measures to be implemented by the Parties with the overarching objective of protecting "present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke" (Article 3).

A WHO Convention Secretariat report outlines a number of grounds upon which the retail, promotion and use of electronic cigarettes may undermine the FCTC, including the following:

- Because electronic cigarettes are designed to resemble tobacco cigarettes, they could undermine the denormalisation of tobacco smoking. The WHO report states that "Parties are therefore invited to consider that a ban of ENDS as already undertaken by some Parties would contribute to changing social norms regarding the consumption of tobacco products".

- The FCTC requires Parties to "adopt and implement effective...measures ...for preventing and reducing...nicotine addiction..." and therefore electronic cigarettes would contribute to maintaining nicotine addiction.

- The FCTC requires Parties to undertake a comprehensive ban on tobacco advertising, and because electronic cigarettes are designed to mimic tobacco cigarettes, they could be considered direct or indirect promotion of tobacco use.

- The FCTC requires parties to "...reduce continually and substantially the prevalence of tobacco use". Electronic cigarettes are new products resembling tobacco products that would maintain a nicotine addiction and "regulating them rather than banning them could grant these new products a level of legitimacy in terms of market access, even though they may be subject to the provisions of the WHO FCTC or to regulation as medical products".
The FCTC requires parties to implement evidence-based treatment for tobacco dependence and cessation – which at present does not include electronic cigarettes (pp. 7-8).  

9.8 Current regulation of electronic cigarettes in Australia

There are no laws specifically addressing the regulation of electronic cigarettes in Australia; instead, a number of existing laws relating to poisons, therapeutic goods and tobacco control apply to electronic cigarettes in some circumstances. This makes the regulation of electronic cigarettes complex. Below is a summary of key laws and regulations that impact. Some of these issues have yet to be clarified; therefore this summary may be updated as further information becomes available.

9.8.1 Commercial retail sale and personal possession/use of nicotine electronic cigarettes

The sale and personal possession or use (among other things) of nicotine electronic cigarettes is currently unlawful in every jurisdiction in Australia. This is due to controls on nicotine that apply in each state and territory by reason of it being classified as a ‘Schedule 7- Dangerous Poison’ under the Commonwealth Poisons Standard. This position could change in the future should an electronic cigarette product be registered by the Therapeutic Goods Administration (TGA) (discussed below).

Where a nicotine electronic cigarette is for therapeutic uses, such as smoking cessation or alleviation of nicotine withdrawal, the electronic cigarette must be registered by the TGA in order to be sold lawfully. This involves an assessment of elements including the safety, quality and efficacy of the liquid nicotine and an assessment of the design of the electronic cigarette to ensure it is safe to use. Liquid nicotine for inhalation for therapeutic uses is a ‘Schedule 4 – Prescription only’ medicine under the national Poisons Standard, which means that any TGA registered nicotine electronic cigarette products would be available by prescription only. There are currently no TGA registered electronic cigarettes and importation, exportation, manufacture and supply of unregistered therapeutic goods is a criminal offence under the Therapeutic Goods Act 1989 (Cth).

Where the nicotine electronic cigarette is represented as being for recreational purposes only (that is, not for therapeutic use), the nicotine is classified as a ‘Schedule 7 - Dangerous Poison’ under the national Poisons Standard. This means that the manufacture, sale and possession of this kind of recreational product is unlawful in all states and territories (unless a licence/ authority/ approval (as the case may be) can be sought and is granted by the relevant state or territory authority).

Even if a specific electronic cigarette product were to receive TGA registration in the future, it is possible that its sale would still be banned in states and territories that specifically prohibit the retail sale of products that resemble tobacco products (i.e. SA, WA and QLD).
9.8.2 Commercial importation and retail sale of non-nicotine electronic cigarettes

Importation for commercial purposes and retail sale of non-nicotine electronic cigarettes that are marketed with therapeutic claims is unlawful across Australia unless the product is registered by the TGA\textsuperscript{[62]}. There are currently no TGA registered electronic cigarettes\textsuperscript{[64]}.

Importation and retail sale of non-nicotine electronic cigarettes that do not make therapeutic claims is not covered by laws relevant to therapeutic goods, meaning that they can be imported and sold by retailers without needing to comply with laws relevant to therapeutic goods.

As noted above, SA\textsuperscript{[67]}, WA\textsuperscript{[68]} and QLD\textsuperscript{[69]} laws prohibit retail sale of products that resemble tobacco products. Therefore, even if non-nicotine electronic cigarette products make no therapeutic claims, the retail sale of particular models in those jurisdictions may still be an offence.

