List of chapters available at tobaccoinaustralia.org.au

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Introduction

This chapter deals with the construction and labelling of Australian cigarettes, both recently and in previous decades. Interest in how Australian cigarettes were constructed and labelled in the past is not merely historical. In order to understand what interests the Australian tobacco industry may have in producing the world’s most complex brand ‘families’ it is necessary to understand forces that have been acting on the market over extended time periods. Different varieties within Australian brand families may be barely distinguishable in construction and almost certainly would be indistinguishable to any smokers doing a blind test. Nonetheless, the industry puts considerable effort into producing all of these varieties and drawing smokers’ attention to them.

During the past four decades, the Australian tobacco industry has concentrated heavily on the development of ‘low tar’ cigarettes (also frequently referred to as ‘light’ or ‘mild’ cigarettes). Between the 1960s and the mid-1990s Australian public health authorities erroneously believed that ‘low tar’ cigarettes would provide some relative health benefits to those smokers who were unwilling or unable to quit. However, as evidence mounted that ‘low tar’ cigarettes did not provide any meaningful reduction in smokers’ exposures to harmful smoke constituents, Australian public health authorities began moving in the late-1990s to develop new policies which took this evidence into account. The new scientific consensus that is now reflected in Australian Federal and State government policies (and also internationally in the United Nations Framework Convention on Tobacco Control) is that ‘low tar’ cigarettes do not deliver less ‘tar’ and nicotine to smokers’ lungs under actual smoking conditions, are no less addictive and have not reduced disease or mortality rates among smokers. Since 2006, the terms ‘light’, ‘mild’ and ‘low tar’ can no longer be used as descriptors in the names of Australian cigarette brands and tar, nicotine and carbon monoxide figures no longer appear on the side of packs. However, nearly all of the particular varieties which were previously identified by these terms and by specific tar, nicotine and carbon monoxide figures were still on the market at the time of writing in 2011. There is now a new list of terms, such as ‘smooth’ and ‘fine’, which function as code words for ‘light’ and ‘mild’. The combination of these terms with colour-coding creates the impression of substantive difference between brand varieties and continues to invite smokers to believe that some cigarettes are less harmful than others. This is one of the reasons why the Federal Government is currently pursuing the plain packaging of cigarettes.

The information presented in this chapter derives from several sources. Most of what is known about the construction of Australian cigarettes has been gleaned from tobacco industry documents that were made public as a consequence of litigation in the United States in the 1990s, leading to the 1998 Master Settlement Agreement between the major tobacco companies and the Attorneys General of most states. Various collections of these documents have been uploaded onto the World Wide Web on a number of websites and can be searched, using various terms of interest. Many thousands of Australian industry documents are included in these collections. Also, a limited amount of information about the construction, smoke constituents and ingredients of Australian cigarettes has been made public as a result of a voluntary agreement on ingredients disclosure between the Australian manufacturers and the Australian Government in 2000. Finally, the Cancer Council Victoria has some capability for measuring certain construction properties of cigarettes. These three information sources provide fragments of the overall picture of how the tobacco industry has manipulated cigarette design, packaging and labelling for its purposes.
References


2. King B and Borland R. What was ‘light’ and ‘mild’ is now ‘smooth’ and ‘fine’: new labelling of Australian cigarettes. Tobacco Control 2005;14(3):214–5. Available from: http://tobaccocontrol.bmj.com/cgi/content/full/14/3/214

Tobacco in Australian cigarettes

Cigarettes may be either factory made or roll-your-own. In both cases the essential ingredients of a cigarette are cured and cut tobacco, rolled into a rod and encased in paper. Since the early 1970s, virtually all factory made cigarettes in Australia have contained filters and these days most smokers who use roll-your-own cigarettes also make them with a filter. The tobacco used in roll-your-own cigarettes is cut in long, thin strips (called 'shag') to facilitate hand rolling. The tobacco in factory made cigarettes is cut in shorter and wider pieces but is otherwise very similar to the tobacco in roll-you-own cigarettes.

Most Australian factory made cigarettes and packaged roll-your-own tobacco are 'Virginia-only' products. This means that all of the tobacco used in their manufacture is Virginia or flue-cured tobacco. This makes Australian cigarettes differ in taste (especially the sweetness of the smoke) and harshness/irritation (the unpleasant sensations that accompany smoking) from cigarettes from many other parts of the world.

The other most common type of cigarette in Western countries is the blended cigarette, which contains a mixture of several different kinds of tobacco. A handful of brands currently sold in Australia, including Alpine and Marlboro, are blended. Smokers appear to have strong acquired preferences for either Virginia or blended cigarettes. These days, most Australian smokers strongly prefer Virginia cigarettes to blended ones, because of the sweeter, milder tasting smoke. (Staunton, 1998)

Virginia tobacco is produced by hanging tobacco leaves to dry and cure in heated barns for 5 to 7 days, after which it is ready for manufacture. The other kinds of tobacco include:

- A, air-cured (including Burley and Maryland), which is produced by drying tobacco in barns at ambient temperatures over longer periods;
- B, fire cured (or Oriental tobacco), which is produced by exposing tobacco directly to smoke from wood fires; and
- C, sun-cured, which is produced by hanging tobacco to dry in direct sunlight.

Blended cigarettes contain a proportion of Virginia, air cured and fired cured tobacco. U.S. blended cigarettes contain roughly equal proportions of each kind of tobacco. Blended cigarettes developed for the Australian market, such as the Australian version of Marlboro, tend to have a greater proportion of Virginia tobacco, in an attempt to appeal more to Australian tastes.

The faster curing process for Virginia tobacco results in it having high sugar content than other tobacco types. This is the main reason why it produces sweeter-tasting smoke than other tobacco types, at least when nicotine levels are comparable. However, Virginia tobacco also produces more acidic smoke, as a number of acids are produced from the combustion of sugars and this has consequences for the delivery of nicotine to smokers. The lower smoke pH of Virginia cigarettes means that there is generally proportionately less unprotonated or 'free' nicotine in the smoke than in blended cigarettes. ‘Free’ nicotine is the more pharmacologically active form of nicotine. The other form – called protonated or ‘bound’ nicotine – is delivered to the central nervous system more slowly during smoking and is less responsible for the rewarding sensations of a nicotine ‘hit.’ However, unprotonated nicotine also produces more sensations of harshness than protonated nicotine. Thus, cigarettes must deliver unprotonated nicotine within certain tolerances in order to maximize their consumer appeal. Levels of unprotonated nicotine in smoke may be increased either by increasing the ratio of unprotonated to protonated nicotine or by increasing total nicotine levels.

The smoke from Virginia cigarettes also has a different profile of known carcinogens and cardiovascular/respiratory toxicants than the smoke from cigarettes containing other tobacco types. Smokers of Virginia cigarettes probably have lower exposures to certain carcinogens and cardiovascular/respiratory toxicants than smokers of other types of cigarette but also probably have higher exposures to other carcinogens and cardiovascular/respiratory toxicants. We shall return to this issue at the end of the chapter when dealing with the information that is available on the emissions of specific carcinogens and other toxicants in the smoke of Australian cigarettes.
As well as containing tobacco that has been cured in different ways, cigarettes contain tobacco that has been processed in different ways and tobacco from different parts of the plant. Australian cigarettes invariably contain cut tobacco leaf (or ‘lamina’), which will vary in flavour and nicotine content, depending on which part of the plant it has been taken from. Leaf taken from high on the plant will have higher nicotine content and will generally also have a richer flavour than leaf from lower in the plant.

Cigarettes may also contain expanded and reconstituted tobacco. Expanded tobacco is lamina or stem that has been puffed up with carbon dioxide (and formerly freon) in order to restore individual cells to their thickness prior to curing. It is used to control burning properties, as well as to control the weight/ firmness combination of the tobacco rod. Expanded stem, in particular, imparts firmness to tobacco rods. Reconstituted tobacco is a paper-like sheet that is produced from ‘tobacco fines’ — the small scraps that are produced at all stages of processing tobacco. Thus incorporating reconstituted tobacco in cigarettes is a means for utilizing material that would otherwise be discarded. It can also be used as a means for reducing standard ISO tar and nicotine yields (which are explained in section 14.2 below).

Tobacco industry documents, which have been made public as a result of legal action in the US, strongly suggest that the use of reconstituted tobacco was phased out in Australian cigarettes in the 1980s and 1990s. It also appears that unusually high levels of expanded leaf and stem were used in Australian cigarettes during this period (as is explained below when Australian and US cigarettes are compared).

During the 1980s and 1990s, Australian cigarettes were re-engineered to minimize tobacco weight. This occurred in response to a by-weight excise system that remained in place until 1998 and had involved marked increases in duties levied during the early 1980s—see Chapter 13. Australian manufacturers thus had a very strong incentive to minimize the weight of their cigarettes. In order to produce low weight cigarettes that were sufficiently firm to hold together prior to smoking and also to retain the integrity of the burning coal during smoking, it was apparently necessary to replace reconstituted tobacco with expanded tobacco, especially expanded stem. After the excise system changed in 1998, the Australian manufacturers re-engineered most brands to increase their tobacco weights and filter weights, presumably because this increased their consumer attractiveness over the previous designs. The most recent findings show that the majority of Australian brands have remained stable in construction since they were re-engineered after 1998.
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Section: 12.1

Date of last update: 8 June 2012

References

12.2 Measuring cigarette smoke constituents

Cigarette smoke is a complex mixture of thousands of chemicals. It has long been understood as having particulate and vapour phases. The particulate phase can be understood technically as those smoke particles that are large enough to be captured on the filter of a smoking machine (which samples mainstream smoke and is used to measure the ‘tar’, nicotine and carbon monoxide ‘yields’ (or ‘emissions’) of cigarettes). The vapour phase consists of smaller particles and gases that pass through a smoking machine filter (and generally are also not captured by cigarette filters). ‘Tar’ in its technical sense is the collected mass of larger smoke particles captured on the filter when a cigarette is machine smoked. However ‘tar’ also refers non-technically to the brown stains seen on the end of cigarette filters and on smokers’ fingers.

Measuring the ‘yield’ of ‘tar’ captured by a smoking machine filter was a long standing means of comparing the cigarette smoke of different brands – both by the tobacco industry and by public health authorities. While measuring ‘tar yields’ was a practice developed by the tobacco industry for ‘quality control’ purposes, it was also long assumed to be a useful means for comparing the relative harmfulness of different brands. In the 1950s it was found that when ‘tar’ dissolved in acetone was painted on mouse skin, tumours developed. Further, there was a dose-response relationship between the amount of ‘tar’ to which mice were exposed and the frequency with which tumours developed. It appeared to follow logically that cigarettes yielding less ‘tar’ would be less harmful. Accordingly, it was believed that setting regulatory limits on ‘tar’ yields and/or encouraging smokers to switch to brands with lower ‘tar’ yields would produce relative health benefits for those smokers who were unwilling or unable to quit.

Nicotine yields have also long been used for making comparisons between brands. Public health authorities first became interested in measuring the nicotine yields of cigarettes on the grounds that nicotine is the primary addictive ingredient of cigarette smoke and that reducing smokers’ nicotine exposures would lessen their addictions and facilitate quitting.

Carbon monoxide yields were the third measure to join tar and nicotine yields. This is because carbon monoxide is likely to be a particularly important cause of the cardiovascular damage caused by smoking.

The tar, nicotine and carbon monoxide figures that were printed on the side of Australian cigarette packs until March 2006 are derived from the standard ISO (International Standards Organization) cigarette yield test, in which a cigarette is machine smoked with a 35ml puff of 2 seconds duration, once per minute, until it has been smoked down to a 30mm butt. All cigarettes are smoked in the same manner for this test, regardless of whether they are ‘full strength’, ‘light’ or ‘ultra-light’.

Since the 1990s, a number of other smoking machine test protocols have been introduced. For present purposes, the most important of these is the ISO Intensive Condition test (also frequently referred to as the Canadian Intensive Condition test), in which the machine takes a 55ml puff of 2 seconds duration, once per minute, until it has been smoked down to a 30mm butt. All cigarettes are smoked in the same manner for this test, regardless of whether they are ‘full strength’, ‘light’ or ‘ultra-light’.

Other more recent developments in measuring smoke constituents have included smoking machines which quantify sidestream smoke yields as well as mainstream smoke yields and testing for a much larger number of specific smoke constituents than ‘tar’, nicotine and carbon monoxide. Where both mainstream and sidestream smoke measurements and smoke constituents other than ‘tar’, nicotine and carbon monoxide are involved, it has become more usual to refer to ‘emissions’ than ‘yields’ but the two terms remain largely interchangeable.

There were a number of assumptions underlying the presentation of standard ISO tar, nicotine and carbon monoxide yield figures as useful risk information for either regulators or consumers. One assumption is that ‘tar’ does not vary significantly in composition. Thus, a milligram of tar from one cigarette will contain roughly the same amounts of carcinogens and cardiovascular/ respiratory toxicants as a milligram of tar from any other cigarette. Given that cigarette smoke contains hundreds or even thousands of carcinogens and cardiovascular/ respiratory toxicants, it is plausible that variation in concentrations of specific harmful substances will occur against a background of similarity and the assumption is legitimate for practical purposes. However, more recent thinking on the possibilities for regulating the harmfulness of cigarettes has questioned this assumption.
is evidence that concentrations in smoke of certain known carcinogens vary substantially between brands. It may follow then, that there are possibilities for reducing the harmfulness of cigarettes by setting limits on the concentrations of particular harmful smoke constituents that are known to be highly variable.

However, the most serious problem with presenting standard ISO yield figures as a means for comparing the relative harmfulness of cigarettes lies with the assumption that individual smokers will always take the same volume of smoke from any cigarette. In fact, the constant for the vast majority of smokers is their target nicotine intake and not the volume of smoke they take from each cigarette.7 Addicted smokers have a target nicotine intake from each cigarette, in order to receive rewarding sensations. The majority of addicted smokers appear to require somewhere between 0.9mg and 1.4mg of nicotine from each cigarette for it to be satisfying.7 Smokers unconsciously change smoking parameters such as puff size and time taken between puffs when they change brands, in order to achieve their target nicotine intakes.7,8 These changes in smoking behaviour are known as compensatory smoking. Whether one looks at individual smokers ‘down-switching’ to brands with lower tar, nicotine and carbon monoxide yields or looks at entire populations of smokers, one finds that, as standard ISO tar and nicotine yields decrease, parameters like puff size and total number of puffs taken per cigarette increase.

The recognition of compensatory smoking set in train the regulatory changes that have seen the end of tar, nicotine and carbon monoxide yield figures being printed on the packs of Australian cigarettes, along with the banning of ‘light’ and ‘mild’ brand variety descriptors.

While standard ISO tar and nicotine yields do not provide a useful guide to smokers’ intakes, they do provide a rough measure of the effort required for any particular smoker to gain her/his target nicotine dose.8 Below certain yield levels, many smokers will find that the effort required to gain their target nicotine dose has become excessive and cigarettes in these yield ranges will no longer be acceptable to them. Accordingly, many heavily addicted smokers are unable to successfully ‘down-switch.’ However, the fact that certain groups of smokers will not accept brands that have tar and nicotine yields below certain levels is an entirely separate matter to smokers being able to reduce their intakes by switching to brands with lower tar, nicotine and carbon monoxide yields. Where smokers have been able to ‘down-switch’ successfully, they almost certainly have not reduced their intakes of nicotine or other harmful smoke constituents. However, there is evidence that a substantial proportion of Australian smokers do not understand compensatory smoking and continue to believe that the cigarette brand varieties which were previously labelled as having lower tar, nicotine and carbon monoxide yields are less harmful.7 The likely reason for the persistence of this belief is that smokers can easily tell that when they smoke brands that previously were labelled as having low tar, nicotine and carbon monoxide yields, the smoke tastes weaker and is less harsh and irritating. However, they cannot easily tell that they are responding to more dilute smoke by taking in larger volumes of it.7 In other words, cigarettes which are manufactured to produce dilute smoke but to facilitate smokers gaining their target nicotine doses provide a compelling illusion of reduced intakes that does not appear to require the support of misleading tar, nicotine and carbon monoxide figures.
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7. Kazowski L and O’Connor R. Cigarette filter ventilation is a defective design because of misleading taste, bigger puffs, and blocked vents. Tobacco Control 2002;11(suppl. 1):i40-i50. Available from: http://tc.bmjournals.com/cgi/content/abstract/11/suppl_1/i40


Labelling of ‘tar’, nicotine and carbon monoxide yields of Australian cigarettes

On-pack labelling of tar and nicotine yields commenced in Australia in 1982 and carbon monoxide yields were included from 1989 onwards. The practice of labelling tar, nicotine and carbon monoxide ‘average smoke contents’ on all Australian cigarette packs ceased in March 2006, following a process of reviewing the evidence, where the Commonwealth determined that the practice of was misleading consumers.

Tar, nicotine and carbon monoxide figures were printed on the side of packs, as is shown in Figure 12.3.1, using one of a number of nominal yield categories (see Table 12.3.1). Between 1994 and 2006, on-pack tar, nicotine and carbon monoxide ‘average smoke contents’ information was mandated by Commonwealth regulations. Prior to that, there had been a number of voluntary agreements between the Australian Government and the tobacco industry on the labelling of smoke constituents, beginning in 1981. Between 1967 and 1994, the Anti-Cancer Council of Victoria and the Commonwealth Department of Health produced ‘tar tables’ to provide ‘smoke contents’ information to smokers. Publication of ‘tar tables’ ceased after the government sold off its cigarette testing machinery and confined its role to inspection of the industry’s internal yield testing programmes.

The original intent of providing tar yield figures was twofold: firstly, to inform smokers about their likely exposures to hazardous smoke constituents and, secondly, to encourage those smokers who were unwilling or unable to quit to switch to less hazardous brands. Later, it was also believed that ‘low tar’ cigarettes would reduce smokers’ exposures to nicotine, thus facilitating future quit attempts. However, insofar as ‘low tar’ cigarettes provided a compelling illusion of reduced intakes, while actually delivering comparable doses of nicotine and other harmful smoke constituents to ‘full flavour’ cigarettes, they were more likely to have diverted smokers from making quit attempts than to have facilitated them.