9.8.3 Importation of nicotine electronic cigarettes for personal use

Importation of nicotine electronic cigarettes for personal therapeutic use (e.g. use as a quitting aid) is exempt from registration requirements (but other conditions apply, noted below). This exemption arises under the personal importation scheme provided for under the Therapeutic Goods Regulations 1991. It is therefore possible to lawfully import nicotine electronic cigarettes for personal use if the importer is able to comply with the requirements of the TGA’s personal importation scheme. Under this scheme\textsuperscript{[70][71][72]}:

- As the goods are listed in Schedule 4 of the Poisons Standard (Prescription only), the importer must have a prescription from a medical practitioner registered in the relevant state or territory (unless the importer carries the goods as a passenger on a ship or plane).
- The goods must be imported for use in the treatment of the importer or the importer's immediate family.
- The quantity imported in one importation must not be more than three months’ supply at the maximum dose recommended by the manufacturer.
- The total quantity of the goods imported in a 12 month period must not exceed 15 months’ supply.

The existence of the medical prescription would mean that, the nicotine is supplied in compliance with Schedule 4 of the Poisons Standard (‘Prescription Only’) and is therefore no longer prohibited as a Schedule 7- Dangerous Poison under state and territory laws and can be lawfully used. However, the requirement for a medical prescription may pose practical barriers for people in Australia wishing to order nicotine electronic cigarettes online in the event that medical practitioners are unwilling or unable (for legal reasons) to provide a prescription for a product that has not been approved by the TGA.
Importation of nicotine electronic cigarettes not for therapeutic use (i.e., for recreational use) is not directly covered by the TGA personal importation scheme and does not breach customs laws.[73][74]. However, possession and/or use of any nicotine electronic cigarette product without a medical prescription is prohibited under state and territory poisons laws (as such a product would be considered a Schedule 7 - Dangerous Poison in the absence of a medical prescription).[53][54][55][56][57][58][59][60][61]. Therefore, a person importing nicotine electronic cigarettes that are not registered by the TGA or without a medical prescription, even just for personal use, will be in breach of state and territory laws (unless approval for personal use can be sought and is granted by the relevant state or territory authority).[53][54][55][56][57][58][59][60][61][62].

9.8.4 Importation of non-nicotine electronic cigarettes for personal use

Importation of non-nicotine electronic cigarettes that are marketed with therapeutic claims is covered by therapeutic goods laws and regulations and it is lawful to import these products for personal use or use by an immediate family member under the personal importation scheme (described above). Because the products do not contain a prescription only medicine (i.e. nicotine), no medical prescription is required, but the other conditions outlined above (regarding personal/family use, three months’ supply and 15 months’ supply within 12 months) all apply.

Importation of non-nicotine electronic cigarettes that do not make therapeutic claims is not covered by laws relevant to therapeutic goods, meaning that they can be imported for personal use and commercial purposes without needing to comply with laws relevant to therapeutic goods.

9.8.5 Applicability of tobacco control laws

There may be a case that certain promotions of electronic cigarettes are in breach of the Tobacco Advertising Prohibition Act 1992 (Cth) (TAP Act); however, there are currently no legislative provisions in the TAP Act that specifically refer to electronic cigarettes.

It is unlikely that electronic cigarettes fall within laws regarding smoke-free areas in each state and territory; however, individual businesses and the public sector can develop their own policies on use of electronic cigarettes in their organisations.

9.9 International context

In considering the international context, it is important to note that Australia is a unique case: we have among the world’s lowest smoking rates, especially among our young people; we are a recognised world leader through plain packaging, which is expected to further reduce smoking uptake in young people; and, on current trends, the successive annual increases in tobacco tax in Australia up to 2016 are expected to further reduce smoking prevalence (price is a key smoking deterrent for young people). So, while a number of countries are exploring options to reduce potential electronic cigarette harms, it should be noted that:

- Electronic cigarette use is not as prevalent in Australia as it is in many other countries; and
Australia’s relative success in protecting its younger age groups from smoking-related harms puts us in a strong position to protect Australian school children from exposure to electronic cigarettes before their use becomes more widespread, and to build on our track record of de-normalising smoking behaviour among Australian youth.

Following is a snapshot of developments overseas (based on academic commentary publicly available).

9.9.1 United States

Electronic cigarettes (both nicotine and non-nicotine) are currently only subject to regulation by the Food and Drug Administration (FDA) if therapeutic claims are made[^75]. This means that products containing nicotine that are not marketed with therapeutic claims can be lawfully promoted and sold with minimal regulatory oversight. In April 2014 the FDA issued proposed regulations that at the time of preparing this paper, were open for community consultation[^75].

Sales to minors

There is currently no federal regulation on selling electronic cigarettes to minors in the US. Unpublished data shows that as at mid-November 2013, youth access laws in 22 US states included electronic cigarettes[^21]. California, Utah and New Jersey are among the places where the sale of electronic cigarettes to minors is prohibited[^19]. The City of Chicago recently passed an ordinance regulating electronic cigarettes including by prohibiting sales to minors, requiring retailers to keep the products behind the counter and prohibiting use in smoke-free areas[^76]. Ohio and Iowa legislatures are set to pass laws that prohibit sales of electronic cigarettes to minors; however, these bills are reported to have had close input from tobacco company Lorillard, owners of blu eCigs, and do not prohibit smoking in public places[^77][^77][^78].

Smoke-free laws and policies

Unpublished data shows that as at mid-November 2013, 11 US states explicitly addressed electronic cigarette use under smoke-free air policies as did 108 communities at January 2014[^21]. The US States, cities and local councils that have moved to prohibit electronic cigarette use in smoke-free areas include North Dakota, New Jersey, Utah, New York, Chicago and Los Angeles. A number of other States and cities have prohibited their use in specific places (such as schools and state buildings)[^76][^79][^80][^81].

Advertising and promotion

There are currently no specific advertising restrictions on electronic cigarettes and since 2007 products have been subject to increasingly sophisticated marketing campaigns that use celebrity endorsements to glamorise product use[^19][^30]. While marketing claims vary across manufacturers and vendors, electronic cigarettes are frequently promoted as a “safe” alternative to cigarettes[^19]; a fashionable and tech savvy alternative that can be “smoked anywhere” and therefore used to avoid tobacco smoking restrictions[^17][^18][^27] and in some instances, as a cessation aid[^34][^44][^82]. Electronic cigarettes have started to appear in popular entertainment through movies, television and on-air advocacy by celebrities[^19]. In 2010, actor Katherine Heigl appeared on the Late Show with David Lettermen where she used an electronic cigarette along with the program host, and endorsed the product as a “fun addiction” because “it is not bad for you”[^19]. A US TV show titled The Doctors
featured electronic cigarettes among a list of top ten health innovations as well as non-smoking medical doctors using the product\textsuperscript{[19]}. Other prominent promotional strategies have included distributing electronic cigarettes "bedazzled" with Swarovski crystals in gift bags at the 2011 Academy awards\textsuperscript{[19]} and broadcasts have occurred at Super Bowl games, reaching millions of viewers\textsuperscript{[38]}. These types of aggressive marketing strategies prompted the National Association of Attorneys General to write to the FDA requesting urgent regulation of electronic cigarettes to prevent further marketing to young people\textsuperscript{[42]}. Many other public health experts and groups are calling for regulation, including the Campaign for Tobacco Free Kids\textsuperscript{[21][22][27][38][83]}.

9.9.2 Europe

In December 2012 the European Commission (EC) released a draft Tobacco Products Directive that if passed by the European Parliament, would have required electronic cigarettes with nicotine levels exceeding 2 mg; nicotine concentrations exceeding 4 mg/ml; or whose intended use resulted in a maximum peak plasma concentration exceeding 4 ng/ml to be regulated as medicinal products.

Low level nicotine products with nicotine below these levels would not have required medicines regulation provided they carried a modified health warning\textsuperscript{[84]} (see 3.7 and Art 18). However, after extensive lobbying from the electronic cigarette industry and other stakeholders\textsuperscript{[85][86]}, in February 2014 the European Parliament voted in favour of an updated draft directive\textsuperscript{[87]} that when operable (from May 2014 with a two year transition period) will provide for the following with respect to electronic cigarettes:

- **Categories of electronic cigarettes to be sold as consumer products:** Products with levels of nicotine of up to 20 mg/ml can be sold as a consumer product (without medicines regulation). This is the case so long as the products are not marketed with therapeutic claims\textsuperscript{[88]}. 20 mg/ml is typically the strength of nicotine used by a regular smoker\textsuperscript{[89]}. Various new requirements will apply to products falling within this category, including with respect to:
  - **Safety and quality:** for example, making the nicotine containers child and tamper proof and protected against leakage; use of ingredients of high purity; and requirements that products deliver nicotine doses at consistent levels under normal conditions of use\textsuperscript{[90][91]}.  
  - **Informing consumers:** for example, through mandatory health warnings, instructions on use, information on addictiveness and toxicity, a list of all ingredients and information on nicotine content along with a prohibition on promotional materials on packs\textsuperscript{[90][91]}. 
  - **Protection of consumers:** for example, Member States and the Commission will be able to act in cases of justified safety concerns with respect to specific products. Authorities will monitor the market for evidence that the products lead to nicotine addiction or tobacco consumption, particularly among young people and non-smokers\textsuperscript{[90][91]}. 
  - **Increased reporting requirements:** electronic cigarette manufacturers will be required to report on a number of issues including by providing notification prior to placing new products on the market (including on information of the manufacturer, ingredients, emissions, nicotine dose and uptake, production processes and a declaration that the manufacturer takes full responsibility for quality and safety under normal use). Other reporting obligations include the provision of annual reports to Member States on sales, types of users and user preferences and trends\textsuperscript{[90][91]}. 

Please note that this material is only current to the date and time stamped on this document as content is updated continuously. PDF generated at: 24 October 2019
- Restrictions on advertising: Promotion of nicotine electronic cigarettes in this category will be prohibited in various cross-border contexts including in print, radio, at events and in audio-visual commercial communications\(^{92}\). The directive does not generally cover domestic forms of advertising which do not cross borders (for example, point of sale and billboard advertising), but Member States can elect to regulate or prohibit advertising in these areas\(^{90}\) (see Art 20.5 and paragraph 43, page 25 and paragraph 48, p.28 of the explanatory materials).