When on-pack tar and nicotine yield labelling began in 1982, there were four categories of nominal tar yields or ‘tar bands’: ‘4mg or less’, ‘8mg or less’, ‘12mg or less’ and ‘16mg or less’. The Commonwealth planned to phase out the ‘16mg or less’ category but the industry successfully negotiated retaining it. Further, in 1989 and 1990, the industry unilaterally added ‘2mg or less’ and ‘1mg or less’ tar bands. These were subsequently included in the Commonwealth regulations. Later still, the industry added a ‘6mg or less’ tar band for some brand families.

Having the market segmented into ‘tar bands’ enabled the Australian tobacco industry to create a larger variety of ‘light’ and ‘mild’ varieties than has existed in any other country. In other countries, major brand families generally only had ‘regular’, ‘light’ and ‘ultra-light’ varieties. However, in Australia, nearly all major brand families were extended to fill each of the six tar bands, with a complex variety of ‘mild’ or ‘light’ descriptors used to differentiate the varieties verbally and different pack colours frequently used to differentiate them visually. In more recent years, extra nominal tar yield categories, including ‘6mg or less’ and ‘10mg or less’ were used for some brand families.
presumably for the purpose of creating further product differentiation within the most popular ‘middle tar’ yield range.

In 2005 the Australian Competition and Consumer Commission (ACCC) determined that ‘light’ and ‘mild’ labelling of cigarette varieties was misleading conduct and obtained undertakings from two of the three manufacturers (Philip Morris and British American Tobacco) to remove such labelling. The third manufacturer, Imperial Tobacco, was eventually persuaded to do so under threat of litigation. Also, in March 2006, tar, nicotine and carbon monoxide figures were replaced with qualitative information about harmful smoke constituents under new health warnings (see Figure 12.3.2). However, colour-coding of packs and ‘smooth’ and ‘fine’ descriptors continue to be used to identify brand family members with differing taste and harshness characteristics. Further, many smokers are likely to retain some memory of the nominal tar yields of their chosen brands, as for nearly a year after the ACCC’s determination, the new ‘smooth’ and ‘fine’ descriptors appeared together with nominal tar, nicotine and carbon monoxide figures.

Figure 12.3.2
Pre-2006 nominal tar, nicotine and carbon monoxide yield labelling (top) and post-2006 qualitative smoke contents labelling

Figure 12.3.3
Photograph of filter tipping paper showing filter vents
Chapter 12: The construction and labelling of Australian cigarettes

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4. King B and Borland R. What was ‘light’ and ‘mild’ is now ‘smooth’ and ‘fine’: new labelling of Australian cigarettes. Tobacco Control 2005;14(3):214–5. Available from: http://tobaccocontrol.bmj.com/cgi/content/full/14/3/214
General engineering features of Australian cigarettes and their relation to compensatory smoking

Manufactured cigarettes in Australia consist of a rod of cut tobacco and a crimped cellulose acetate filter wrapped in porous paper. At the mouth end of the cigarette there is another layer of non-porous paper, called tipping paper, which is typically around 30mm in length. There may also be various additives used to facilitate manufacture, increase shelf life, improve flavour and aroma and control burn mechanics, nicotine delivery and harshness/irritation.

In about 90% of Australian brands, the tipping paper contains perforations—known as filter ventilation—to dilute the smoke with fresh air when the smoker takes a puff (see Figure 12.4.3). This inconspicuous feature turns out to be highly important for the purpose of creating variety in taste strength and harshness/irritation, and it was also a crucial feature for creating variation in tar, nicotine and carbon monoxide yields during the period when Australian brands carried this information on the packs or it was publicised in ‘tar tables’.

Filter ventilation is the primary means by which the taste strength and harshness of Australian manufactured cigarettes is varied, followed by the use of filters of differing densities and lengths. When filter ventilation level is increased, the density or length of the filter is usually also increased so as to keep the overall draw resistance of the cigarette within the range that smokers prefer. Longer and/or denser filters generally have higher filtration efficiency and the combined effects of increased filtration and increased ventilation are to make the smoke more dilute so it tastes weaker or ‘milder’ and produces less harshness (the immediate burning/scratching sensations in the mouth and throat) and irritation (the lingering tingling sensations in the throat and chest).

Varying filter ventilation levels and filtration efficiencies was also the principal means of varying the standard ISO tar, nicotine and carbon monoxide yield figures of Australian brand varieties prior to the end of yield labelling in March 2006. Where a particular brand ‘family’ had multiple varieties with differing tar, nicotine and carbon monoxide yields, variations in filter ventilation levels and filtration efficiency were the main engineering features used to produce the yield variations.

Filter ventilation and filtration efficiency respectively determine the amount of smoke generated per puff at the burning tip and the proportion of smoke generated which passes through the cigarette filter to be inhaled by a smoker or collected by a smoking machine filter in yield testing. Other means of varying standard ISO tar and nicotine yields include varying tobacco rod length, tobacco rod density, paper porosity and paper additive levels. These latter means are used more to reduce the number of puffs taken by the smoking machine than to reduce the amount of tar and nicotine generated per puff. Varying nicotine levels in tobacco is a potential means of varying nicotine yields and of varying nicotine yields relative to tar yields, although as will be shown below, the available evidence is that low nicotine yield cigarettes do not have low nicotine levels in the unburned tobacco rod.

Prior to the introduction of filter ventilation in Australia some time around 1973, the lowest standard ISO tar yield that was possible for a cigarette that would gain any level of consumer acceptance was around 7mg. The lowest tar yield possible for a cigarette with mass consumer acceptance was approximately 10–12mg. After filter ventilation became a standard feature of Australian cigarettes, it became possible to produce cigarettes with standard ISO tar yields of 1mg, which would be consumed by commercially viable numbers of smokers. By the mid 1990s, ‘8mg or less’ had become the most popular tar yield category in the Australian market and the sales-weighted average tar yield was 6mg.

Filter ventilation is a crucial design feature of ‘low tar’ cigarette brands that facilitate compensatory smoking (which are referred to within the tobacco industry as brands with high ‘delivery elasticity’ or ‘consumer demand responsiveness’). Filter ventilation rewards smokers’ efforts to either gain larger amounts of dilute smoke or to gain more concentrated smoke than is gained when those cigarettes are machine tested using the standard ISO yield test.

If per-puff machine-tested tar and nicotine yields are reduced by increasing filtration efficiency, the cigarettes will have increased draw resistance. This provides a barrier to smokers’ attempts to get more tar and nicotine per puff.
by taking bigger puffs. Eventually the effort of drawing large puffs from high draw resistance cigarettes becomes aversive. However, if per-puff machine tested tar and nicotine yields are reduced by increasing filter ventilation, the cigarettes will have reduced draw resistance. That means it will be easier to take either larger puffs or more rapidly drawn ones (which has the effect of reducing both filtration efficiency and filter ventilation level). However, it is not necessary to take very large puffs to get substantially more smoke from filter ventilated cigarettes. Another common means of compensatory smoking is for smokers to unconsciously block the filter vents with their fingers or lips, thus reducing the amount of fresh air being taken with each puff. Because vent blocking increases smoke concentration, it makes the smoke taste stronger. This suits many smokers who want stronger tasting cigarettes but also prefer to smoke cigarettes that labelled ‘smooth’ or ‘fine’ (or previously were labelled ‘light’ or ‘mild’).

In summary: filter ventilation creates multiple opportunities for compensatory smoking so smokers can learn the compensatory smoking behaviours that best suit them. However, this generally does not occur deliberately. It should be noted that most smokers take large puffs and/or block vents without any awareness that they are doing so. They are usually well aware of the smoke being less irritating and weaker-tasting but unaware of the mechanisms through which those sensations of ‘mildness’ arise. Consequently, many smokers continue to believe the tobacco in ‘smooth’ and ‘fine’ brands is different to that in ‘original’ brands (ie: the strongest tasting brands).
References


4. Kozlowski L and O’Connor R. Cigarette filter ventilation is a defective design because of misleading taste, bigger puffs, and blocked vents. Tobacco Control 2002;11(suppl 1):i40–i50. Available from: http://tc.bmjournals.com/cgi/content/abstract/11/suppl_1/i40
12.5

Comparison of Australian and United States cigarettes

In Table 12.5.1, the Australian cigarette market in 1994 is compared with the US cigarette market in 1993, using data obtained from Philip Morris Cigarette Information Reports. These were the most recent and closest matching years available for comparison using the relevant tobacco industry documents.

There were some marked contrasts between the Australian and US markets in the 1990s, although both Australia and the US had been pioneers of the 'low tar' strategy in the 1960s. The most remarkable difference between the Australian and US markets at this time is the difference in tar and nicotine yields, whether one looks simply at the range of products available (as in Table 12.5.1,) or looks at sales-weighted data. The sales weighted average tar and nicotine yields in Australia in 1994 were 6.8mg and 0.70mg respectively, as compared with 12.6mg and 0.93mg in the US in 1993. Thus, by the mid 1990s, Australia had gone much further down the ‘low tar’ path than had the United States.

During the period in which standard ISO tar, nicotine and carbon monoxide yields were assumed to reflect smokers’ intakes, this would have been seen as a considerable accomplishment for public health in Australia. However, given what is now known about compensatory smoking, it is implausible that Australian smokers would have significantly lower nicotine intakes than US smokers as a result of smoking lower yield cigarettes. Rather, the Australian industry was able to engineer cigarettes with very high delivery-elasticity and then market these brands successfully.

Table 12.5.1, includes a substantial number of 100mm and 120mm U.S. brands, whereas all Australian brands were less than 100mm in length. However, the other Australia–U.S. contrasts seen in Table 12.5.1, all remain when the 100mm and 120mm U.S. brands are excluded.

The picture gained from looking at the contrasts in how Australian and US brands were constructed is consistent with Australian brands being engineered for high elasticity or ‘consumer demand responsiveness’. The very high level of filter ventilation in Australian brands in comparison with US brands is particularly noteworthy. As well as having a much higher average level of filter ventilation at the whole market level, Australian brands at any particular tar yield level had higher average filter ventilation levels than US brands with those tar yields. Australian brands were also markedly lighter in weight than US brands. Australian brands had shorter and lighter weight filters (which is consistent with lower filtration efficiency) and lighter weight tobacco rods. When machine-tested, Australian brands had lower puff counts than the US brands with similar tar yields but higher tar and nicotine per puff. BAT cigarette designer, Werner Schneider, set out precisely these criteria for producing cigarettes with maximum “consumer demand responsiveness.”

### Table 12.5.1
Comparison of performance and construction of Australian and US brands 1993–94

<table>
<thead>
<tr>
<th></th>
<th>Australia 1994 (102 brands)</th>
<th>United States 1993 (204 brands)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tar yield</td>
<td>5.6mg</td>
<td>(1-12.4)</td>
</tr>
<tr>
<td>Nicotine yield</td>
<td>0.59mg</td>
<td>(0.16-1.24)</td>
</tr>
<tr>
<td>CO yield</td>
<td>5.5mg</td>
<td>(1.4-11.2)</td>
</tr>
<tr>
<td>T/N ratio</td>
<td>9.0:1</td>
<td>(5.6-12.4)</td>
</tr>
<tr>
<td>Puff count</td>
<td>6.9</td>
<td>(5.6-8.5)</td>
</tr>
<tr>
<td>Draw resistance</td>
<td>104.1</td>
<td>(55-145)</td>
</tr>
<tr>
<td>Filtration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filter length</td>
<td>22.1mm</td>
<td>(16.9-26)</td>
</tr>
<tr>
<td>Filter weight</td>
<td>110mg</td>
<td>(77-151)</td>
</tr>
<tr>
<td>Filter ventilation</td>
<td>44%</td>
<td>(0-80)</td>
</tr>
<tr>
<td>Tobacco rod</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco weight</td>
<td>546mg</td>
<td>(435-685)</td>
</tr>
<tr>
<td>Nicotine %</td>
<td>2.3</td>
<td>(1.6-2.6)</td>
</tr>
<tr>
<td>Sugars %</td>
<td>9.6</td>
<td>(7-12)</td>
</tr>
<tr>
<td>Expanded stem %</td>
<td>16.1</td>
<td>(10-22)</td>
</tr>
<tr>
<td>Expanded leaf %</td>
<td>21.1</td>
<td>(14-30)</td>
</tr>
<tr>
<td>Reconstituted</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Tobacco %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packing density mg/cm³</td>
<td>201.7</td>
<td>(189-231)</td>
</tr>
</tbody>
</table>

Source: Data from Laffoon and Fenner and Ruff

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Table 12.5.1 is continued on page 16.
References

Comparison of Australian cigarettes in different yield categories

Table 12.6.1. compares Australian brands in the six ‘tar bands’ in 1994. As can be seen, average filter ventilation and average filter weight increase steadily as nominal tar yield decreases. Percent nicotine, estimated total available nicotine and tobacco weight did not vary markedly across the six tar bands. In fact, mean percent nicotine contents were highest in the ‘1mg or less’ and ‘2mg or less’ tar bands. So while reducing nicotine levels in unburned tobacco provides a potential means of reducing nicotine yields, this did not actually occur.

A range of other construction factors that can potentially be used to reduce standard ISO tar and nicotine yields, including the permeability of the paper wrapping the tobacco rod and the density of packing of the tobacco, also did not vary systematically across the “tar bands”. This underscores the importance of filter ventilation within the Australian market for producing variation in taste/ harshness characteristics and tar, nicotine and carbon monoxide yields.

While ‘tar bands’ no longer exist for the labelling of Australian cigarettes, major brand families continue to have six or more varieties, identified by various ‘smooth and fine’ descriptors, as well as colour coding of packs. Whether the specific engineering differences that underlay the brand varieties in 1994 persist in 2007 is a question that deserves to be answered through either research or disclosures by the tobacco industry.

Table 12.6.1
Comparison of Australian brands in the six nominal yield ‘tar bands’ 1994; mean performance and construction figures

<table>
<thead>
<tr>
<th>Nominal tar yield</th>
<th>1mg</th>
<th>2mg</th>
<th>4mg</th>
<th>8mg</th>
<th>12mg</th>
<th>16mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tar yield (CPM), mg</td>
<td>1.29</td>
<td>2.36</td>
<td>3.41</td>
<td>6.4</td>
<td>8.91</td>
<td>10.87</td>
</tr>
<tr>
<td>Nicotine yield, mg</td>
<td>0.19</td>
<td>0.30</td>
<td>0.40</td>
<td>0.68</td>
<td>0.91</td>
<td>1.00</td>
</tr>
<tr>
<td>Carbon monoxide yield, mg</td>
<td>1.81</td>
<td>2.79</td>
<td>3.6</td>
<td>6.2</td>
<td>8.18</td>
<td>9.88</td>
</tr>
<tr>
<td>Filter weight, mg</td>
<td>141</td>
<td>123</td>
<td>119</td>
<td>103</td>
<td>97</td>
<td>92</td>
</tr>
<tr>
<td>Ventilation %</td>
<td>77</td>
<td>69</td>
<td>62</td>
<td>36</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Nicotine %</td>
<td>2.5</td>
<td>2.5</td>
<td>2.3</td>
<td>2.3</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Tobacco weight, mg</td>
<td>523</td>
<td>496</td>
<td>543</td>
<td>549</td>
<td>558</td>
<td>564</td>
</tr>
<tr>
<td>Available nicotine, mg</td>
<td>11.3</td>
<td>10.6</td>
<td>10.7</td>
<td>11.1</td>
<td>11.5</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Source: Data from Ruff (1994)
References

Additives in Australian cigarettes

Cigarette additives have a range of purposes: to facilitate manufacture, increase shelf life, improve flavour and aroma and control burn rates, nicotine delivery and harshness/irritation. The main classes of additives and some examples of each are as follows:

1. **Processing aids** facilitate the manufacture of cigarettes, such as by making cured tobacco less brittle. These include several ammonia compounds, carbon dioxide and ethyl alcohol.

2. **Combustion aids** are used to control the smoking mechanics of cigarettes, such as by controlling the burning properties of cigarette paper. These include ammonium and sodium phosphate and sodium and potassium citrate.

3. **Flavour additives** are used to improve the taste of cigarette smoke, either by introducing pleasant flavour ‘notes’ or masking unpleasant ones. These include liquorice, cocoa, honey, various fruit extracts and various spices.

4. **Humectants** are used to keep tobacco moist and pliable. These include sugars, glycerine and glycol compounds.

5. **Preservatives** prevent mould from growing on tobacco.

6. **Fillers** are chemically inert substances, which are used to increase the bulk of the tobacco rod.

7. **Casings** are substances sprayed on tobacco to improve its smoking quality. These include various sugars, liquorice and cocoa.

8. **Nicotine delivery regulators.** Another reason for using additives is to facilitate the delivery of rewarding doses of nicotine. Ammonia compounds are added to some brands in order to increase the level of unprotonated nicotine in the smoke.

While 1 to 7 are classes of additives that the tobacco industry regularly refers to in its public communications about additives, using additives to regulate nicotine delivery is a matter about which the tobacco industry remains coy. It should also be noted that many additives are used for combinations of the aforementioned purposes. For instance, humectants, such as glycols, function to make tobacco more pliable, to increase the shelf life of cigarettes and to make the smoke taste smoother. They also have the effect of increasing smoke retention and may contribute to smoke particles penetrating deeper into the lungs. Ammonia compounds make reconstituted tobacco sheet more pliable, improve flavour by reacting with various compounds in tobacco to produce a number of pleasant tasting sugars and also increase the level of unprotonated nicotine in the smoke.

Since 2000 there has been a voluntary agreement between the Commonwealth and the tobacco manufacturers for the disclosure of the ingredients of Australian cigarettes. There are composite disclosures of hundreds of ingredients that companies say they potentially use. There are also brand-by-brand disclosures that list the major ingredients in descending order by weight. However, the industry claims that it cannot disclose all of the additives used in particular brands because that would mean giving up trade secrets and losing competitive advantage. Thus, it is not possible for consumers to know all of the ingredients used in each brand or the levels at which they are added.