- Categories of electronic cigarettes to be sold under medicines frameworks: All products containing more than 20 mg/ml of nicotine are to be regulated under a medicines framework (and subject to other applicable EU directives)\(^{88}\). Any products marketed with therapeutic claims are also to be regulated under a medicines framework, regardless of nicotine content. Electronic cigarette manufacturers can opt in to a medicines framework even if their products are not caught by the directive in the event they wish to market a product with less than 20 mg/ml of nicotine on the basis that it can be used for therapeutic purposes.

- Smoke-free and sales to minors: There are no provisions requiring Member States to prohibit sales to minors or use in smoke-free areas. However, the explanatory materials to the directive note that “Member States are free to regulate such matters within the remit of their own jurisdiction and are encouraged to do so”\(^{93}\).

9.9.3 United Kingdom

In the UK, electronic cigarettes (both nicotine and non-nicotine) are currently only subject to regulation by the Medicines and Healthcare Products Regulatory Agency if therapeutic claims are made\(^{52,94}\). Like in the US, this means that products containing nicotine that are not marketed with therapeutic claims can be lawfully promoted and sold with minimal regulatory oversight. In light of the original 2012 draft terms of the proposed EU Tobacco Directive, the UK Government announced its intention to regulate all nicotine containing electronic cigarettes as medicinal products from 2016, regardless of whether therapeutic claims were made\(^{95}\). However, since the updated EU Tobacco Directive now allows products containing up to 20 mg/ml of nicotine to be regulated and sold as general consumer products, recent comments made in the UK Parliament indicate that products that do not make medicinal claims will not be regulated as medicines in the UK (as originally proposed)\(^{96}\). The Health Minister for Wales recently expressed serious concerns about electronic cigarettes, including their potential to re-normalise tobacco smoking\(^{97}\).

Sales to minors

A law was recently passed in the UK empowering the relevant Minister to make regulations that prohibit sales of electronic cigarettes to minors (clause 122)\(^{98}\). Such regulations (when created) will also apply in Wales\(^{99}\).

Smoke-free laws and policies
Electronic cigarettes are not currently regulated by smoke-free laws and users are generally allowed to use them in most public places, including bars, restaurants and public transport but there are reports that managers of particular premises have banned their use\[^{100}\][\[^{101}\]. A recent news investigation found that electronic cigarette use is banned in the majority of Scottish hospitals, schools and council buildings and it has also been announced that electronic cigarette use will be prohibited in and around Commonwealth Games venues in Scotland for the 2014 Commonwealth Games\[^{102}\][\[^{103}\]. The head teachers Union in the UK has called for use of electronic cigarettes to be prohibited on school grounds, particularly by parents, due to concerns about the example being set for young people\[^{104}\].

**Advertising and promotion**

TV campaigns were launched in early 2013\[^{105}\] and sport related sponsorship deals are emerging, including a football ground being named "Cigg-E Stadium"\[^{43}\][\[^{106}\][\[^{107}\][\[^{108}\]. Singer Lily Allen recently entered into a product placement deal for an electronic cigarette brand to appear in a music video clip\[^{109}\]. An academic review of news media representations of electronic cigarettes found that between 2007 and 2012, UK news coverage of electronic cigarette products grew substantially, with the top two themes emerging as (a) presenting electronic cigarettes as a "healthier choice" and (b) using electronic cigarettes to "get around smoke-free legislation"\[^{45}\]. Recent advertisements have been the subject of complaints and subsequent inquiries including for being highly sexualised as well as failing to disclose that the products contained nicotine (which is now required by the advertising authority)\[^{110}\][\[^{111}\]. Bars dedicated to electronic cigarette use are also emerging.

### 9.9.4 New Zealand and Canada

Electronic cigarettes containing nicotine are regulated as medicines regardless of whether therapeutic claims are made\[^{112}\][\[^{113}\]. With respect to non-nicotine electronic cigarettes:

- **Sales to minors:** There are no restrictions on sales to minors in Canada\[^{114}\]. In New Zealand, it is unlawful to sell a product that looks like a tobacco product or smokers' pipe to people under 18 except where that product's primary purpose is to help people quit smoking\[^{112}\][\[^{115}\].
- **Smoke-free laws and policies:** For both Canada and New Zealand there is no national legislative framework on use in public places.
- **Advertising and promotion:** For both Canada and New Zealand there are no specific laws regulating the advertisement of electronic cigarettes; however, like under Australian laws, arguments could be put that tobacco advertising prohibitions could apply to electronic cigarettes in some circumstances (for example, where an advertisement promotes "smoking behaviour" (New Zealand\[^{116}\]) or "evokes a tobacco product" (Canada\[^{38}\][\[^{117}\]).

### 9.10 References


4. US Food and Drug Administration. Summary of Results: Laboratory Analysis of Electronic Cigarettes Conducted By FDA. Silver Spring, Maryland: Department of Health and Human Services; 2009 Available from: http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm173146.htm.


53. ↑ *Drugs, Poisons and Controlled Substances Regulations. 2006* (Vic) r 65.


55. ↑ *Health (Drugs and Poisons) Regulation. 1996* (Qld) r 271.