During the period when ‘low tar’ cigarettes were believed to reduce intakes of harmful smoke constituents, there was a belief within tobacco control circles that additives could help make ‘low tar’ cigarettes more acceptable and thus contribute to reducing smokers’ harmful intakes. After the emergence of the consensus that ‘low tar’ cigarettes do not provide relative health benefits, additives became subject to more critical attention. Advocates of regulation of additives have also argued for an extended concept of harm being used to judge whether specific additives are acceptable or not. Rather than the acceptability of particular additives hinging on whether they directly make cigarette smoke more toxic/carcinogenic, the extended concept of harm also judges specific additives to be unacceptable if they make initiation easier and quitting more difficult.

The tobacco industry claims that all of the potential ingredients in Australian cigarettes are ‘generally regarded as safe’ (or ‘GRAS’) for use as food and beverage ingredients by toxicologists. Consider the following quote from a Philip Morris document for informing the public and policymakers about cigarette additives:
‘Most ingredients added to tobacco are flavourings that are added at very low levels (eg: less than ten ppm). When added at such low levels, these ingredients would not be expected to increase adverse effects over background effects caused by tobacco smoke alone.’ (p6)

‘All of the flavourings added to cigarette tobacco in the United States are approved as food additives by the FDA, or have been given the status Generally Regarded as Safe (‘GRAS’) by the FDA or other expert committees.…

‘All casings or humectants… are permitted for use in food by FDA; although a portion of casings or humectants may pyrolize, many of these same ingredients also pyrolize during the cooking of food.’ p7

This document correctly claims that additives constitute a low proportion of the total weight of a cigarette and thus are unlikely to significantly affect toxicity/ carcinogenicity. Another way of putting this is that the toxins/ carcinogens present in cigarette smoke from burning tobacco swamp those from any other ingredients/ additives in cigarettes. (1) It is also correct that the additives used in cigarettes are overwhelmingly food products or approved food additives and are ‘generally regarded as safe’ for use in food and beverages. However, labeling cigarette ingredients as ‘GRAS’ glosses over the fact that these ingredients are vaporized or combusted and inhaled into the lungs, rather than ingested, as with food and beverages. It also glosses over the fact that these ingredients are generally used to facilitate the delivery of toxic/ carcinogenic and addictive smoke constituents by making cigarettes more attractive. They are generally not used for the purpose of decreasing the delivery of either toxic/ carcinogenic smoke constituents or addictive ones.

Smokers are not well informed that cigarette additives are generally food products, are generally not harmful in their non-combusted states and are unlikely to have substantial effects on the overall toxicity/ carcinogenicity of cigarette smoke. (5) There is a widespread belief among smokers that cigarettes have dangerous chemicals added to them and could be made substantially less harmful if action was taken to prevent the tobacco industry from adding these chemicals. This stems from public confusion over whether harmful chemicals are found in smoke because they are deliberately added by the tobacco industry (which generally speaking is not true) and the harmful chemicals that are found in tobacco smoke because they are inevitably produced by the combustion of tobacco. Carter and Chapman (2006) reported that respondents in focus groups were very surprised to find out what the tobacco industry actually adds to cigarettes and for what purposes. Some respondents were also disbelieving of the information that additives are very ‘ordinary’ substances, like chocolate and sugar, rather than frightening ones, like ‘jet fuel.’ One response to the popular belief that cigarettes deliberately have dangerous chemicals added to them is to seek ‘chemical free’ means of smoking. Many roll-your-own smokers believe that roll-your-own tobacco is more ‘natural’ and does not contain additives like factory-made cigarettes do. They further believe that by virtue of being additive-free, roll-your-own cigarettes are less harmful. (See King 2010, in particular comments section for illustrative smoker responses.) However, these beliefs are not well founded. The available evidence is that roll-your-own tobacco has the same additives that are found in factory made cigarettes and, most importantly, that roll-your-own smokers will expose themselves to the same toxins/ carcinogens that factory-made cigarette smokers are exposed to and at much the same levels when smoking intensity is taken into account. (5)
References


5. Doull J, Frawley J and George W. Ingredients added to tobacco in the manufacture of cigarettes by the six major American cigarette companies. Tobacco Reporter 1994;July 1994


Menthol and confectionery/liqueur flavoured cigarettes

A large proportion of Australian cigarette brands incorporate flavour additives, according to the manufacturers’ ingredients disclosures. In most brands flavour additives have only background effects. That is, the flavour additives are intended to produce only minor changes to the flavour of the cigarette, with the tobacco flavours remaining dominant. However there are two kinds of cigarette where flavour additives are used at much higher levels. These are menthol cigarettes and confectionery/liqueur cigarettes.

Menthol brands are infused with between 16mg and 40mg of menthol (a volatile extract of peppermint) during packaging and it spreads throughout the cigarette. When menthol cigarettes are smoked, the menthol in the tobacco and filter is vaporized and carried with the mainstream smoke, where it blocks irritation receptors and stimulates cold receptors in the mouth and throat, creating sensations of freshness, as well as making the smoke seem smoother. As the menthol taste is relatively persistent, it also blocks the lingering stale after-taste of tobacco, which many smokers find unpleasant, especially younger smokers.

Menthol cigarettes have been around since the 1930s, when they were promoted as a ‘medicinal’ cigarette, useful for being able to continue smoking when one had a cough or cold. In more recent years, advertising for menthol cigarettes has focused on their ‘smoother’/‘fresher’ smoke, although there have still been secondary marketing points concerning implied “healthiness” or reduced harm. Menthol cigarettes have also long been promoted as a ‘feminine’ cigarette within the Australian market. Alpine, manufactured by Philip Morris, was strongly marketed to younger women in particular, prior to the current regime of advertising bans and were also ‘stealth marketed’ to young women at fashion events after the bans were in place.

In the United States, menthol cigarettes have held around a quarter of the total market since 2000. They have even higher shares of the African American and teenage markets. African Americans have higher rates of smoking related disease than other Americans, even though they smoke fewer cigarettes per day on average. There is concern that menthol cigarettes may encourage African American men to smoke very intensively because cues to cease inhaling are blocked by the sensory effects of menthol. In the case of teenagers in the United States, the primary concern is that menthol cigarettes function as ‘starter cigarettes’ – reducing the unpleasant sensations of cigarette smoking sufficiently for teenagers to more easily make the transition for being a ‘starter’ or experimental smoker to being a regular smoker, then going on to have an addiction. The proportion of U.S. teenagers smoking menthol cigarettes has increased in recent years, rising from 37% in 2002 to 44% in 2005. Hersey, Nonnemaker and Homsi (2010) reported that in 2006, 52% of middle school students and 43% of high school students in the United States usually smoked menthol cigarettes, providing further evidence of their role as ‘starter cigarettes.’

In Australia, menthol smoking rates are much lower than in the United States and appear to have declined considerably in recent years. Menthol cigarettes now have around 6% of total market share in Australia and market share is now highest among older women (ITC Australia survey, Wave 7, 2008, unpublished data). It appears that menthol cigarettes used to be much more popular among younger women and girls in Australia and that in the past a sizeable proportion of female adolescents experimenting with menthol cigarettes went on to become lifelong menthol smokers. However, far fewer female adolescents are experimenting with menthol cigarettes nowadays so very few overall make the transition to being long-term menthol smokers. It is plausible that targeted advertising to young women and teenage girls that stressed the ‘feminine-ness’ of menthol brands was necessary to make menthol cigarettes attractive to that section of the market and that increasing advertising restrictions took way a crucial source of appeal. It is also plausible that the spectacular rise of the ‘low tar’ cigarette in Australia provided an alternative ‘smoother’ cigarette that proved more appealing to new generations of ‘starter smokers’ in Australia.

Whereas menthol cigarettes preceded ‘low tar’ cigarettes by several decades, liqueur/confectionery flavoured cigarettes represent a very recent and short-term development in Australia. They first appeared on the Australian market around 2004-5 and were then subject to concerted action by the Commonwealth and State Health Ministers in 2008 when there was strong agreement to ban them.
Some liqueur/confectionery cigarettes are produced in the same manner as menthol cigarettes, with volatile flavour essences diffused throughout the cigarette. Other liqueur/confectionery cigarettes have a flavour pellet embedded in the filter. As smoke is drawn through the filter, the casing of the pellet dissolves and the flavour essences are vaporized into the smokestream. Development of soluble pellet technology may explain the sudden appearance of liqueur/confectionery brands around the world in the few years after 2000.

The sale of fruit and confectionary flavoured cigarettes is now prohibited in South Australia, New South Wales and Tasmania. In Western Australia packages cannot be displayed by retailers if they contain (or have words, pictures or images that suggest they contain) fruit or confectionary flavoured cigarettes. The Victorian Government has announced its intention to provide the Minister with the power to ban youth-orientated tobacco products and packages (including fruit and confectionery flavoured cigarettes) from 1 January 2010. The ban on liqueur/confectionery cigarettes was prompted primarily by the belief that they were a 'youth-oriented' product. Further, like 'low tar' and menthol cigarettes, liqueur/confectionery flavour additives are likely to facilitate initiation among youth by masking the harshness of tobacco smoke in comparison with a 'full-flavour' cigarette.
References


Specific carcinogens and cardiovascular toxicants in Australian cigarettes

As was noted in section 12.3, it has long been assumed for practical purposes that the composition of “tar” does not differ between brands in ways that produce significant differences in smokers’ disease risks. In other words, it has been assumed that probable variations in the constituents of “tar” amount to a zero sum game. However, in recent years there has been increased interest in determining the extent to which different cigarette brands are likely to produce differing exposures to specific carcinogens and cardiovascular/respiratory toxicants. Following findings that emissions of some harmful smoke constituents vary markedly between brands, even after controlling for variation in tar and nicotine yields, there has been renewed interest in the possibility that cigarettes could be made less harmful through selective removal of specific known carcinogens and toxicants. One possible mechanism for achieving this would be to set emission limits for specific harmful smoke constituents, using emissions measures that take compensatory smoking into account.

In 1999, the Australian Government planned to require annual disclosures of the emissions of a group of 40 carcinogens and cardiovascular toxicants for a representative sample of Australian brands, following the lead set by the Province of British Columbia in Canada. The Voluntary Agreement for Disclosure of Ingredients, which eventuated in 2000, did not include recurrent emissions disclosures. However, the industry did agree to a once-off disclosure for a sample of top-selling brands. This occurred in 2001 and included fifteen brands: six brands each for Philip Morris and British American Tobacco Australia and three brands for Imperial Tobacco Australia. This once-off disclosure provides most of what is known about the specific emissions of Australian cigarettes. An analysis of the Australian emissions data in tandem with the British Columbia emissions data from the same year reveals a number of by-manufacturer and by-country differences in emissions.

During lobbying against the proposed annual emissions disclosures, the Managing Director of Imperial Tobacco Australia, Nick Cannar, claimed:

There is considerable evidence in the published scientific literature that the composition of smoke is essentially consistent, i.e. the proportion of each emission per milligram of tar is essentially fixed. In other words, individual brand differences between products of the same tobacco style, (i.e. flue-cured, as in Australia) would have a minimal, if not undetectable, impact on emission data.

As Cannar would have it, flue-cured or Virginia cigarettes may have different emissions patterns to, say, US-blended cigarettes but, within any group of flue-cured cigarettes, there will be no differences in emissions that do not relate directly to tar yields. It would then follow that either tar and nicotine yields are consequential for smokers’ exposures after all or, alternatively, all Virginia cigarette smokers with comparable nicotine intakes gain essentially the same exposures to specific harmful smoke constituents, regardless of the specific brand they smoke.

King, Borland and Fowles attempted to test the veracity of Cannar’s claims. In order to provide the best correction of the data for compensatory smoking and thus the most realistic comparisons possible between the emissions of “regular”, “mild” and “ultra mild” brands, the analyses were conducted using emissions per milligram of nicotine, rather than emissions per cigarette (as the data was presented in the disclosures). King, Borland and Fowles also focussed on the emissions data determined using the ISO intensive condition yield test. This test uses 55ml puffs, taken once every 30 seconds, with the filter ventilation taped over. While this test has the same pitfall as the standard ISO yield test in that it does not take compensatory smoking into account, the size of the puff at the burning cone and the interval between puffs is closer to the actual smoking behaviours of most smokers than the parameters of the standard ISO yield test. By using this test and making the adjustment for nicotine delivery, a reasonable approximation of relative deliveries of specific smoke constituents can be obtained.

Table 12.9.1 presents Australia–Canada comparisons for 13 selected smoke constituents under the ISO intensive testing condition. The Australia–Canada differences in mean levels were statistically significant for 10 of these 13 agents. On these figures, Cannar’s claim would appear to be seriously wide of the mark. Further, while there were no marked by-manufacturer differences for the Canadian brands (all of which used tobacco grown in southern

Table 12.9.1 presents Australia–Canada comparisons for 13 selected smoke constituents under the ISO intensive testing condition. The Australia–Canada differences in mean levels were statistically significant for 10 of these 13 agents. On these figures, Cannar’s claim would appear to be seriously wide of the mark. Further, while there were no marked by-manufacturer differences for the Canadian brands (all of which used tobacco grown in southern
Ontario), there were a number of by-manufacturer differences for the Australian brands. For instance, the British American Tobacco brands had higher adjusted emissions of tobacco specific nitrosamines (NNK and NNN) than the Philip Morris and Imperial brands. However, the Philip Morris and Imperial brands had higher emissions of benzo[a]pyrene (BaP) than the British American Tobacco brands. This may be explained by British American Tobacco brands having higher levels of nitrates in the tobacco, as nitrates “scrub” BaP but react with nicotine and related substances (collectively known as nicotine alkaloids) under combustion to produce tobacco specific nitrosamines.

Differences in the way manufacturers produce their cigarettes thus appear to lead to higher emissions of some agents and lower emissions of others. However, King Borland and Fowles did not find evidence of cigarettes that were likely to have low levels of harmful smoke constituents across the board. King, Borland and Fowles found no brands with below average emissions for all 13 smoke constituents. Thus no brands could be singled out as probably less harmful, even assuming that the measured smoke constituents were the most important ones. Further, given the once-off nature of the Australian disclosure, it is not possible to know the degree to which the emissions of Australian brands vary from year to year.

Future research should make clearer the extent to which levels of toxins/carcinogens in cigarette smoke vary independently of each other and the extent to which they are interrelated (so that reducing the level of one toxin/carcinogen will necessarily result in another increasing). That will strengthen the evidence base for regulatory proposals which aim to reduce the harmful emissions of cigarettes.4

Table 12.9.1
Mean adjusted emissions of 13 selected agents under intensive ISO testing conditions for Australian brands (n=15) and Canadian brands (n=21) tested in 2001

<table>
<thead>
<tr>
<th>Agent</th>
<th>Australia</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-aminobiphenyl (ng/mg)</td>
<td>1.16</td>
<td>0.94*</td>
</tr>
<tr>
<td>Benzo[a]pyrene (ng/mg)</td>
<td>8.85</td>
<td>7.59*</td>
</tr>
<tr>
<td>Acetaldehyde (ug/mg)</td>
<td>549.6</td>
<td>404.0*</td>
</tr>
<tr>
<td>Acrolein (ug/mg)</td>
<td>59.0</td>
<td>54.6</td>
</tr>
<tr>
<td>Hydrogen cyanide (ug/mg)</td>
<td>117.1</td>
<td>96.9*</td>
</tr>
<tr>
<td>Cadmium (ng/mg)</td>
<td>36.5</td>
<td>69.0*</td>
</tr>
<tr>
<td>NNN (ng/mg)</td>
<td>0.8</td>
<td>21.7</td>
</tr>
<tr>
<td>NNK (ng/mg)</td>
<td>27.4</td>
<td>44.4*</td>
</tr>
<tr>
<td>Quinolene (ng/mg)</td>
<td>263.4</td>
<td>269.6</td>
</tr>
<tr>
<td>M+p-cresol (ug/mg)</td>
<td>7.3</td>
<td>8.3*</td>
</tr>
<tr>
<td>1,3-butadiene (ug/mg)</td>
<td>45.2</td>
<td>38.3*</td>
</tr>
<tr>
<td>Acrylonitrile (ug/mg)</td>
<td>8.8</td>
<td>6.9*</td>
</tr>
<tr>
<td>Benzene (ug/mg)</td>
<td>34.4</td>
<td>34.1</td>
</tr>
</tbody>
</table>

NNN = n-nitrosonornicotine
NNK = 4-(N-nitrosomethylamino)-1-(3-pyridyl)-1-butanone
* Difference in means between Australian and Canadian brands statistically significant.
Chapter 12: The construction and labelling of Australian cigarettes

Section: 12.9

References


Introduction and rationale for health warnings

Mandated health warnings on tobacco packaging are a highly cost-effective way to:

- inform consumers about the toxic constituents of tobacco smoke and the health effects of smoking
- provide details of where to go for advice on quitting.

Requiring such warnings on every package ensures that smokers and potential smokers see the warnings every time they are about to purchase a tobacco product, and every time they handle it. A 20-per-day smoker would be exposed to a health warning about 7000 times each year.

Pictorial warnings should allow important information about tobacco products to be conveyed to and understood by children and others with limited literacy.

Experience in designing, evaluating and upgrading consumer product information for tobacco products both in Australia and elsewhere indicates that the content, style and presentation of package warnings can greatly affect how noticeable and how memorable they are, and the extent to which consumers understand, believe and feel empowered to act upon the information they contain.

More and more countries are moving to pictorial warnings, with large and extremely potent images required in an increasing number of jurisdictions. It is expected that this trend will continue as parties to the WHO Framework Convention on Tobacco Control move towards implementation of Article 11.\(^1\)

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A12.1.1

History of health warnings in Australia

In 1969 legislation was introduced enabling a health warning to be required on cigarette packages in Australia. The necessary legislative and regulatory changes at state and territory level however were not implemented for several years, and it was not until 1973 that the simple message ‘Warning—Smoking is a health hazard’ first appeared.\(^1\)

A12.1.1.1

Warnings in force between 1987 and 1994

In May 1985, Australian state health ministers agreed that all jurisdictions would introduce legislation or amend regulations to simultaneously introduce four different warnings to appear with equal frequency on all tobacco packages.