57. ↑ *Poisons Act. 1964* (WA) s 25(1); s 62; s 24(1)(d).


59. ↑ *Poisons Regulations. 2008* (Tas) r 74(11).


61. ↑ *Medicines, Poisons and Therapeutic Goods Act. 2008* (ACT) s 36; s 35(1); s 26(1).


69. ↑ *Tobacco and Other Smoking Products Act. 1998* (Qld) s 26ZS.


71. ↑ *Therapeutic Goods Regulations. 1990* (Cth) reg 12(1) and Schedule 5, item 1(d).

73. ↑ *Customs Act 1901* (Cth) s 51(1).


75. ↑ 75.0 75.1 US Food and Drug Administration. *Electronic Cigarettes (e-Cigarettes).* Silver Spring, Maryland: Department of Health and Human Services; 2013 Available from: http://www.fda.gov/newsevents/publichealthfocus/ucm172906.htm.


77. ↑ 77.0 77.1 Siegel J. *E-cig bill moves despite anti-smoking concerns.* The Columbus Dispatch; 2014 Feb 11 Available from: http://dispatchpolitics.dispatch.com/content/blogs/the-daily-briefing/2014/02/2-11-14-ecig-bill.html.


115. ↑ *Smoke-free Environments Act. 1990* (NZ) s 36A.


The effects of tobacco use extend much further than the health impact on the individual. Tobacco use is responsible for a significant economic and social burden on society as a whole. In terms of overall impact, smoking remains the largest cause of both the human and economic cost of preventable disease in Australia. The social and economic burden of tobacco use is inequitably distributed, being carried disproportionately by already disadvantaged Australians.

A study led by the International Agency for Research on Cancer (IARC) looked at the impact of tobacco smoking on life expectancy in 63 countries and found that life expectancy would increase on average by 2.4 years in men and 1 year in women if smoking-related deaths were eliminated[^1]. This study found tobacco smoking was related to 20% of total adult mortality[^1].

The health impacts of tobacco use on the individual are considerable: An Australian study found that two of every three deaths in current smokers can be directly attributed to smoking[^2]. Previous international estimates had put this figure at one in two deaths in long-term smokers[^3]. On average, current smokers die 10 years earlier than non-smokers[^2].

The health impacts of tobacco use are wide ranging. Tobacco use is associated with cancer, chronic respiratory illnesses and cardiovascular disease. Smoking causes almost as many cardiovascular related deaths as lung cancer deaths[^4].

Tobacco is the single most common preventable cause of cancer burden in Australia\textsuperscript{[5]} a further 15 cancer types \textsuperscript{[6]}. In many Western countries, a third of all cancer deaths are caused by smoking; no other preventable risk factor has caused anywhere near the same level of cancer death and disease\textsuperscript{[7]}. The World Health Organization project that, in 2015, tobacco will be responsible for 10\% of all deaths globally\textsuperscript{[8]}.

10.1 Impact of tobacco on cancer

Tobacco smoking is the single largest cause of preventable cancer mortality and morbidity in Australia, accounting for an estimated 22\% of the nation’s cancer disease burden in 2011\textsuperscript{[5]}. Smoking was attributable for an estimated 11,308 new cases of cancer and 8,155 cancer deaths in 2005\textsuperscript{[9]}. A more recent study estimated 15,525 (13\%) cancers in Australia in 2010 were attributable to tobacco smoke\textsuperscript{[10]}.

Of all the specific diseases associated with tobacco, lung cancer accounts for the largest proportion of tobacco-related disease burden in Australia\textsuperscript{[5]} other conditions, lung cancer alone accounts for more than a third (35\%) of the overall tobacco-related burden of disease in Australia\textsuperscript{[4]}. It has been estimated that active smoking is responsible for 88\% of all lung cancer deaths in men over 35, and 75\% in women of the same age in Australia\textsuperscript{[11]}.

In 2005 (the most recent national data), there were an estimated 11,308 new cancer cases (11\% of all new cases of cancer) and 8,155 deaths from cancer (nearly 21\% of all cancer deaths) in Australia attributed to smoking\textsuperscript{[9]}.

A more recent Australian study estimated that 15,252 (13\%) of cancers in Australian adults in 2010 could be attributed to tobacco smoking\textsuperscript{[10]}. The largest numbers and highest proportion of cancers attributable to tobacco smoking were lung cancers with 8,324 (81\%) cancers diagnosed. Of these, 136 lung cancers in non-smokers were attributable to partner tobacco smoke\textsuperscript{[10]}. See Table 1 for a summary of the population attributable fractions of different cancer types attributable to tobacco smoking in Australia.