The warnings initially agreed upon were: ‘Smoking kills’, ‘Smoking is addictive’, ‘Smoking causes lung cancer and heart disease’, and ‘Smoking damages your lungs’. The warnings were to take up 20% of the front and back of the pack, and appear in white type on a black background.

The warnings were bitterly resisted by the tobacco industry,\(^2\)\(^,\)\(^3\)\(^,\)\(^4\) prompting the then Federal Minister for Health, Dr Neal Blewett, to state that:

> Ministers have conducted detailed negotiations with the tobacco industry in a sincere effort to reach agreement. Despite our willingness to reach an agreed position, I regret that the industry was unable to make any serious attempt to compromise with Ministers.\(^5\)

As a direct result of industry pressure implementation of the warnings was delayed until late 1987 and the warning statements amended to: ‘Smoking causes lung cancer’, ‘Smoking damages your lungs’, ‘Smoking causes heart disease’ and ‘Smoking reduces your fitness’.\(^i\)

The attribution statement ‘Health Authority Warning’ followed each warning. The warnings were printed in ‘contrasting colours’, selected at the manufacturer’s discretion, on the front and back of the pack and occupied 15% of the total face area of the labelled surfaces. The warnings appeared on cigarette and loose tobacco packages, but not on cigar packages. As part of the agreement with the tobacco industry, health ministers undertook not to seek further amendments for a period of five years.\(^5\)

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Although this did not occur systematically across jurisdictions, the warnings also appeared on print advertisements and billboards, by virtue of a mixture of voluntary agreements and legislation.2

### A12.1.1.2

**Warnings in force between 1995 and 2005**

Regulations for improved health warnings were gazetted in March 1994 and (apart from an extension for imported products under transitional provisions in Part 2) took effect for all tobacco products imported or manufactured in Australia after 1 January 1995 (Part 3, Regulation 7). Packets bearing the new warnings began to appear for sale in retail outlets from about March 1995, although small numbers were apparently available before then. Complete phasing out of sales of packages with the old warnings took at least a year.

The new warnings regimen was based on research done by the Centre for Behavioural Research in Cancer (CBRC) commissioned by a taskforce of officials from the states and the Commonwealth set up by the Ministerial Council on Drug Strategy. Closely following the recommendations of the CBRC report, in April 1992 the Ministerial Council on Drug Strategy agreed to a number of recommendations for new health warnings and contents labelling on tobacco packaging.1 The recommendations included the following 12 health warnings for rotation: ‘Smoking causes lung cancer,’ ‘Smoking causes heart disease,’ ‘Smoking causes emphysema,’ ‘Smoking is a major cause of stroke,’ ‘Smoking causes peripheral vascular disease,’ ‘Smoking reduces your fitness,’ ‘Smoking kills,’ ‘Most smokers develop permanent lung damage,’ ‘Your smoking can harm others,’ ‘Smoking is addictive,’ ‘Stopping smoking reduces your risk of serious disease,’ ‘Smoking in pregnancy can harm the unborn child.’

These warnings were to occupy at least 25% of the front of the pack, and appear on the ‘flip-top’ instead of at the foot of the pack. In addition to the health warning, the whole of the back of the pack was to carry detailed information about the health effects of smoking.

The proposals for strengthened health warnings outlined in the CBRC report to the Ministerial Council on Drug Strategy (MCDS) were strongly supported by the public but once again were vigorously resisted by the Australian tobacco industry.5 Only the Western Australian government proceeded to gazette Regulations to bring these new warnings into effect. Following a change of government, Victorian Government officials decided not to support the proposed new warnings. At a meeting of the MCDS in July 1993, a compromise set of proposals was once again agreed to by all states and territories; it saw six of the proposed 12 rotating warnings dropped, and the size of the back of pack information reduced from the full back of the pack to one-third of this panel.9 However, following the meeting, the Victorian Government changed its position a second time, instead announcing that it intended to adopt an entirely different labelling protocol, based on that used by the European Community (EC). The EC warnings were more explicit than the 1987 Australian warnings, but not as strong as those agreed upon by the MCDS.10

The then federal Minister for Health, the Hon. Senator Graham Richardson, responded by announcing that the Australian Government would ensure that labelling of health warnings was uniform across the country, by introducing Regulations under federal law which would override those of any state or territory.11 The *Trade Practices (Consumer Product Information Standards) (Tobacco) Regulations* were gazetted under the *Trade Practices Act 1974* on 29 March 1994.

The 1995 Regulations required that all cigarette, loose tobacco and cigar packaging (with the exception of cigars sold singly) manufactured from 1 January 1995 had to carry specified health warnings, and that cigarette packaging also had to carry contents labelling. A warning message had to appear on the front of the packaging, with the corresponding explanatory message (providing greater detail) appearing on the back of the pack, and a telephone number for an information service. Each warning and explanatory message was to be followed by the attribution

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2. The results of the public opinion survey were included as a supplement to the CBRC report.
SMOKING CAUSES LUNG CANCER

Tobacco smoke contains many cancer-causing chemicals including tar. When you breathe the smoke in, these chemicals can damage the lungs, and can cause cancer. Lung cancer is the most common cancer caused by smoking. Lung cancer can grow and spread before it is noticed. It can kill rapidly. For more information, call 13 2130.

SMOKING IS ADDICTIVE

Nicotine, a drug in tobacco, makes smokers feel they need to smoke. The more you smoke, the more your body will depend on getting nicotine and you may find yourself hooked. It may be difficult to give up smoking once you are hooked on nicotine. For more information, call 13 2130.

SMOKING KILLS

In Australia, tobacco smoking causes more illness and early death than using any other drug. Tobacco smoking causes more than four times the number of deaths caused by car accidents. For more information, call 13 2130.

SMOKING CAUSES HEART DISEASE

Tobacco smoking is a major cause of heart disease. It can cause blockages in the body’s arteries. These blockages can lead to chest pain and heart attacks. Heart attack is the most common cause of death in Australia. Smokers run a far greater risk of having a heart attack than people who don’t smoke. For more information, call 13 2130.

SMOKING WHEN PREGNANT HARMS YOUR BABY

Poisons in tobacco smoke reach your baby through the bloodstream. If you smoke when you are pregnant, you greatly increase the chance of having a baby of low birthweight. Smoking may lead to serious complications which could harm your baby. For more information, call 13 2130.

YOUR SMOKING CAN HARM OTHERS

Tobacco smoke causes cancer and poisons people. People who breathe in your tobacco smoke can be seriously harmed. Your smoking can increase their risk of lung cancer and heart disease. Children who breathe your smoke may suffer asthma attacks and chest illnesses. For more information, call 13 2130.

Both the warning and the explanatory message had to be printed in black on a white background, within a black border. On a standard cigarette pack, the warning message had to cover at least 25% of the area of the face on which it is printed, and the explanatory message at least 33.3%. Both messages had to be positioned at the top edge of the pack faces, so that the warning message had to appear on the front of the flip-top of packets of cigarettes. The messages had to appear in rotation, so that within the calendar year, each message should appear as nearly as possible on an equal number of retail packages of each brand and variant of tobacco.
The new warning regimen also modified the product yield information (to that time based on a voluntary agreement) to one that gave descriptors of the health effects of the components—see Chapter 12.

The new warnings were found to be effective in improving knowledge and understanding and in eliciting more reactions that are predictive of quitting—see Section A12.1.3 for further details.\[[12,13]\]

### Section: A12.1.1.3

#### Pictorial warnings in force between 2006 and 2012

An evaluation of the 1994 warnings commissioned by the Commonwealth Department of Health and Ageing and conducted in 2000 concluded there was a clear need to enhance both the content and the presentation of consumer information on the retail packaging of tobacco products.\[[14]\] Consumers canvassed in this research agreed that warning labels needed to be upgraded more frequently and should be more tangible and specific to enable smokers to personalise the information presented. Consumers pointed to the need for warnings to be presented in a larger, more prominent font, and for warnings to occupy a greater percentage of the pack size. They agreed that Canadian-style graphic warnings taking up more than two-thirds of the pack would be a natural progression.\[[14]\]

Developmental research conducted in 2003\[[15]\] confirmed the potential for graphic presentation to greatly enhance the effectiveness of consumer information, and guided the choice of messages and the presentation of materials.

The technical advisory group assisting the Commonwealth recommended that the warnings cover 50% of both the front and rear pack faces (as well as removing the yield information, which, it was accepted, was misleading). The then Parliamentary Secretary to the Minister for Health and Ageing, the Hon. Trish Worth, on 1 September 2003 announced the Australian Government’s intention to introduce 14 graphic cigarette packet warnings covering 50% of the front and 50% of the back of packs by July of the following year.\[[16]\] Tobacco industry objections reported in the media included that:

- the timing of implementation was too rapid
- there was no evidence on the effectiveness of warnings
- the new warnings would be anti-competitive and impinge on the ability to communicate brands/trademarks to customers
- people would use cigarette packet covers
- the introduction of the new graphic warnings would foster a black market.\[[16,17]\]

After considering the industry’s objections, the proposed warning were subsequently modified (despite objections by health groups) to cover only 30% of the front and 90% of the back. (One consequence of the enacted model was that the 30% at the front was cut by the edge of the flip-top lid, leaving a couple of per cent below the lid. This space was effectively rendered useless as there was not enough room for any print and it was separated from the rest once the pack had been opened. The proposed introduction date for the new warnings was also put back several months.\[[18]\]

New Regulations were passed in 2004\[[19]\] and applied to almost all tobacco products (cigarettes, loose or pipe tobacco, cigars, bidis and nasal snuff) imported into or manufactured in Australia on or after 1 March 2006 (Part 2, Regulation 7(2)). As occurred in 1995, packets bearing the old warnings were still available for sale many months after this date.\[[20,21]\]

**Figure A12.1.1.4**

Winfield packs showing 9 of the 14* health warnings in force between 1 March 2006 and 30 November 2012.

Source: Quit Victoria collection

* Not shown here: ‘Smoking causes mouth and throat cancer’, ‘Smoking is addictive’, ‘Don’t let children breathe your smoke’, ‘Smoking, a leading cause of death’, ‘Quitting can improve your health’
A12.1.1.3.1

Warnings required on cigarettes and roll-your-own or pipe tobacco

The 2004 Regulations required that cigarette and roll-your-own (loose) or pipe tobacco (except those in small or odd shaped packaging, see Schedule 2, Part 2.1, Items 111 – 113) display a warning message, a corresponding explanatory message and graphic (Part 4, Division 2, Regulation 35A). They specified two rotating sets of seven warnings (set A and set B) and can be viewed at http://www.comlaw.gov.au/Details/F2007C00131/Download (Schedule 2, Part 2.2, Division 2.2.1, items 201–214).

Manufacturers or importers were required to ensure that each warning appeared roughly on an equal number of packages of each different kind of cigarette, loose or pipe tobacco (Part 4 Division 2, Regulation 36-38), with:

- messages in set A appearing exclusively in the eight months from 1 March in a year ending with an even number (Part 4, Division 2, Regulation 36(2)(a)); and
- messages in set B appearing in the eight months from 1 March in every odd year (Part 4, Division 2, Regulation 36(2)(b)); and
- warnings from either set appearing in the transition period from 1 November to the end of February any year (Part 4, Division 2, Regulation 37).

The Regulations specified the size, position and placement of the warning message, corresponding explanatory message, corresponding graphic and the information message for each type of relevant retail package (see Part 2.1 Division 2.1.1 of Schedule 2 in relation to cigarettes and Division 2.1.2 in relation to loose or pipe tobacco). iii

Specifically, the health warning must occupy at least 30% of the front and 90% of the back of cigarette packaging; and 30% of the front and 50% of the back of loose and pipe tobacco packaging. Part 2.3 of Schedule 2 provides diagrams showing required layouts. These diagrams guided suppliers and manufacturers as to where warning messages and graphics should be placed.

Regulation 29 states that if a message or graphic is likely to be obscured by a wrapper on the package, the message or graphic must also appear on the wrapper. The warning messages and graphics must also not be likely to be obliterated, removed or rendered permanently unreadable when the retail package is opened in the usual way.

A12.1.1.3.2

Warnings on cigars

Similar provisions applied for retail packages of cigars, except for single sale cigars that remained exempt from any health warning requirements.

The size, position and placement of warnings for cigars are contained in Division 2.1.3 of Schedule 2. Specifically, the health warnings must cover 25% of the front, and 33% of the back of retail packaging of cigars. iv The warning messages, explanatory messages and graphics are detailed in Division 2.2.3 of Schedule 2; and examples of layouts are in Part 2.4 of Schedule 2.

Each warning message, corresponding explanatory message and corresponding graphic must be rotated on retail packages of cigars so that each message appears, as nearly as is practicable, equally on each brand of cigar over a

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i Regulation 39 defines what amounts to different kinds of cigarettes, loose or pipe tobacco.

ii Different requirements apply for loose or pipe tobacco specified in items 110 to 113 in Schedule 2, which includes tobacco in cylindrical shaped packages or tins with a height of less than 41 mm, rectangle or square tins or packages or other forms not otherwise specified. In these cases the rotation requirements are that each message should roughly appear on an equal number of each type of package of each brand of tobacco in a 24-month period beginning on or after 1 March 2006.

iii Schedule 2 outlines in detail the precise requirements for each kind of retail packaging for cigarettes (flip top packs, soft packs, vertical carton, horizontal cartons, rectangular or square-shaped pack, hexagonal or octagonal prism-shaped packs other than flip top packs, cylindrical packs, other) for loose or pipe tobacco (pouches, cylinders higher than 41 mm, cylinders less than 41 mm, rectangular or square tins or packages, other); cigars (package with hinged lid, flip top pack, rectangular or square-shaped pack or tin the font face of which has a width of at least 61 mm, rectangular or square-shaped pack or tin the font face of which has a width less than 61 mm, cylinders, hexagonal or octagonal prisms and other).

iv Size requirements for health warnings on large retail packages of cigars (‘large’ retail packages of cigars being if the area of the largest face of the package is at least 250cm²) are detailed in Part 4, Division 3, Regulation 43.
24-month period beginning on or after 1 March 2006 (Part 4, Division 3, Regulation 44). They can be viewed at http://www.comlaw.gov.au/Details/F2007C00131/Download (Schedule 2, Part 2.2, Division 2.2.3 items 220 to 224).

A12.1.1.3.3

**Bidis and nasal snuff**


The format requirements for warning messages on retail packages containing bidis are detailed in Part 4, Division 4, Regulation 47.

The warning messages required on retail packaging of nasal snuff can be viewed at http://www.comlaw.gov.au/Details/F2007C00131/Download (Schedule 2, Part 2.8, items 701 and 02):

The format requirements for warnings messages on retail packaging containing nasal snuff are detailed in Part 4, Division 5, Regulation 51.

A12.1.1.3.4

**Information message and Quitline logo**

In addition to the warning message, explanatory message and graphic, an information message and the Quitline logo was required on most retail packages.

The information message replaced the previously required product yield information and was mandated on cigarette packaging and most types of loose and pipe tobacco (Schedule 2, Part 2.1).

The information message required was (Schedule 2, Part 2.5):

The Quitline logo, where required, was overlaid on the graphic.

For cigarette packaging, the Quitline logo was required on the back face.

For other packaging the Quitline logo was required on the face required to display a graphic (Schedule 2, Part 2.1).

The Quitline logo was in the form of (Schedule 2, Part 2.6):

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**Competition and Consumer (Tobacco) Information Standard 2011, commencing 1 January 2012**

A12.1.1.4.1

**The development of a new Information Standard for health warnings, commencing 1 January 2012**

A further comprehensive evaluation of the effectiveness of the 2006 graphic health warnings was commissioned by the Department of Health and Ageing and conducted in 2008. The evaluation found that the 2006 graphic health
warnings had achieved their intended purpose by increasing consumer knowledge of the health effects related to smoking, encouraging cessation of smoking and discouraging smoking uptake or relapse. Areas for improvement were identified including increasing the size of the warning on the front of packaging, updating and refreshing the images and providing information on new diseases linked to smoking. The report also noted calls by public health experts that health warnings should be extended to cover single sale cigars, with 70% of cigar smokers involved in the evaluation indicating they buy cigars as single sale items.

A taskforce was established by the Australian Government in 2008 to examine the evidence and advise the Government about how best to reduce the social costs of diseases caused by tobacco, alcohol and obesity. Among many other topics, the Preventative Health Taskforce revisited the evidence and the status of policy internationally on graphic health warnings for tobacco products. In its final report, the Taskforce indicated that Australia had fallen behind many other countries in terms of the potency of the current health warnings and that the system failed to ensure timely review and updating of health warnings. The report also highlighted an enormous body of new evidence about the health effects of smoking about which smokers were yet to be warned. The Preventative Health Taskforce recommended much larger front-of-pack warnings and a new system allowing more regular review of health warnings to maintain their effectiveness.

On 29 April 2010, the Australian Government announced that it would be moving to update and expand the graphic health warnings on tobacco product packaging as part of a comprehensive suite of reforms being implemented to reduce smoking and its harmful effects. By taking action to update and expand the health warnings on tobacco packaging, the Australian Government was acting consistently with its obligations under the World Health Organization’s Framework Convention on Tobacco Control which came into force for Australia in February 2005. The Convention is an international treaty that provides a global policy framework for Parties to implement strong measures against the death and disease caused by smoking. Article 11 of the WHO Framework Convention on Tobacco Control contains provisions relevant to ‘Packaging and labelling of tobacco products’.

Requirements include that Parties ensure that each package of tobacco products carries health warnings that:

- are in the country’s principal language/s;
- are rotating; large, clear, visible and legible;
- cover 50 per cent or more of the principal display area but no less than 30 per cent;
- may include pictures;
- as well as ensuring packaging is not misleading or likely to create the impression that a particular product is less harmful than another.

Guidelines intended to assist Parties to meet their obligations under Article 11 were adopted by the Conference of the Parties to the WHO Framework Convention on Tobacco Control in 2008. The Guidelines include a number of key recommendations regarding health warning design including that health warnings:

- cover as much of the main display areas as possible;
- be placed on the front and back of packaging recognising that the front is the most visible part of a package;
- be placed at the top rather than the bottom of packaging to increase visibility;
- include both pictures and text because evidence shows they are far more effective than text only warnings;
- cover a range of topics because different warnings resonate with different people; and
- are rotated as messages and changes in layout and design are important to maintain saliency and increase effectiveness.(WHO FCTC, Article 11)

During 2010 and 2011, the Department of Health and Ageing commissioned extensive market research to inform the development of new health warnings. The market research covered potential new images and warning statements, more detailed explanatory messages and a range of information messages that may appear on the side of packs. It also tested different colours and layouts. The testing for the most effective size of the health warnings was undertaken during the same time period under market testing to inform plain packaging for tobacco products.

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The market research indicated that the new health warnings were likely to be effective and differed from the previous warnings in that they covered a broader range of topic areas, provided a mix of different image styles, had a stronger emotional component and a greater emphasis on morbidity, rather than mortality. The research also indicated that the proposed larger size of warnings on the front of packs made the health warnings immediately noticeable and difficult to avoid.\textsuperscript{8}

Prior to finalising the new health warning regime, the Australian Competition and Consumer Commission undertook three public consultations between September 2011 and December 2011.

The Tobacco Labelling (Graphic Health Warnings) Consultation Paper (released 17 September 2011) outlined the proposal for a new Tobacco Labelling Standard for health warnings on tobacco products under the Australian Consumer Law\textsuperscript{28} with opportunity to comment until the 17 October 2011. The draft Information Standard was released for public comment on 26 October 2011\textsuperscript{29} with opportunity to comment until the 8 November 2011. Finally, a revised draft Information Standard was released on 14 November 2011\textsuperscript{30} with the public consultation period closing on the 5 December 2011. The health warnings under the new Information Standard are discussed in the next section, A12.1.1.4.2.

A12.1.1.4.2

Health warnings under the new Information Standard commencing 1 January 2012

Graphic health warnings on tobacco products were updated and expanded under the new Competition and Consumer (Tobacco) Information Standard 2011 (the Standard).\textsuperscript{31} The new Standard was made on 22 December 2011\textsuperscript{31} and commenced on 1 January 2012. The Standard is prescribed under the Australian Consumer Law in Schedule 2 to the \textit{Competition and Consumer Act 2010}.

Similar to the 2004 Regulations, the Standard requires that retail packaging of most tobacco products contain a combination of warning statement, graphic, explanatory message and information message.

Under the Standard, the size of graphic health warnings on most tobacco product packaging increased to 75\% of the front surface. The Standard maintains the size of 90\% of the back surface for cigarette packs and cartons but requires an increase to 75\% of the back surface of most other tobacco products. The Standard provides that no tobacco product in Australia is exempt from displaying health warnings and so from 1 December 2012 cigars sold as single items must also now display warnings. This change ensures that Australian laws are aligned with FCTC Article 11 Guidelines which state that ‘there should be no exemptions for small volume companies or brands or for different types of tobacco products.’ (See WHO FCTC Article 11 Guidelines,\textsuperscript{12} Product Category Considerations, section 46) This means that from 1 December 2012, all tobacco products sold at a retail outlet must be in retail packaging that complies with the Standard. The Australian Government aligned the implementation date of 1 December 2012 for the new Standard with the implementation date for the \textit{Tobacco Plain Packaging Act 2011} to assist manufacturers, importers and retailers in their preparation for both new regimes.

The Information Message, which was previously required to be white text on a black background, must now be black text on a yellow background in line with market research that determined this updated format to be more noticeable.\textsuperscript{25,27,31} The single information message required under the 2004 Regulations has also been replaced with new multiple rotating information messages paired with each of the 14 graphic health warnings for cigarettes and smoked tobacco products (excluding cigars and bidis). As per previously, the Quitline logo must also appear (overlaid on the graphic) on those products that are required to display a graphic.

A12.1.1.4.3

Health warnings required from 1 January 2012 to 1 December 2012

On 1 January 2012 the Competition and Consumer (Tobacco) Information Standard 2011 (the Standard) commenced and a ‘phase-in’ period for the new Standard was permitted.
Suppliers of tobacco products that were required before 1 January 2012 to comply with the 2004 Regulations could choose to comply with the new Standard or with the 2004 Regulations during the period between 1 January 2012 and 30 November 2012 inclusive.

For tobacco products that were not subject to the 2004 Regulations, the product may comply with the Standard at any time on or after 1 January 2012.

A12.1.1.4.4

Health warnings for cigarettes and smoked tobacco products (excluding cigars and bidis)

Parts 3 and 4 of the Standard set out the content of health warnings required for cigarettes and smoked tobacco products not mentioned in other parts of the Standard, namely cigars and bidis. The health warnings required under the Standard for cigarettes and smoked tobacco products are in two rotating sets of seven warnings (i.e. Part 3 and Part 4).

The warning messages, explanatory messages, information messages and graphics specified in Part 3 (items 3.2–3.8) and Part 4 (items 4.2–4.8) of the Standard can be viewed at: http://www.comlaw.gov.au/Details/F2011L02766

A warning statement and graphic must cover 75% of the front of cigarette packs, cigarette cartons and tobacco pouches. The warning statement, graphic and explanatory message must cover 90% of the back of cigarette packs and cartons and 75% of the back of pouches. (Part 9, Division 4)

Rotation requirements for these products are set out in Part 9 Section 9.5 of the Standard.

The first set of warnings in Part 3 are the only health warnings that may be displayed during the period 1 January 2012 and ending 30 November 2013. These health warnings must be displayed with as near as possible to equal frequency during the eight months commencing 1 December 2012 and for the first eight months of each even-numbered year thereafter commencing on 1 December of that year.

The second set of health warnings in Part 4 must be displayed with as near as possible to equal frequency for the eight months commencing 1 December 2013 and for the first eight months of each odd-numbered year thereafter commencing on 1 December of that year.

Other than during the transition period (1 January to 30 November 2012) either set may be displayed from 1 August to 30 November each year. This pattern must continue for the life of the Standard.

Editors note:
An image will be inserted when packs with Part 4 warnings are released, after August 2013.
A12.1.1.4.5

Health warnings for cigars (other than cigar tubes)

Part 5 of the Standard sets out the content of health warnings required for cigar packaging except for cigar tubes, which have different requirements. Cigar packaging requires a warning statement, an explanatory message, and a graphic.

The five warnings for cigars (other than cigar tubes) are detailed in Part 5 (items 5.2–5.6) of the Standard. The warnings can be viewed at: http://www.comlaw.gov.au/Details/F2011L02766

In general, the warning statement and graphic must cover 75% of the front of cigar packaging and a warning statement and explanatory message must cover 75% of the back of cigar packaging. For more detail see Part 9, Division 4, Subdivisions 1 and 2.

The health warnings for cigar packaging (other than cigar tubes) must be displayed in rotation so that they are displayed as nearly as possible on equal numbers of the retail packaging of each kind of product during a specified 24-month period (Part 9, Section 9.6).

A12.1.1.4.6

Health warnings for cigar tubes

Part 6 of the Standard states that the same five warning statements for cigars are required on cigar tubes as text-only warnings with an example that was market tested shown below. The warning statements in Part 6, item 6.2 can be viewed at: http://www.comlaw.gov.au/Details/F2011L02766

The warning statement on the front outer surface of a cigar tube must cover at least 95% of the total length of the tube and extend to at least 60% of the circumference of the tube. For more detail see Part 9, Section 9.16.

The health warnings for cigar tubes must be displayed in rotation so that they are displayed as nearly as possible on equal numbers of the retail packaging of each kind of product during a specified 24-month period. (Part 9, Section 9.7)

A12.1.1.4.7

Health warnings for bidis and smokeless tobacco

Parts 7 & 8 of the Standard set out the content of health warnings for bidis and smokeless tobacco respectively, both of which are required to have warning statements only. The text-only warnings for bidis (Part 7) can be viewed at: http://www.comlaw.gov.au/Details/F2011L02766/Html/Text#_Toc312066582

The warning statement on bidi packaging must measure at least 50mm by 20mm (Part 9, Section 9.17).

The warning statements for smokeless tobacco (Part 8) can be viewed at: http://www.comlaw.gov.au/Details/F2011L02766/Html/Text#_Toc312066582

The warning statement for smokeless tobacco must cover at least 25% of both the front and back of the retail packaging. (Part 9, Section 9.18)
The warnings statements for bidis and smokeless tobacco must be displayed in rotation so that they are displayed as nearly as possible on equal numbers of the relevant retail packaging of each kind of product, during a specified a 24-month period (Part 9, Section 9.7).

A12.1.1.4.8

Quitline logo

As with the 2004 Regulations, the Quitline logo is required on those retail packages that have graphics.

The Quitline logo is in the form of (Part 1, Section 1.3 (6)):

A12.1.1.4.9

Other requirements for health warnings under the new Standard

Health warnings required on cigarette packages and cigarette cartons must be printed on the pack or the carton. Health warnings required on other tobacco packaging may be printed on an adhesive label that is affixed to the retail packaging where the message is required but the label must be fastened firmly and not easily removable (Part 9, Section 9.8).

Transparent wrappers on multiple packaging or single cigars are allowed, however strict guidelines which can be found in Part 9, Section 9.9 governs their use.

Part 9, Division 3 of the Standard specifies the text requirements for the warning statement, explanatory message and information message with details such as the font style, font size and font and background colour.

Part 9, Division 4 of the Standard provides diagrams of how the individual requirements for the health warnings should be set out for different package formats.

A12.1.1.5

A pictorial summary of the history of health warnings over four decades in Australia

Figure A12.1.1.7

The lung cancer health warnings as they have appeared on Winfield Blue From left: a) 1987 to 1994; b) 1995 to 2005; c) 1 March 2006 to 30 November 2012; d) 1 December 2012 onwards

Source: Quit Victoria, 2012
References


2. Chapman S, and Carter SM. ‘Avoid health warnings on all tobacco products for just as long as we can’: a history of Australian tobacco industry efforts to avoid, delay and dilute health warnings on cigarettes. Tobacco Control. 2003;12(suppl. 3):ii13–22. Available from: http://tc.bmjournals.com/cgi/content/abstract/12/suppl_3/ii13


A health warning has been required to appear on the packaging of tobacco products in the US since 1966. By 1991, 77 countries required warnings, with the majority of countries requiring warnings by 1999. However, warnings have varied and still do vary greatly from country to country in both size and potency.

Canada introduced pictorial health warnings in December 2000 (updated from 50 to 75% of the front of the pack in 2011), closely followed by Brazil in 2002.

Since 2004, countries in the 27-member European Union have the option of requiring picture-based warnings, choosing from among 42 picture messages prepared by the European Commission.


Many other countries/jurisdictions have stated that picture warnings are under consideration, including Guyana, Iceland, Ireland, Macao, Portugal, Slovakia, South Africa, Trinidad and Tobago, the US, Vietnam, the Gulf Cooperation Council (GCC: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates and potentially Yemen), and the Caribbean Community (CARICOM, which includes Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago).

China, Indonesia and Russia—three of the biggest tobacco markets in the world—have all yet to take decisive action. Germany is another country where pictorial warnings are yet to be introduced.

Legislation passed in the United States in June 2009 required pictorial health warnings on 50% of the front and back of US cigarette packages within 24 months, in addition to a 15-month implementation window. The Family Smoking Prevention and Tobacco Control Act (Tobacco Control Act) required the Food and Drug Administration to finalise picture health warnings by June, 2011. The new health warnings were to consist of nine full-colour health warnings that cover the top half of the ‘front’ and ‘back’ of cigarette packages to appear on tobacco packages by September 2012. On the 7 November 2011 Judge Richard Leon of the District Court of Columbia granted a motion by major US tobacco companies for a preliminary injunction and ordered that ‘implementation of the graphic image and textual warning requirements published at 76 Fed. Reg. 36,628 (June 22, 2011) and mandated by Section 201(a) of the Tobacco Control Act, and all related requirements, see Act 101(b), 301, 201(a) of the Tobacco Control Act’ be ‘stayed until 15 months after a final ruling from this Court on the Merits of the parties’ claims.’ At 80% of the back and front from March 2008, warnings in Uruguay became the largest anywhere in the world. Philip Morris International filed a claim against the Uruguay regulations in 2010 under the terms of an investment treaty between Switzerland and Uruguay. Strengthened health warnings proposed for introduction in Australia in December 2012 will comprise 75% of the front of the pack and 90% of the back or a total of 82.5% of the principal display areas.

For more detailed and current information on health warnings around the world see:

www.tobaccofreecenter.org/resources/warning_labels
www.who.int/tobacco/healthwarningsdatabase/en/index.html
www.smoke-free.ca/warnings
blogsofbainbridge.typepad.com/warnings/
www.tobaccolabels.org
References

Evidence about the effects of health warnings

There is no doubt that health warnings have fulfilled their primary objective of informing consumers about the health risks of smoking. While health warnings that clearly informed consumers about the risks of smoking without changing the behaviour of a single person could be deemed effective in these terms, there has also been considerable interest as to whether health warnings are associated with changes in attitudes and behaviours that are known to be associated with reduced levels of smoking.

In its comprehensive scientific handbook outlining appropriate methods for the evaluation of tobacco control policies, the International Agency for Research on Cancer discusses the difficulty of assessing the impacts of warnings in the context of multiple sources of influence in knowledge about health risks. It states ‘there are serious problems in attributing changes in national-level trends to changes in health warnings, or any other individual policy measure’. It recommends instead that governments implementing health warnings assess effectiveness by monitoring a variety of measures of noticeability, believability, attention to health risks, comprehension, intention to quit, use of cessation services and perceived helpfulness of warnings in quit attempts—refer Chapter 5.5.

Most of the early population research about the effectiveness of tobacco health warnings introduced in particular countries comes from studies of Australian warnings introduced in 1987 and 1995. Then there were evaluations of Canada’s world first graphic warnings in late 2000, and then numerous studies which have assessed the effects of Australia’s 2006 graphic warnings. Numerous further studies have now been published assessing the effects of warnings in a variety of other jurisdictions. A comprehensive review of evidence published in Tobacco Control in 2011 identified a total of 94 original articles published up to December 2010 on the topic of the effectiveness of health warnings describing 72 quantitative studies, 16 qualitative studies, 5 studies with both quantitative and qualitative components and 1 review article. Research articles came from Canada (n= 35), the US (n= 29), Australia (n=16), the UK (n=13), the Netherlands (n=3), France (n = 3), New Zealand (n=3), the Netherlands (n=3), Brazil (n =2), Malaysia and China (n=1) Belgium (n=1), Norway (n=1) as well as other European countries (n= 10). Analysis of results of surveys comparing impacts of the introduction of different sorts of health warnings at different times in different countries have been particularly valuable in establishing the effectiveness of warnings and the elements and characteristics of warnings likely to be most effective. Since the Hammond review, further studies have been published using data from Germany, China, Germany, a study covering France the UK and the Netherlands, Australia… and in 14 mainly developing Asian and European countries.

Several organisations and international research groups have now summarised the findings of research on health warnings. Hammond’s review builds on a comprehensive assessment of the impact of health warnings internationally released in May 2009 by the International Tobacco Control Policy Evaluation Project (the ITC Project). The Sambrook Research Group summarised the evidence to 2008 in preparation for design of new health warnings in the European Union. The International Union Against Tuberculosis and Lung Disease and Tobacco-Free Union also summarised the evidence to 2009 in a technical guide designed for countries aiming to meet their obligations under the FCTC. This section (A12.1.3) extracts from these reviews the most important findings to date about what is known about the real-world impact of warnings where they have been implemented. Section A12.1.4 outlines what is known (from both international comparative research and focus groups studies) about features of warnings believed to maximise their effectiveness. This includes a detailed discussion of the superiority of graphic over text-based warnings and the role of fear in prompting behaviour changes and the issue of unintended consequences. The results of studies assessing the impact of graphic health warnings introduced in Australia in 2006 are described more fully in Section A12.1.5.

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i Research on the impact in the population of actual package warnings assessed after implementation.

ii These were each counted in the Hammond Review as one study, but recorded in multiple jurisdictions.

iii The ITC Project is an ongoing international study that now covers 19 countries around the world.
A12.1.3.1

**Awareness of health warnings**

As identified by Hammond, at least a dozen studies to December 2010 have documented high levels of awareness for health warnings on tobacco packages. Studies published since 2010 continue to show that introduction of stronger health warnings results in warnings being more frequently noticed and read. More smokers report getting information about the risks of smoking from health warnings than from any other source except TV in a majority of countries (Hammond citing the ITC Evaluation project report).

Hammond’s review has also found that health warnings are a prominent source of health information for young non-smokers and the general public. Non-smokers have high level of recall for specific messages on packs.

A12.1.3.2

**Increase in knowledge about health effects**

Awareness of concepts covered in health warnings has been high in studies following introduction of warnings in Belgium and across seven European countries after 2003. Awareness of conditions covered in health warnings is higher than awareness of conditions not covered at the time by warnings. Smokers have greater knowledge about particular health effects in countries where those health effects are the subject of warnings than in countries where they are not. Introduction of new or strengthened warnings has been shown to have increased knowledge of the subject matter contained in the warnings in Canada, in Australia in 1987, 1995 and 2006, in the UK in 2003 and in France in 2006.

A12.1.3.3

**Increase in thoughts about quitting**

Health warnings can invoke thoughts not just about the harms of smoking but also thoughts about quitting, and they occasionally lead to smokers forgoing cigarettes they would otherwise have smoked. Stronger warnings stimulate more of these reactions, including fear reactions. Some smokers also take steps to avoid stronger warnings, this being more so for graphic than text warnings. In all cases studied, new warnings (strengthened either with increased size and/or use of graphics) have been more effective in stimulating targeted reactions than those they replaced. Some of this effect is due to novelty, but it is clear that objectively stronger messages persistently evoke greater levels of responses than weaker ones.