<table>
<thead>
<tr>
<th>Site</th>
<th>Males</th>
<th>Females</th>
<th>Total number of cancers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung</td>
<td>84</td>
<td>74</td>
<td>8,324</td>
</tr>
<tr>
<td>Larynx</td>
<td>77</td>
<td>74</td>
<td>478</td>
</tr>
<tr>
<td>Oral/pharynx</td>
<td>65</td>
<td>45</td>
<td>1,973</td>
</tr>
<tr>
<td>Oesophagus</td>
<td>59</td>
<td>61</td>
<td>855</td>
</tr>
<tr>
<td>Bladder</td>
<td>34</td>
<td>26</td>
<td>781</td>
</tr>
<tr>
<td>Kidney &amp; ureter</td>
<td>26</td>
<td>11</td>
<td>633</td>
</tr>
<tr>
<td>Liver</td>
<td>24</td>
<td>11</td>
<td>290</td>
</tr>
<tr>
<td>Pancreas</td>
<td>24</td>
<td>23</td>
<td>622</td>
</tr>
</tbody>
</table>

Table 1. Population attributable fraction (PAF) for males and females and estimated number of cancers diagnosed in Australia in 2010 attributable to tobacco smoking
### Site of Cancer

<table>
<thead>
<tr>
<th>Site</th>
<th>Males</th>
<th>Females</th>
<th>Total number of cancers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach</td>
<td>23</td>
<td>11</td>
<td>383</td>
</tr>
<tr>
<td>Myeloid leukaemia</td>
<td>16</td>
<td>4</td>
<td>153</td>
</tr>
<tr>
<td>Bowel</td>
<td>6</td>
<td>7</td>
<td>951</td>
</tr>
<tr>
<td>Cervix</td>
<td>-</td>
<td>7</td>
<td>56</td>
</tr>
<tr>
<td>Ovary</td>
<td>-</td>
<td>17</td>
<td>26</td>
</tr>
<tr>
<td><strong>All cancers</strong></td>
<td><strong>10</strong></td>
<td><strong>16</strong></td>
<td><strong>15,525</strong></td>
</tr>
</tbody>
</table>

Source: Pandeya 2015[^10]

The Link between tobacco and cancer section of this chapter has information on the evidence for the link between tobacco use and specific cancers.

### 10.2 Broader health impacts

Tobacco was responsible for 11.7% of deaths in Australia in 2003[^4]. In that year, 15,511 deaths were attributed to smoking[^4]. The burden of disease caused by tobacco is disproportionately carried by males. Tobacco caused 9.9% of the total burden of disease and injury in males, compared to 5.8% in females[^4].

Of all preventable risk factors, tobacco causes the highest proportion of Australia’s burden of disease and injury (7.8% of the total) – with lung cancer, chronic obstructive pulmonary disease (emphysema) and ischaemic heart disease accounting for more than three-quarters of the burden[^4]. Sixteen tumour types overall, and cardiovascular disease, including stroke, also contribute to tobacco disease burden.

Second to cancer, the largest health impact of tobacco use is cardiovascular disease[^4]. There is evidence that cardiovascular disease is a consequence not only of tobacco smoking, but also of exposure to second-hand tobacco smoke[^12].

#### 10.2.1 Second-hand tobacco smoke

A study of 2004 data found that in one year, over 600,000 deaths worldwide were attributable to second-hand smoke, accounting for 1.0% of worldwide mortality. The majority (47%) of deaths from second-hand smoke occurred in women, 28% in children, and 26% in men[^13].

In Australia, the proportion of dependent children exposed to tobacco smoke inside the home has decreased over time, with only 3.7% of adults in households with children reporting smoking inside the home in 2013, steadily declining from 31% in 1995[^14].

It was estimated that in 2004-05, 113 adults deaths in Australia were due to exposure to second-hand smoke and 56 deaths in infants were due to maternal smoking[^15].
10.2.2 Maternal smoking, before and after birth

Antenatal and postnatal exposure to tobacco smoke have both been shown to contribute to a range of health problems in infants, including: 
- low birth-weight 
- reduced lung function 
- spontaneous abortion 
- ectopic pregnancy 
- birth defects.

The 2002 United States Linked Birth/Infant Death Data Set reported that smoking in pregnancy was one of the most prevalent, preventable causes of infant death and illness.

Maternal smoking also has negative effects on the quality and quantity of breast milk.

In 2010, 11.7% of Australian women reported smoking during some or all of their pregnancy. In the period before they knew they were pregnant, 11.7% of pregnant women smoked and 7.7% smoked after they knew they were pregnant. Data from 2008 shows the likelihood of smoking during pregnancy was higher among teenagers, women in disadvantaged circumstances and Indigenous women.

10.3 Economic burden

Smoking is the largest preventable cause of both the human and economic cost of preventable disease in Australia – particularly in relation to cancer.

Smoking imposes a heavy financial burden on the Australian community – estimated at $31.5 billion in ‘social costs’ in 2004-05 (accounting for 56.2% of the total cost of legal and illegal drug use). Social costs include costs borne by the entire community, rather than private costs incurred and paid for voluntarily by tobacco users.

The social costs of smoking in 2004-05 included $318.4 million in health care costs, $249.3 million borne by the government with the remainder by businesses and individuals.

Conservative estimates from an earlier Australian study found that hospital costs alone attributable to smoking equalled $682 million for 2001-02, due to 300,000 hospitalisations and 1.47 million bed days.

Tobacco use is a risk factor for 16 cancer types (see the Link section of this chapter). For lung cancer alone, health expenditure in Australia in 2008-09 was $210 million.
10.4 Prevalence of smoking in Australia

According to the 2013 National Drug Strategy Household Survey, in 2013, 12.8% of Australians aged 14 years or older smoked daily\textsuperscript{[14]}. In 2011-12, there were 2.8 million Australian adults (16.3%) aged 18 years and over who smoked daily\textsuperscript{[22]}. The proportion of people smoking daily has declined significantly over time. Daily smoking declined between 2010 and 2013 (from 15.1% to 12.8%) and almost halved since 1991 (24.3%)\textsuperscript{[14]}. The average number of cigarettes smoked per week has also reduced, from 111 cigarettes in 2010 to 96 in 2013\textsuperscript{[14]}.

Smoking is more prevalent in men (20.2% men were smokers compared 16.3% women) and women are more likely to have never smoked than men (61.8% of women compared to 53.7% of men)\textsuperscript{[18]}.

According to the 2010 National Drug Strategy Household Survey report, just under one-quarter of the population (24.1%) were estimated to be ex-smokers and more than half (57.8%) had never smoked in their life in 2010\textsuperscript{[18]}.

State by state, smoking rates vary considerably. In 2010, the ACT had the lowest daily smoking prevalence of the states and territories (11% of people aged 14 years and over were current smokers), while the NT had the highest (22.3%)\textsuperscript{[18]}. See Table 2 for the proportion of daily smokers by state and territory.

Table 2. Percentage of people 14 years or older who are daily smokers, by state/territory

<table>
<thead>
<tr>
<th>State</th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
<th>SA</th>
<th>Tas</th>
<th>ACT</th>
<th>NT</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>% daily smokers</td>
<td>14.2</td>
<td>14.9</td>
<td>16.7</td>
<td>15.6</td>
<td>15.0</td>
<td>15.9</td>
<td>11.0</td>
<td>22.3</td>
<td>15.1</td>
</tr>
</tbody>
</table>

Source: AIHW 2011\textsuperscript{[18]}

10.4.1 Children and adolescents

More than 80% of smokers become addicted to nicotine as teenagers\textsuperscript{[23][24]}. According to the 2013 National Drug Strategy Household Survey, younger people are delaying the take up of smoking. The age at which 14-24-year-olds smoked their first full cigarette increased from 14.2 in 1995 to 15.9 years in 2013\textsuperscript{[14]}.

National surveys of smoking among secondary school students have been conducted since 1984, using an anonymous questionnaire. The latest survey show smoking prevalence among teenagers has fallen dramatically in recent years\textsuperscript{[25]}. In 2011, the proportion of students who were current smokers (had smoked in the last week) ranged between 1.3% among 12 year olds to 14.5% among 17 year olds, while overall 23.3% of students had some experience with smoking\textsuperscript{[25]}. Only 3.6% of all students over all had smoked on three or more days in the previous week, with this proportion increasing to 8.6% among 17 year olds\textsuperscript{[25]}. Between 1984 and 2011, the percentage of secondary school students who have never smoked has more than doubled, from 30.6% to 76.7%\textsuperscript{[26]}.
The 2011-12 Australian Health Survey reported that 4.4% of teens aged 15-17 years were daily smokers. However, it was noted that due to the data collection methods of the survey, the reported number might be an underestimate[22].

Similarly, the 2013 National Drug Strategy Household Survey reported that 95% of 12-17 year olds had never smoked in 2013, and the proportion of 18-24 year olds who had never smoked increased significantly between 2010 and 2013 (from 72% to 77%)[14]. The survey is a household-based self-reporting survey and it has been noted that self-reported rates of smoking in adolescents may be underestimates[27].

One Victorian study in 12 to 15-year-old children indicated significantly higher rates of smoking. The study found that rates of current and ever tobacco use are higher in rural teens than urban teens – 49.6% in rural compared to 37.4% in urban for ever smoking, 16.8% compared to 11.2% current smoking[28].

10.4.2 Indigenous Australians

Aboriginal and Torres Strait Islander people aged 15 years and over are 2.6 times more likely than non-Indigenous Australian to be current daily smokers (after adjusting for differences in age structure between the two populations)[29].

In the 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey, 42% of Indigenous Australians over the age of 15 were current daily smokers. Rates have declined since 2002, when the rate of daily smokers was 49%[29]. One in five Indigenous adults were ex-smokers, an increase from 15% in 2002, and 37% of those surveyed had never smoked[30].

Indigenous Australians living in remote areas are more likely to be current daily smokers than those living in major cities (50% and 39%, respectively)[29]. Despite decreasing rates of smoking in Indigenous people from 1994–2008, the rates of smoking for Indigenous women in remote areas have not[30][31]. There is some evidence they have increased[31].

In 2008, four in 10 young Indigenous Australians (aged 15–24 years) were current daily smokers, more than twice the rate for non-Indigenous young people (16%)[32]. Among young people aged 15-17 years, the proportion who had never smoked increased from 61% in 2002 to 77% in 2012-13, and for those aged 18-24 years, increased from 34% to 42% over the same period[29].