A12.1.3.4

**Self-reported usefulness in quitting**

Population surveys conducted after the introduction of large text or graphic health warnings suggest that they have been important in assisting smokers to try to smoke less or to try to quit. One-fifth of smokers reported such effects after introduction of enlarged text warnings in the EU from 2001. In countries such as Canada and Australia even higher percentages of people report warnings as having helped them. More than 40% of smokers in one Canadian survey reported that health warnings had motivated them to quit smoking. In response to a Government-sponsored survey in 2008 57% of smokers reported that graphic health warnings had made them think about quitting and 34% reported them having helped them to try to quit.
A12.1.3.5

Documented quit attempts

Data from an Australian study,\(^4\) evaluation of the introduction of graphic warnings in Canada\(^44\) and analysis of data from Australia, Canada, the US and UK in the longitudinal International Tobacco Control cohort study\(^7\) show that behaviours such as noticing cigarette warnings and forgoing cigarettes predict subsequent quitting attempts among individual smokers.

The mission of the International Tobacco Control Policy Evaluation Project (ITC Project) is to measure the psychosocial and behavioural impact of key policies of the Framework Convention on Tobacco Control (FCTC) among adult smokers.\(^26\) Reaction to health warnings in each wave of the study (2002 to 2006) were used to predict quitting in subsequent waves, controlling for country (proxy for warning differences) and other factors.\(^9\) These analyses were replicated on four wave-to-wave transitions. Warning salience, cognitive responses (thoughts of harm and of quitting), forgoing of cigarettes and avoidance of warnings were examined among smokers from Australia, Canada, the United Kingdom and the United States as predictors of quit attempts, and of quitting success among those who tried (one month sustained abstinence), replicated across four wave-to-wave transitions. All four responses to warnings were independently predictive of quitting activity in bivariate analyses. In multivariate analyses, both forgoing cigarettes and cognitive responses to the warnings predicted prospectively making quit attempts in all replications. However, avoiding warnings did not add predictive value consistently, and there was no consistent pattern for warning salience. There were no interactions by country. Some, but not all, of the effects were mediated by quitting intentions. There were no consistent effects on quit success. This study added to the evidence that forgoing cigarettes as a result of noticing warnings and quit-related cognitive reactions to warnings are consistent prospective predictors of making quit attempts.

A12.1.3.3

Effect on use of Quitlines

Introducing graphic cigarette packet warnings and the Quitline number on cigarette packets boosts demand for Quitline services with likely flow on effects to cessation.

In the Netherlands, placement of the national Quitline number on packs with text-based warnings led to a marked increase in numbers of calls.\(^45\) Calls to the Quitline in Australia also increased after introduction of improved consumer product information in 2006, which included a requirement to list the Quitline number.\(^15\) This study shows that even in a ‘mature’ tobacco control environment such as Australia, such an intervention has considerable positive impact on demand for a Quitline, with positive implications for quitting.

After the New Zealand Quitline number was featured prominently on packets, awareness and use of the service increased.\(^46–48\)

A12.1.3.4

Effects of health warnings on young people

Only a small number of studies have examined the effects of the introduction of health warnings on young people.\(^10,11,32,33,49–52\)

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\(^4\) The evaluation framework utilise multiple country controls, a longitudinal design, and a pre-specified, theory-driven conceptual model to test hypotheses about the anticipated effects of specific policies. The ITC Project consists of parallel prospective cohort surveys of representative samples of adult smokers in multiple countries, with further countries being added as the study continues. Collectively, the ITC surveys constitute the first-ever international cohort study of tobacco use. The conceptual model of the ITC Project draws on the psychosocial and health communication literature and assumes that tobacco control policies influence tobacco-related behaviours through a causal chain of psychological events, with some variables more closely related to the policy itself (policy-specific variables) and other variables that are more downstream from the policy, which have been identified by health behaviour and social psychological theories as being important causal precursors of behaviour (psychosocial mediators).\(^26\)
There is good evidence that health warnings on tobacco packaging have influenced young people’s attitudes, intentions and smoking behaviour in the UK, Canada, and Australia.

In a national survey in the UK, 90% of youth non-smokers reported that warnings had 'put them off smoking'. National representative surveys of more than 26,000 respondents from 27 EU member states and Norway found that 3 out of 10 non-smokers reported that health warnings had been effective in discouraging them from smoking. Hammond notes that between one-fifth and two-thirds of youth non-smokers indicated that health warnings had helped prevent them from taking up smoking in Canada and Australia—see Section A12.1.5.1 for further details.

A12.1.3.5
Effectiveness among low-income smokers and other sub-populations

A study conducted as part of the International Tobacco Control Policy Evaluation study examined (i) smokers’ ratings of the health warnings on warning salience, thoughts of harm and quitting and forgoing of cigarettes; (ii) impact of the warnings using a Labels Impact Index (LII), with higher scores signifying greater impact; and (iii) differences on the LII by demographic characteristics and smoking behaviour among smokers exposed to strengthened text warnings introduced in France (2007), Germany (2007), the Netherlands (2008) and the UK (2006). The impact was highest among smokers of low socio-economic status. The EU survey also found that young people and manual workers were slightly more likely to perceive health warnings as effective. See Section A12.1.4 for discussion about benefits of graphic warnings for those with limited levels of literacy. Preliminary evidence suggests that countries with pictorial warnings demonstrate fewer disparities in health knowledge across educational levels.

A12.1.3.6
Evidence of wear-out of health warnings

Australian research shows that the peak levels of response to warnings is in the period immediately after their introduction onto packs, perhaps even before all packs on the market have the warnings. There is some decline in cognitive responses as consumers become used to seeing the images on the packs; warnings appear to lose some, but not all, of their impact with time. This finding is reflected in the results of a population survey of smokers and recent ex-smokers. Among the 23% of smokers and recent ex-smokers who reported in the 2010 National Drugs Strategy Household Survey having attempted to quit or cut down smoking in the previous year, 15.2% mentioned health warnings as being a factor motivating their behaviour. This was down from 19.4% in 2007 (shortly after introduction of the new pictorial health warnings) which in turn was higher than the 16.4% naming health warnings as a motivator in 2004 shortly before the introduction of the new warnings.

Evidence presented to a Canadian Parliamentary committee in 2010 suggested that the effectiveness of the Canadian warnings declined by 30–60% over the seven years to 2009, and that new warning labels were urgently needed to strengthen their influence in helping smokers to quit and preventing new smokers from starting to smoke.

A12.1.3.7
Industry attempts to undermine the effectiveness of health warnings

In 2011, British American Tobacco International released a report claiming that health warnings have had little impact on sales of tobacco products in Australia and elsewhere. This report included an analysis relating...
introduction dates for health warnings to sales of cigarettes in each country. As explained by the International Agency for Research on Cancer\(^1\) immediate changes in behaviour as would be reflected in changes in smoking prevalence or sales are an unrealistic and inappropriate indicator of the effectiveness of health warnings. Opposition to the introduction of improved health warnings by tobacco companies—and attempts to undermine their effectiveness once introduced—suggests that tobacco industry executives believe that warnings can contribute to population changes in the consumption of tobacco products.\(^6\) Despite the requirement for warnings to be rotated with equal frequency, some researchers believe that tobacco companies may be producing a higher proportion of packs using warnings perceived to be less disturbing, with a lower proportion of packs bearing the more hard-hitting warnings. Following the introduction of seven rotating graphic health warnings in New Zealand in 2008, researchers found that tobacco packs identified in a litter-collection study were more likely to carry one of the warnings rated less disturbing (such as a pregnant women with infant or damaged lungs) in preference to the more highly disturbing warnings (such as gangrenous toes, mouth cancer and blindness).\(^6\)

The effectiveness of health warning has also been undermined by promotional stickers\(^3\) and other design features on the packs\(^6\) which are visually distracting.

Several researchers have highlighted the potential of package design to undermine the impact of health warnings. This is one important rationale for calls for plain packaging of tobacco products—see Chapter 11, Section 11.6.3 for full details.
References


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Section: A12.1.3.7

Date of last update: 8 June 2012


abstract


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A12.1.4

What makes an effective health warning?

While the characteristics of effective warnings labels have been extensively studied for many years for hazardous chemical products and for pharmaceuticals, study of the optimal design of warnings for cigarettes and other tobacco products is a relatively young field.

Research on the effects of health warnings on cigarettes can be divided into research on the content of the warnings and research on the form. There is more direct research on form, while much of the knowledge we have about the effects of content is either from analogue studies done when considering which warnings to implement, or from other areas of communication research not specifically related to warnings about tobacco on packs in the marketplace.

A12.1.4.1

What should warnings cover?

To fully inform consumers about the health consequence of smoking, warnings need to cover all the important health risks and give consumers enough information to fully understand all the material issues relevant to those risks. People need to understand not just that risk increases, but also what contracting a disease would mean not just to their longevity but also to the day-to-day quality of their life … not just the risk of contracting a disease but also the lived effects of currently available treatments, and the likely prognosis. Conveying such information is not straight-forward, because smokers bring to the ‘sender–receiver’ relationship a whole host of preconceived knowledge and ideas and self-protective and self-exempting beliefs and reactions.

A review of theories and evidence, largely from social psychology, suggests that warnings are more likely to be effective in increasing understanding of tobacco-related risk if they:

- take into account the relevant attitudes of the consumers who use tobacco products
- combine information that is likely to invoke strong fear responses with information about how risk can be avoided
- convey a sense of the social as well as the physical consequence of negative health effects
- promote discussion about smoking among smokers friends and family
- confront self-exempting beliefs
- are presented in a way that minimises the inevitable process by which repeated exposure gradually diminishes effect.

Health warnings need to

- cover a broad range of health effects
- emphasise morbidity as well as mortality
- cover the same health effect from the points of view of people of different ages and at different stages of smoking uptake and cessation
- use language that is clear, strong and direct
- explain how the effect occurs in concrete terms
- paint a picture of what life would feel like should a disease be contracted
- be frequently rotated and updated to include new images and information that explores different aspects of the particular risk.

A study of textual warnings in Switzerland demonstrated distinct differences in responses in groups of different ages and smoking status depending on the framing of the warning in terms of severity, time horizon and health versus social focus.

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1. A study of textual warnings in Switzerland demonstrated distinct differences in responses in groups of different ages and smoking status depending on the framing of the warning in terms of severity, time horizon and health versus social focus.
Chapter 12: The construction and labelling of Australian cigarettes

What form should warnings take?

Numerous major reports now have been produced in Canada, Australia, Europe, New Zealand, and elsewhere compiling evidence from the rest of the world and conducting studies locally to guide the design of health warnings in each of these jurisdictions. This is a growing field of research, and knowledge is building quickly as to optimal design of warnings. See the University of Waterloo’s Tobacco Labelling Resource Centre for up-to-date information.

Wording matters

Obscure text warnings have little impact. Messages should be short and direct. Messages that depict health risks in a vivid and emotionally arousing manner are likely to be most effective. Analysis of warnings on cigarette packaging in the US indicates that comprehending them requires college-level education, greatly reducing usefulness with young people, less educated people and people with poorer reading skills. Studies by the Centre for Behaviour Research in Cancer in 1992 identified a number of risk-related words that many adolescents poorly understand and that should be avoided in warnings messages. Comprehension and impact of warnings is greatly increased if they are expressed in clear, simple language.

Size matters

Size can refer to the size of the font of the message or the size of any picture or the amount of space given over to the warning. It is likely that all elements of size are important.

Several studies have established that larger font size is more effective than smaller. Eye tracking studies of youth observing cigarette print advertisements in the United States indicated that adolescents paid scant attention to the very small warnings on advertisements required in the mid-1980s. Psychological theory would suggest that smokers would be more likely to recall larger warnings, with bigger warnings associated with greater appreciation and acceptance of risk. Reviews of the evidence report that this has been borne out in experimental studies studying various sizes of warnings prior to the introduction of strengthened health warnings. Post-implementation research also confirms that increased warning size (at least up to 50% of the front surface, the largest warnings implemented that have been so far studied), increases warning effectiveness.

Research undertaken for the Canadian Government to guide the design of new warnings to be implemented in 2012 found that health warnings occupying 75% of the pack were more effective than warnings occupying 50% of the pack in conveying information about the health risks of smoking. The study examined a total of 38 effectiveness indicators, grouped into seven sets:

1. Perceived communication impact (5 indicators)
2. Personal persuasiveness (1)
3. Persuasiveness associated with six social styles of smokers (6)
4. Smoker image (12)
5. Product image (9)
6. Emotional impact (4)
7. Packaging attractiveness (1)

i [http://www.tobaccolabels.ca/](http://www.tobaccolabels.ca/)

ii A series of studies conducted by Environics Research company for the Canadian Cancer Society in June 2006 similarly found that warnings sized at 75% of the front of the pack would be more effective than those sized 50 or 60%
Two sets of indicators were less sensitive to warning size increase: smoker image (personality traits) and product image (cigarette attributes). These image indicators required at least option C (90%) in order to generate significant effects, but these effects remained small even with option D (100%) when contrasted with current scenario A (50%). Findings suggest that while increasing the size of warnings on cigarette packages improves communication impact, increased size is not nearly as effective in negatively affecting the image of smokers or perception of cigarette product attributes.

**Graphic elements matter**

The importance of font size, headings and layout in aiding consumer comprehension for consumer medicines information is well understood.\(^1\)

At least two studies have shown that smokers prefer health warnings to appear in a boxed section.\(^{19,20}\) Research on chemical products indicates that textural warning labels with coloured background were perceived to have more impact than those in black and white.\(^33\) Contrasting colours such as black lettering on a white background are the easiest to read and comprehend on cigarette packets.\(^{12,34}\) The background to text can serve to focus more or less attention on the text compared with the graphic component of health warnings.\(^{16,17}\)

**Placement matters**

Smokers show better recall for warnings that appear on the front, compared with the side of packages.\(^4,12,19,32\)

Few smokers however have reported citing packages as a source of information where warnings appeared on the side of the pack.\(^35,36\)

Research on the Australian graphic warnings, which average more than 50% of the two main sides (30% of the front and 90% of the back), indicates them having weaker effects than the Canadian warnings, which have 50% of both sides dedicated to warnings, suggesting that the back of the pack is less effective than the front, presumably because material on the front is noticed more often.\(^37\) Borland and Lal found that more than 90% of packs displayed in public venues (mainly café tables) were front up.\(^38\) Smokers tend to have the front of the pack facing them rather than the back each time they remove a cigarette for smoking. Experimental work has also shown that the top of the front is likely to have greater impact than the bottom of the front.\(^12\)

A Philip Morris document also highlights the importance of positioning on the front of packages:

> Government required warnings placed on the largest packaging panel, often called the front and/or back, are the biggest marketing threat to all of us in Asia...\(^{39}\)

**Pictures work best**

Health communication theory and practices suggest that health warnings with pictures are more likely to draw attention, result in greater information processing and improve memory for the health message —see references 42 to 50, in the Tobacco Control review.\(^{19}\)

As Hammond highlights\(^29\)

> Experimental research on cigarette warnings has also found that picture-based warnings are more likely to be rated as effective than text-only warnings on a range of outcomes, including as a deterrent for new smokers and as a means to increase cessation among current smokers;\(^29\) citing\(^40–45\)

There is also an increasing body of real-world evidence showing that graphic warnings lead to more frequent and deeper processing of warning information than text-only warnings.\(^{15,46,47}\) Smokers place lower value on cigarettes with graphic health warnings than with text-based warnings.\(^{48,49}\) This is supported by some experimental research comparing warnings of the same size and theme but differing in presentation.\(^{43,44}\)
Focus group research in Australia indicated that smokers were much less likely to be able to avoid the image than the text-based component of the proposed new health warnings.

A study comparing the reactions of Chinese smokers to pictorial warnings compared with the current text-based warnings indicated that smokers were about four-times more likely to report thinking about quitting when confronted with pictorial warnings than with packs bearing the current warnings, and about four times less likely to offer cigarettes to others as gifts if these were packaged with strong health warnings.\(^5\)

Following the introduction of pictorial health warnings in Canada, more than 90% of smokers reported noticing the change. Forty-four per cent of smokers said the new warnings increased their motivation to quit. In a study conducted for the government in Canada,\(^5\) more than one-third of former smokers indicated that warning labels had influenced their decision to quit. In a survey of Canadian ex-smokers who had quit in the three years up to October 2001, those who had quit after the introduction of the health warnings were 2.8 times more likely to cite the warning labels as an influence on their quitting than those who quit before their introduction.\(^5\)

In countries with large pictorial warnings such as Australia, Thailand, and Uruguay, more than 85% of smokers cite packages as a source of health information.\(^23\) Pictorial warnings may be particularly important in communicating health information to people with impaired literacy.\(^5\) It also seems that graphic health warnings have a far greater impact on young people than text-based warnings.\(^5\) Studies of early text-based warnings in the US\(^5\) and Australia\(^6\) indicated limited impact on young people. Studies examining the impact of improved text warnings in the United Kingdom\(^7\) found that these did help to communicate the dangers associated with smoking and prompted a small number of smokers to forgo cigarettes and take action to avoid warnings. However the depth of processing was low and the textual warnings do not appear to be achieving their full potential among young smokers. In Canada by contrast, six years after their introduction, more than 90% of Canadian youth agreed that picture warnings on Canadian packages provide them with ‘important information about the health effects of smoking’ ‘are accurate’ and ‘made smoking seem less attractive’.\(^7\) Graphic warnings in Australia also appear to have had a much more significant impact on young people\(^5\)—see Section A12.1.5.1.

Only three studies identified in the Hammond review failed to find a stronger impact for graphic compared with textual health warnings on cigarettes. An experimental study among German youth failed to detect any significant difference of graphic over the then current EU text warnings.\(^5\) A second study comparing responses among Canadian-born and US-born students to brief portrayals of text versus graphic warnings found that the graphic warnings were more effective only among the Canadian students (who would have been more familiar with this style of warning). The third study failed to detect a difference in speed of response to warnings which, as the authors acknowledge, may in any case not be an appropriate indicator of impact.\(^3\)

**Potential adverse outcomes of graphic health warnings?**

Some researchers have expressed concerns about whether graphic health warnings will assist smokers to sustain quit attempts.\(^6\) However a study of attitudes of US smokers to current US warnings compared with Canadian-style\(^5\) and other graphic health warnings\(^44,43\) have shown stronger negative attitudes to the graphic warnings, without signs of defensive reactions. Greater fear and disgust has been associated with greater likelihood of quitting.\(^62,44,43\) providing strong support for the proposition that graphic warnings should be introduced in the US.\(^43\) Neither does avoiding health warnings predict a lower likelihood of quitting; indeed, there is evidence that it may actually be associated with increased quitting.\(^37,63\)

**Context of the pack matters**

It is now well established that the warnings need to be on a pre-specified background (e.g. white for black text), because otherwise companies can effectively blend the warning into the design of the pack.\(^64\) Smokers recall warnings more effectively on mock packets with a plain background than they do on real, highly stylised cigarette packets.\(^11,65,66,67\) This strongly suggests that plain packaging would increase the effectiveness of health warnings. Plain packaging is discussed at length in Chapter 11, Section 11.6.3.
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A12.1.5

What has been the impact of the 2006 warnings in Australia?

Several studies have examined the impact of the 2006 warnings in Australia. These include: studies of tobacco industry behaviour and media coverage concerning the new health warnings; a study of the impact of the warnings on adolescent smoking-related beliefs and behaviours, a study of changes in awareness of warning-related health effects and motivation to quit among Victorian and South Australian smokers; impact of the effects of the new warnings (which include the quit line number) on use of the Quitline; assessment of the impact of warnings on smokers in the Australian arm of the International Tobacco Control Policy Evaluation study; and a comprehensive set of focus group studies and interviews commissioned by the Australian Government. Findings from each of these studies as well as data on motivators to change smoking behaviour from the National Drug Strategy Household Survey are summarised below.

A12.1.5.1

Miller et al and other implementation studies

Shortly before the implementation date for new graphic health warnings in 2006, one tobacco manufacturer sold products in ‘retro’-tins from which the label could easily be removed. It is unknown how many smokers kept these tins for future use (allowing cigarettes to be stored in cases without the new health warnings).

Miller et al monitored the roll-out of the health policy initiative using multiple methodologies. They observed that plans by government to introduce graphic warnings were delayed up to two years, apparently by heavy industry lobbying. Print media coverage of new pack warnings was observed over three years. Story content was coded as positive (supportive of pack warnings), neutral or negative. Of the 67 media stories, 85% were positive or neutral about the new warnings and 15% were negative. Supportive content presented health benefits. Unsupportive content presented industry arguments. While media coverage of the new warnings reported the industry arguments against them, the balance of coverage was overwhelmingly positive. An observational study of a small random sample of metropolitan stores (n = 16) over seven months measured the pace of the roll-out in shops. After the legislative change, it took two months before any new packs appeared in stores. After six months, the majority carried them. A similar study conducted in 40 shops in Sydney found that in July 2007 (16 months after the introduction date) 70% of shops were still selling tobacco products with the old health warnings. Once new packs were readily available in stores, smokers (n = 152) were intercepted in city streets in Adelaide and asked about their reactions. Newest images had highest recall among smokers. Smokers’ initial reactions were in line with tobacco control objectives. About 60% said new warnings detracted from the look of their brand. About 51% felt the increased risk of dying from smoking-related illness. About 38% felt motivated to quit.

A12.1.5.2

White, Webster and Wakefield study of Victorian adolescents

To assess the impact of the introduction of graphic health warnings among adolescents at various stages of smoking uptake, White, Webster and Wakefield conducted surveys of students at year levels 8 to 12 in greater
metropolitan Melbourne in 2005 (n = 2432) and approximately six months after the introduction of the graphic health warnings in 2006 (n = 2050). At baseline, 72% of students had seen cigarette packs in the previous six months, while at follow-up 77% had seen packs and 88% of these had seen the new warning labels. They found that awareness of smoking as a cause of gangrene and mouth cancer (both not covered before in previous health warnings) increased substantially among students at all stages of smoking uptake. Cognitive processing of warning labels increased, with students more frequently reading, attending to, thinking and talking about warning labels at follow-up. Experimental and established smokers thought about quitting and forgoing cigarettes more at follow-up. At follow-up intention to smoke was lower among those students who had talked about the warning labels and had forgone cigarettes compared with those who had not.

A.12.1.5.3

Brennan et al/Victorian and Miller et al South Australian household survey studies

As described in Section A12.1.2, graphic health warnings for tobacco products sold in Australia were introduced in 2006, covering cigarette packs and their cartons, and packaging for roll-your-own and pipe tobacco. The warnings for cigarette packs were introduced in two stages, with Set A warnings covering gangrene, emphysema, mouth and throat cancer, clogged arteries, illness in children, improvement of health with quitting and scale of deaths (smoking... a leading cause of death) appearing for sale from mid-2006 and Set B warnings appearing for sale from early 2007 and covering lung cancer, heart disease, blindness, stroke, effects on unborn child, addictiveness of smoking and toxicity of tobacco smoke.

Researchers from the Centre for Behavioural Research in Cancer in Victoria undertook series of studies using data collected from the annual surveys of Victorian households to assess the impact of the new health warnings on adult cigarette smokers. In the first pair of studies, researchers compared awareness of those health effects covered in the Set A warnings between 2005 and 2006 among smokers and among smokers who had seen complementary TV advertisements and either had and had prior exposure with the new health warnings concerning gangrene and mouth cancer. The second study compared awareness of Set A with Set B warnings between 2006 and 2007 in Victoria.

In the first study, telephone surveys of two cross-sections of adult smokers measuring changes in top-of-mind awareness of smoking-related health effects from before (2005; n=587) to after (2006; n=583) the pack warnings were introduced, showed that the proportion of smokers aware that gangrene is caused by smoking increased by 11.2 percentage points (OR=23.47, p=0.000), and awareness of the link between smoking and mouth cancer increased by 6.6 percentage points (OR=2.00, p=0.006). In contrast, awareness of throat cancer decreased by 4.3 percentage points, an illness mentioned in the pack warnings but not the advertisements. People who were identified as smokers in the target market for the Government’s advertising campaign (low-SES smokers 18 to 44 years) were interviewed about their cognitive and emotional responses and intentions to quit after they had watched one of the campaign advertisements, comparing outcomes of those with and without prior exposure to the pack warnings. In multivariate analyses, smokers who had prior exposure to the warnings were significantly more likely to report positive responses to the advertisements and stronger post-exposure quitting intentions. Study authors concluded that television advertisements and pictorial health warnings on cigarette packets may operate in a complementary manner to positively influence awareness of the health consequences of smoking and motivation to quit.

The second study showed a significant increase among smokers in the salience of smoking-related illnesses primarily in the Set B warnings between 2006 and 2007.

Lung cancer was the most frequently spontaneously identified smoking related illness (50%), and spontaneous recall of this illness increased from 2006 (42%). Thirty-four per cent of Victorian smokers spontaneously identified heart disease/heart attack as smoking caused illness, which was a trend towards an increase from 2003 (25%). Stroke/vascular disease (Set B) was spontaneously identified as a smoking-related illness by 14% of smokers in 2007 and this was a significant increase from 2006 (8%). Top of mind awareness of eye problems increased significantly among smokers to 8% (from 3% in 2006). Spontaneous recall of pregnancy complications as smoking-
related illness showed a trend towards an increase from 0.3% in 2006 to 2% in 2007. By contrast, smokers showed very low levels of top-of-mind awareness for mouth cancer (12%), throat cancer (11%), and gangrene (6%) which were the subject of the Set A graphic health warnings. The lower levels of awareness of the Set A health warnings following a period of non-exposure suggests that the impact of these warnings on top-of-mind awareness appears to stabilise or dissipate after a period of non-exposure. The one exception was the high proportion of Victorians who accepted the link between passive smoking and a range of illnesses, including asthma (Set A), SIDS (Set A), and pneumonia in children (Set A), which increased significantly between 2006 and 2007. This may in part have been due to the introduction of the smoking bans in hospitality venues and other media or public health activity surrounding this policy initiative.

Miller et al also made use of annual household surveys to evaluate the effects of health warnings in South Australia. Representative samples of South Australian smokers were interviewed in four independent cross-sectional omnibus surveys; in 2005 (n=504), 2006 (n=525), 2007 (n=414) and 2008 (n=464). Unprompted recall of new graphic cigarette warnings was high in the months following their introduction, demonstrating that smokers had been exposed to them. Smokers also demonstrated an increase in awareness about smoking-related diseases specific to the warning messages. Warnings that conveyed new information and had emotive images demonstrated greater impact on recall and smokers’ beliefs than more familiar information and less emotive images.

A12.1.5.4
Miller et al study of impact on Quitline

Miller et al monitored calls to the Australian Quitline over four years, two years before and after the new packets were introduced. They recorded twice as many calls to the Quitline in 2006 (the year of introduction), as there were in each of the preceding two years. The observed increase in calls exceeds that which is explained by the accompanying television advertising alone. While call volume tapered back in 2007, it remained higher than before the introduction of new packets. No change was observed in the proportion of first-time callers.

A12.1.5.5
International Tobacco Control Policy Evaluation study

The impact of the graphic health warnings in Australia was assessed by comparing several indicators of impact among smokers in Australia with those of (i) UK smokers exposed to the larger-than previous text-based warnings introduced in 2003; (ii) and Canadian smokers exposed to graphic warnings introduced in 2000. Indicators measured over the five waves of the surveys (2002 to 2006) were: pack warning salience (reading and noticing); cognitive responses (thoughts of harm and quitting); and two behavioural responses: forgoing cigarettes and avoiding the warnings. All four indicators of impact increased markedly among Australian smokers following the introduction of graphic warnings. Controlling for date of introduction, Australian graphic warnings stimulated more cognitive responses than the UK (text-only) changes, and were avoided more. A further study prospectively examined the impact of health warnings on quitting activity. — See Section A12.1.3 for further details.

A12.1.5.6
Shanahan and Elliot review for the Australian Government

In 2009, a report by Patrick Shanahan and David Elliott prepared on behalf of the Australian Government Department of Health and Ageing was released (‘the Elliott and Shanahan Research report’). The intention of the report was to evaluate the effectiveness of health warnings (both graphic and accompanying explanatory messages) in increasing knowledge of the health effects of smoking, encouraging cessation of smoking and discouraging smoking uptake or relapse. The report also included comparisons with the impact of previous text-only warnings using data collected after the introduction of these warnings in 2006 and documented in Elliot and Shanahan’s report in 2000.
A12.1.5.6.1

Methodology

The research conducted in preparing the Elliott and Shanahan Research report included:

- a literature review of graphic health warnings in Australia and overseas
- qualitative and quantitative research of the effectiveness of graphic health warnings and explanatory messages on tobacco product packaging including:
  - group discussions (with 24 qualitative target audience groups divided into eight groups of committed smokers, six groups of recent quitters, five groups of contemplators and five groups of non-smokers)
  - a national telephone survey (of 1304 individuals)
  - stakeholder interviews (28 key informants from organisations involved in tobacco control).

For further information on the methodology used, see Section 3: Methodology p33–7.

A12.1.5.6.2

Report findings

Awareness of health warnings

Two out of three people involved in the telephone survey were aware of changes to tobacco and cigarette packaging made in the preceding two years. More than one third of adult non-smokers could recall at least one specific warning. Awareness was particularly high among smokers (86%) and recent quitters (80%).

There was a decrease in the number of smokers who were aware of health messages and information on the front (from 98% in 2000 to 91% in 2008) and side (from 67% in 2000 to 46% in 2008) of the cigarette pack. However, there was an increase in the awareness of warnings and information on the back of the pack (from 62% in 2000 to 73% in 2008). A similar pattern was observed with non-smoker groups.

Table A12.1.5.1
Change in readership of front, back and side of Australian cigarette packets, 2008 compared to 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Front Smokers</th>
<th>Front Recent quitters</th>
<th>Back Smokers</th>
<th>Back Recent quitters</th>
<th>Side Smokers</th>
<th>Side Recent quitters</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>93%</td>
<td>92%</td>
<td>57%</td>
<td>45%</td>
<td>58%</td>
<td>47%</td>
</tr>
<tr>
<td>2008</td>
<td>80%</td>
<td>82%</td>
<td>66%</td>
<td>62%</td>
<td>41%</td>
<td>33%</td>
</tr>
<tr>
<td>Change</td>
<td>-13%</td>
<td>-10%</td>
<td>+9%</td>
<td>+17%</td>
<td>-17%</td>
<td>-14%</td>
</tr>
</tbody>
</table>

Source: Elliott and Shanahan Research, 2009

Readership

Readership of health information (text) among smokers and recent quitters is shown in Table A12.1.5.1.

The above table shows that, while readership of the front of the pack was greatest, there was a decrease in readership of the front and side of cigarette packs but an increase in readership of the back. The report notes that this appears to have been influenced by the inclusion of graphic warnings that are more prominent on the back of packs.

For further information on awareness of health warnings, see Section 5.2: Noticeability of Graphic Health Warnings, p60–76.

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i ‘Recent quitters’ stopped smoking in the past 12 months.

ii ‘Contemplators’ refers to smokers who are considering quitting in the next six months and one month. See footnote j of the Executive Summary of the report.
Importance, believability and effectiveness of health warnings

The Elliott and Shanahan Research report demonstrates that there is strong public support for the inclusion of health warnings on packs of tobacco and cigarettes. Seventy-one per cent of individuals who participated in the telephone survey indicated that it was ‘very important’ that health warnings be contained on tobacco and cigarettes with a further 14% stating that it was ‘quite important’.

A significant majority of smokers (92%) and recent quitters (97%) found the health warnings to be believable, particularly those that referred to well-known smoking-related health issues and those that had appeared in anti-smoking television campaigns.

The report concludes that the use of graphic images has effectively increased the impact of public health messages about the health consequences associated with smoking. Those who participated in the telephone interview claimed that the use of graphic images, as opposed to text-only warnings:

- had resulted in improved knowledge of consequences
- would help to prevent people from taking up smoking
- was more effective in helping ex-smokers to stay quit
- helped to deglamourise smoking.

Awareness of the Quitline had improved since 2000, with 63% stating that they were aware that the Quitline telephone number was included on tobacco packs. Five per cent of interviewees said they had called the Quitline.

The report concludes that there have been significant positive movements in attitudes relating to smoking since the introduction of graphic health warnings, including an increase in:

- knowledge of health risks associated with smoking
- concern about the risks of smoking
- the intention to quit.

For further information on importance, believability and effectiveness of health warnings, see Sections 5.3 to 5.8.

Wear out

The Elliott and Shanahan Research report acknowledges that there is some evidence that health warnings can lose their effectiveness once they become familiar.

Plain packaging

A majority of people (57%) agreed with a statement that cigarettes should be sold in plain packs to assist smokers to quit. Smokers acknowledged that the design and colour of cigarette packaging is an attraction to purchase or try a brand. It was also mentioned that pack design negatively impacts on recall of health warnings.

Stakeholder response to graphic health warnings

Stakeholders provided a positive response to the use of graphic health warnings on tobacco packs. Overall, stakeholders perceived that the existing range of graphic health warnings was well balanced and effective but that there were further improvements that could be made including:

- refreshing pack design elements of graphic warnings to improve impact
- developing and maintaining an integrated strategy in relation to graphic health warnings

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i Thirty-eight per cent of smokers and 59% of recent quitters in 2008 compared with 32% of smokers and 28% of recent quitters in 2000.
ii Sixty-three per cent of non-smokers and 54% of long-term ex-smokers in 2008 with 22% of non-smokers stating that graphic warnings have helped them from taking up smoking.
iii Thirty-five per cent of long-term ex-smokers and 55% of recent quitters.
implementing plain packaging.

For further information on stakeholders’ responses, see Section 6: Stakeholder Reactions to Graphic Health Warnings, p165.

A12.1.5.3

Recommendations

The Elliott and Shanahan Research report suggests a number of improvements that were raised by consumers and stakeholders and in other research studies covered in the report’s literature review. These include:

- use clear, well-defined images to reduce confusion in identifying and understanding graphic images
- increase the size of graphic warnings on the front of the pack to improve readership (which had declined since 2000)
- improve readership of the side of pack by simplifying the text and including content such as tips to quit, larger Quitline number and/or simplified ingredients information
- refresh the existing health warnings, introduce new warnings and add new images to existing text warnings to reduce overexposure and ensure the impact of the message is sustained
- ensure that text messages are simple and clear by using non-technical language and choosing appropriate font style and size
- further use of statistics in text warnings to increase the sense of urgency, use pronouns to personalise the messages and introduce messages that relate to social consequences
- align graphic images used on cigarette packs with other media forms such as television campaigns
- use graphic health warnings on other tobacco products such as cigars sold individually and on water pipes
- introduce plain packaging to remove conflict and competition between the pack design and health warnings.

For further information on the suggestions raised in the Elliott and Shanahan Research report, see Section 7.5: Areas for Improvement and Future Consideration, p186.

A.1.5.7

National Drug Strategy Household Survey 2007 and 2010

Among the 23% of smokers and recent ex-smokers who reported in the 2010 National Drug Strategy Household Survey having attempted to quit or cut down smoking in the previous year, 15.2% mentioned health warnings as being a factor motivating their behaviour. This was down from 19.4% in 2007 (shortly after introduction of the new health warnings) which in turn was higher than the 16.4% naming health warnings as a motivator in 2004 which was shortly before the introduction of the new warnings.
A12.1.6

World Health Organization recommendations on health warnings

Article 11 of the WHO Framework Convention on Tobacco Control (WHO FCTC) states:

Each Party shall, within a period of three years after entry into force of this Convention for that Party, adopt and implement, in accordance with its national law, effective measures to ensure that:

... Each unit packet and package of tobacco products and any outside packaging and labelling of such products also carry health warnings describing the harmful effects of tobacco use, and may include other appropriate messages. These warnings and messages: i Shall be approved by the competent national authority; ii shall be rotating; iii shall be large, clear, visible and legible; iv should be 50% or more of the principle display areas but shall be no less than 30% of the principle display areas; v may be in the form of pictures or pictograms.