Close to two thirds of Indigenous children (65%) are exposed to environmental tobacco smoke compared with less than one third of non-Indigenous children (32%). Indigenous children are also three times more likely to live in households with a regular smoker who smoked indoors at home[32].
10.4.3 Culturally and linguistically diverse Australians

Overall in Australia, smoking rates among people whose main language is not English are lower than the average. In 2010, people whose main language at home was not English had a smoking rate of 11.6%, compared to 18.4% of people whose main language was English. There were a high proportion of non-smokers in homes where English was not the main language spoken (80.4%), compared to predominantly English-speaking households (55.5%)\(^{[18]}\). The National Health Survey reports similar findings, where prevalence of smoking was 12.2% among those who predominantly speak a language other than English\(^{[33]}\). These findings should be interpreted with caution as non English speakers are under-represented in this survey.

Despite lower rates over all, smoking is more prevalent among a number of specific cultural, ethnic and socio-economic groups, resulting in these groups bearing a disproportionate share of Australia’s tobacco-related disease burden. A number of older studies have indicated that among the Arab-speaking population in Sydney, more than 50% of both males and females smoked\(^{[34]}\), and among the Sydney-based Lebanese community about 49% of males and 29% of females were smokers\(^{[35]}\). Male members of the Vietnamese community in Sydney had smoking rates of 53%\(^{[36]}\).

10.4.4 Disadvantaged groups

Smoking rates among a number of disadvantaged groups are much higher than in the general population. Smoking rates across Australia have declined substantially to around 17.5% of adults smoking weekly or more often\(^{[18]}\). However, among the most disadvantaged groups smoking rates are significantly higher than the population average.

Across the population, smoking rates are associated with socioeconomic status: the proportion of smokers in the lowest socioeconomic status tier (24.6%) is almost double that of the highest (12.5%)\(^{[18]}\).

A number of populations experiencing disadvantage have higher than average smoking rates: single parents (37%)\(^{[18]}\), lone mothers 18–29 years of age (59%)\(^{[37]}\), people living with psychosis (66%)\(^{[38]}\), adults with mental illness (36%)\(^{[39]}\), at-risk young people (63%)\(^{[40]}\), people with drug disorders (73%)\(^{[39]}\), the homeless (73%)\(^{[41]}\), intravenous drug users (90%)\(^{[42]}\), prisoners (85%)\(^{[43]}\), and those living in remote areas (28.9%)\(^{[18]}\).

Due to the success of smoke-free environment policies (see the Effective interventions section of this chapter), smokers are now generally more inclined to opt to smoke outside the house when at home. However, exposure to environmental tobacco smoke remains high in disadvantaged groups such as children from low socioeconomic status groups\(^{[44]}\).

See the Cancer Council Australia position statement on Smoking related disparities for more information.
10.5 Prevalence of lung cancer in Australia

As previously discussed (see above), lung cancer is the primary health consequence of tobacco use. Lung cancer accounts for more than a third (35%) of the tobacco-related burden of disease in Australia\(^4\). Active smoking is responsible for 88% of all lung cancer deaths in men over 35, and 75% in women of the same age in Australia\(^11\).

In 2014, there were 11,556 new cases of lung cancer diagnosed in Australia\(^45\). Lung cancer is more common in males, with 6,695 incident cases being diagnosed in men\(^45\).

The prognosis for lung cancer is poor. The five-year relative survival for people diagnosed with lung cancer (compared to the general population) is 14.1% (12.6% for males and 16.5% for females)\(^46\). Although lung cancer is the fifth most commonly diagnosed cancer in Australia, it is the most common cause of cancer death in both males and females, responsible for 8,466 deaths in 2015\(^47\)\(^45\).

Female smokers in Australia appear to have about twice the risk of dying from lung cancer compared with male smokers. Women who smoke face a 20-fold increased risk of death compared to nonsmokers, in comparison to a 10-fold increase in males\(^48\).

10.5.1 Lung cancer trends

Lung cancer incidence in Australian men is in relative decline, yet in women the disease recently exceeded breast cancer as the number one cause of cancer death\(^47\). The incidence of lung cancer is projected to decrease to 49.3 per 100,000 in males in 2020, down from 55.4 in 2011\(^49\). However, incidence rate in women is expected to increase to 36.2 per 100,000 in 2020 from 32.4 in 2011\(^49\).

This variation in trends is probably due to different tobacco consumption histories: reductions in smoking among men in the second half of the 20\textsuperscript{th} century have subsequently been reflected in declining male lung cancer rates, with a time lapse of about 20 years. Cigarette smoking in Australian women peaked later than in men, which is thought to explain the rising incidence and mortality of female lung cancer\(^47\)\(^11\).

10.6 References


42. ↑ Stafford J, Burns LA. *Australian drug trends 2010: findings from the illicit drug reporting system (IDRS).* Sydney: National Drug and Alcohol Research Centre; 2011.


11 Version information

Please note that this material is only current to the date and time stamped on this document as content is updated continuously.

This copy was generated at 07:25, 24 October 2019 AEDT