Australia was the lead facilitating country for the drafting of guidelines to assist parties in meeting their obligations under Article 11 of the WHO FCTC. The draft guidelines for Article 11 were made available on 31 August 2008 and were adopted by Parties to the WHO FCTC at the third session of the Conference of the Parties held in South Africa in November 2008.

The World Health Organization continues to promote health warnings supported by graphic imagery and several research groups and international agencies have produced technical manuals to guide policy-makers wishing to pursue the WHO recommendations.

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Chapter 12: The construction and labelling of Australian cigarettes

Section: A12.1.6

Date of last update: 8 June 2012

References


Public support for health warnings

Large pictorial warnings are credible and have high levels of public support.¹

Warnings have proved popular in Canada,²,³ Thailand⁴ and Australia.¹

A majority of US residents would support the introduction of Canadian-style graphic health warnings on tobacco products in the US.⁴ In Brazil, three months after the introduction of pictorial health warnings in 2002, 73% of smokers approved of them and 67% said the warnings made them want to quit. The impact was especially strong in those with low incomes and education.⁵ Two years after large pictorial warnings were introduced in Uruguay, 62% of adult smokers stated that they would like to see more information about health effects on the packet.⁶ Australian Government evaluation, conducted two years after graphic packet warnings were introduced, reported that 76% of non-smokers, 70% of long-term ex-smokers, 68% of recent quitters and 53% of smokers thought it was ‘very important’ that such warnings were in place.⁷ Supplementary work also found support for inclusion of the Quitline number prominently on packets.¹ Data from the International Tobacco Control Policy Evaluation study in 2007 showed that 62% of Australian smokers thought the amount of information was about right and 25% would like more, leaving only 13% who thought it excessive (Borland 2008, personal communication).
References


Future directions for warnings

It is well established that smokers do not fully understand the breadth or likelihood of smoking-related illnesses\(^3\) and that graphic health warnings help to increase this understanding.\(^3, 4\) New evidence emerges all the time about the health effects of smoking, so there is much yet to be communicated to Australian smokers. For this reason, Australia's Preventative Health Taskforce has called for a new and more responsive system for warning consumers of tobacco products about new and emerging risks. This could occur via cigarette packet warnings but also could include package inserts, warnings on a website or at point of sale or warnings in the media.\(^5, 6\)

In its response to the recommendations of the Preventative Health Taskforce,\(^7\) the Australian Government stated:

"The current graphic health warnings on tobacco packages are being reviewed and upgraded following an evaluation in 2009. Consideration will be given to enlarging the updated warnings alongside the implementation of plain packaging of tobacco products. Current Office of Best Practice Regulation requirements are that regulations of this kind are reviewed every five years. As part of the current review of graphic health warnings, the Government will investigate options for:

- the Chief Medical Officer to trigger an update of health warnings in between should this be indicated by emerging evidence; and
- the Australian National Preventive Health Agency to issue updated fact sheets and other communication materials, with associated media alerts, when new evidence on health impact of smoking emerges."\(^8\)

In the US, the Family Smoking Prevention and Tobacco Control Act of 2009\(^9\) has granted the US Food and Drug Administration (FDA) power to regulate tobacco products, including packaging and labelling regulations. While the provisions of the Act concerning warning labels on cigarettes is now subject to a court order\(^8\) it is interesting that the Act gave discretion to the Secretary of the Department of Health and Human Services to revise the first specified set of warnings if the change would ‘... promote greater public understanding of the risks associated with tobacco products’ (Section 202).

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\(^3\) For further details about administration of the Act, see [http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm168412.htm](http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm168412.htm)
Chapter 12: The construction and labelling of Australian cigarettes

Section: A12.1.8

Date of last update: 8 June 2012

References


Reduced fire risk cigarettes

Nicole Antonopoulos and Indra Haslam, updated by Vicki Tumini

Smoking is the leading cause of residential and total fire deaths in at least eight countries, including Australia. Between June 2000 and June 2006, 8% of deaths caused by fire in Australia were cigarette related. Nearly one-quarter of all fire deaths in Australia in 2004–05 occurred in fires started by cigarettes or matches. The total economic impact of these fires is conservatively estimated at $63 million each year.

Standard cigarettes are manufactured with added ‘burn accelerants’ to ensure that the cigarette will keep on burning once lit. Left to ‘idle’ between puffs, a dropped, forgotten or discarded cigarette can start a fire. Fire cause investigators and other fire industry leaders unanimously supported the introduction of regulations to reduce the fire risk of cigarettes.

Tobacco companies have the technology to manufacture reduced fire risk (RFR) cigarettes and are required to do so by law in Canada and in most states of the US. The European Union issued a standard for RFR cigarettes in November 2010, which member states will be expected to enforce from November 2011. In 2008, the number of deaths from fires caused by lit tobacco products in the US fell to the second lowest level since 1980 following the introduction of RFR laws.

In March 2007, Standards Australia announced the release of an Australian ‘standard for reduced fire risk cigarettes’ (a tool by which to measure the self-extinguishing properties of cigarettes), which it said was now ‘available to State and Federal Governments for inclusion in any future legislation requiring cigarette companies to manufacture reduced fire risk cigarettes.’

The Trade Practices (Consumer Product Safety Standard) (Reduced Fire Risk Cigarettes) Regulations 2008 commenced on 23 September 2008. These regulations mandate reduced fire risk standards for:

- all cigarettes that are manufactured or imported into Australia from 23 March 2010
- all cigarettes, regardless of the date of manufacture or import, from 23 September 2010.

The date by which all cigarettes must comply was reduced by six months (it was originally 23 March 2011) by the commencement of the Trade Practices (Consumer Product Safety Standard) (Reduced Fire Risk Cigarettes) Amendment Regulations 2009 (No. 1) on 14 April 2009 in the wake of the Black Saturday bushfires in Victoria.

For further information on RFR technology and international requirements for RFR cigarettes, see Chapter 10, Section 10.7.9. The international tobacco industry’s response to requests for RFR cigarettes is discussed in Chapter 10, Section 10.21.2.2. Death and injury caused by tobacco caused fires is discussed in Chapter 3, Section 3.19 and their economic impact is discussed in Chapter 17.
References

A12.3

Smokeless tobacco

By Dr Coral Gartner, University of Queensland

A12.3.0

Introduction

There are many different forms of smokeless tobacco, including chewing tobacco, oral snuff and nasal snuff. Non-traditional forms include compressed tobacco lozenges and dissolvable strips. The health risks associated with smokeless tobacco products vary considerably between types of products and within the same class of product.1–3 The smokeless tobacco products that are most relevant to the harm reduction debate are those that have been produced to be relatively low in toxins, such as carcinogenic nitrosamines.1–5

A12.3.1

The ‘Swedish experience’

Sweden has a similar prevalence of tobacco use to its neighbours, but one of the world’s lowest tobacco-attributable mortality rates. Some observers have suggested this phenomenon, known as ‘the Swedish experience’ is explained by the increasing use of smokeless tobacco, a trend that has corresponded with a decline in smoking prevalence, particularly among Swedish men who are the greatest users of smokeless tobacco.6–8 However, this interpretation has been debated.9

The most common form of smokeless tobacco used in Sweden is a moist oral snuff called snus, which is available either as loose tobacco or pre-packaged portions that resemble teabags. Unlike other smokeless tobacco products marketed in the US and other countries, snus is pasteurised rather than fermented and stored under refrigeration to minimise bacterial growth. These processes greatly reduce the formation of nitrosamines, the main carcinogens in tobacco. This, and the absence of the combustion products associated with smoking (e.g. carbon monoxide, small particulate matter) reduces the risks of cardiovascular disease, chronic obstructive pulmonary disease and cancer compared to smoking. Unlike cigarettes, snus does not produce secondhand smoke or carry a risk of causing accidental fires.

Long-term prospective cohort studies have observed a lower risk of many tobacco-related diseases and overall lower mortality in snus users compared to smokers.8,10–13 Snus use appears to carry some residual risks, albeit lower than for smoking, of pancreatic cancer,11,14,15 cardiovascular disease16,17 and possibly diabetes18,19 compared with no tobacco use. Snus use is also associated with dental disease and gum lesions, called leukoplakia, but these appear to disappear on discontinuation of use.20

In Sweden, among people who have ever smoked regularly, those who use snus are more likely to have quit smoking than those who do not.21,22 A similar relationship is also seen in Norway among currently daily and former snus users.23 The Swedish experience has prompted some researchers to suggest that smokers who are unable to quit should use low nitrosamine smokeless tobacco products, such as snus, to reduce tobacco-related harm.24 This proposal is contentious.25–27

Some health professionals do not feel that the existing epidemiological studies showing a lower risk of tobacco-related disease in snus users are sufficient to support snus use as a harm reduction strategy. Others are concerned that the difference in potential harm between snus and smoking has not been fully described in existing studies. Some believe that any health risk from snus, no matter how small, is too great for its use to be encouraged. However, the difference in healthy life expectancy and overall mortality risk between smokers who quit all tobacco and smokers who switch to low nitrosamine smokeless forms appears to be small.21,29 Sweden has also achieved substantial reductions in tobacco-attributable mortality despite a high prevalence of snus use among men.
A12.3.2

Cultural adaptability

Snus has had an extensive traditional use in Sweden, where it was known as ‘the poor man’s luxury’. Whether the Swedish experience would transfer to Australia, which has never had a significant smokeless tobacco tradition, is uncertain. A growing smokeless tobacco market in Australia during the 1980s was halted by the introduction of a commercial sales ban in 1991, but it is unknown whether these products would have become widespread without the ban. A survey of Australian smokers in 2008 found that around half were interested in purchasing low-nitrosamine varieties of smokeless tobacco. However, the survey participants were only provided with pictures and written descriptions of the products rather than samples to try, and most had no previous experience of using smokeless tobacco. In contrast only 13% of smokers in a Californian survey stated they would probably or definitely switch to smokeless tobacco if they thought it was less harmful than smoking.

There are also behavioural aspects of smoking that may not be adequately replaced by snus use. For example, smoking offers something to do with the hands and is easy to do while engaging in other social activities such as drinking and talking. Snus is simply placed under the top lip and left there until it is removed. Talking and drinking while using snus requires more skill than smoking to keep the tobacco portion in place. The small bulge visible in the upper lip during snus use may also lack the supposed glamour of smoking.

A12.3.3

Ethical issues

Low nitrosamine smokeless tobacco products are not harmless and can be as addictive as smoking. Many health professionals feel it is unethical to promote the use of a substance that offers no direct benefit to the user (the indirect benefit is the absence of smoking), is addictive and still carries risks. Proponents of tobacco harm reduction with smokeless tobacco counter that it is unethical to deny smokers access to products with substantially lower risks than smoking and to deny them accurate information about the benefits of switching to them, particularly as cigarettes, the most harmful tobacco product, are readily available.

Opponents argue that quitting all tobacco use is the only health advice that doesn’t carry any risk. Proponents argue that many smokers fail to follow this advice and that ‘quit’ or ‘keep smoking’, sometimes described as ‘quit or die’, should not be the only options available. While it is debatable whether health professionals should recommend low nitrosamine smokeless tobacco products to smokers, it is arguably unethical to provide inaccurate information about the relative harms of these products and cigarettes due to the mistrust such misinformation can create.

The lower harmfulness of low nitrosamine smokeless tobacco compared with cigarettes is likely to be an important motivator for smokers to switch products. For example, in a survey of Australian smokeless tobacco users, just over half stated they used smokeless tobacco because it was less harmful than smoking and users of non-cigarette tobacco products are more likely to believe they are less harmful than cigarettes than non-users. Surveys of smokers in Australia, Canada, the UK and the US suggest that few smokers believe that smokeless tobacco is less harmful than cigarettes. Misperceptions about the relative harmfulness of smokeless tobacco products compared with cigarettes could be an important barrier to smokers switching to these less-harmful products. The challenge is avoiding messages that products like snus are ‘less harmful’ being misinterpreted as meaning that they are ‘harmless’.

A12.3.4

Individual and population level harm

Using low nitrosamine smokeless tobacco products may reduce tobacco-related disease in individual smokers who make the switch, but widespread use could still result in population level harm in a number of ways. Firstly, if these products proved more popular among non-smokers than smokers, then overall harm could increase.
Secondly, their promotion could keep current smokers smoking (instead of quitting) or lead some non-smokers to commence smoking. This is the most likely way in which smokeless tobacco promotion could produce population harm because the large difference in health risk between smoking and low nitrosamine smokeless tobacco use means that a very large number of non-smokers need to use these products to offset the health gain achieved from a smoker switching to them.\textsuperscript{2,5,26} In Sweden, snus use very rarely leads to smoking in non-smokers.\textsuperscript{7} It is unknown whether similar patterns of use would occur in Australia.

Tobacco manufacturers have argued that they should be able to market and promote reduced harm smokeless tobacco products in order to inform smokers of the benefits of switching. This is an important issue because if these products are to have a population level benefit, a sufficient number of smokers need to make the switch. However, promotion of smokeless tobacco via tobacco industry advertising may increase overall tobacco use, possibly including smoking among current non-smokers. Some cigarette manufacturers have also produced ‘snus versions’ of their most popular brands of cigarettes.\textsuperscript{43} How to allow these products to be promoted for tobacco harm reduction without allowing the promotion of the corresponding cigarette brand would be a challenge.

In countries where tobacco advertising is allowed, cigarette manufacturers have promoted dual use of smokeless and smoked tobacco products as a way to get around public smoking bans.\textsuperscript{44} Such ‘dual use’ could reduce or even negate any health benefit from snus use by deterring quitting. Public smoking bans not only protect non-smokers from environmental tobacco smoke, but have the added benefit of encouraging smokers to quit due to the inconvenience these bans produce. Some of these quitters may therefore be encouraged to keep smoking as they can get through the inconvenient times with a short-term alternative.\textsuperscript{45}

In Norway, while current daily or former snus use is associated with quitting smoking, current occasional snus use is not.\textsuperscript{23} This may be evidence of a pattern of dual use that deters quitting smoking. Alternatively, these dual users may be in a process of gradually moving from one product to another or of quitting all tobacco use. In the US and Sweden, dual use of smoked and smokeless tobacco is uncommon and does not appear to be a stable pattern of tobacco use.\textsuperscript{46,47} Some harm reduction advocates have suggested that dual use is not necessarily a negative if it encourages smokers to try smokeless tobacco and leads to some switching completely. Whether this is a likely outcome remains to be seen. Clearly, addressing the need to inform inveterate smokers of the benefits of switching to low nitrosamine smokeless tobacco without deterring would-be quitters or encouraging smoking in non-smokers requires careful regulation of information to avoid these potential negative consequences.

### A12.3.5

**An unnecessary distraction?**

Some tobacco control professionals view tobacco harm reduction with smokeless tobacco as a distraction from the main task of encouraging smokers to quit tobacco use and discouraging uptake.\textsuperscript{25} Tobacco smoking, they point out, has declined in Australia without these products. Supporters of harm reduction argue that it offers an additional strategy that may hasten the decline in smoking and may reach those smokers who have been resistant to traditional tobacco control strategies or have been unable to quit tobacco use despite repeated efforts.\textsuperscript{31,48}

### A12.3.6

**What about ‘clean’ forms of nicotine?**

Nicotine replacement therapy (NRT) products, such as gum, lozenges or inhalers, have also been suggested as a long-term alternative to smoking. Because these present lower risk than smokeless tobacco, it has been argued that there is no need for smokeless tobacco products as a harm reduction alternative.

This argument ignores the possibility that smokeless tobacco may be more attractive to smokers than NRT. Smokeless tobacco is a purely recreational tobacco product that can deliver nicotine in similar amounts to the user as smoking. It may, therefore, be a better substitute for cigarettes for smokers who want to continue using tobacco recreationally. NRT is also primarily marketed as a medicine for short-term assistance during cessation. Currently available NRT products are low dose, which prevents them from providing a sufficient ‘buzz’ for smokers...
who want to use nicotine recreationally. Higher dose, recreational, ‘clean’ nicotine products face substantial regulatory barriers because of their addictiveness. Australia’s drugs and poisons regulatory system also does not provide for nicotine to be sold for recreational use, unless it is contained within tobacco intended for smoking. Pharmaceutical companies, who manufacture NRT, are unlikely to see the marketing of a recreational, addictive product as their core business. Pharmaceutical companies may also be concerned that long-term use of high-dose nicotine products may carry a higher health risk than short-term use of low-dose NRT, which has been established as safe.

In Sweden and Norway, snus is a more popular smoking cessation aid than NRT gum or patches and smokers who use snus are more likely to quit than smokers who use NRT. Among the possible reasons for this greater popularity and higher success rate are the social acceptance of snus use in Sweden, its lower cost (before 2007, snus was taxed at a lower rate than cigarettes), the higher nicotine delivery from snus compared to NRT, and possibly longer use of snus after quitting compared with NRT. Using NRT to quit smoking may also be stigmatised by some smokers who see the use of a medication to quit as a sign of drug addiction. Snus, which is not a medication, may be seen as a ‘smarter choice’ rather than a sign of weakness. As uptake of NRT in Australia remains relatively low, a product that may be more attractive to smokers and more effective, even if marginally riskier, could increase the number of quitters and therefore produce a greater population level benefit.

Smokeless tobacco products appear to be less effective at reducing abstinence symptoms than cigarettes. However, some small-scale trials suggest that smokers may prefer moist oral snuff over NRT and that snuff reduces cigarette cravings more than NRT. There is also some evidence from population surveys that switching to smokeless tobacco may be more effective than using NRT. There is little evidence from clinical trials available. A small trial found that smokers who were given smokeless tobacco products reduced their cigarette intake and increased their interest in quitting smoking compared with those who were not given these products. A survey of Australian smokers assessed the potential impact of making low nitrosamine smokeless tobacco available at a lower cost than cigarettes by asking the smokers what they would do (continue smoking, quit or switch to smokeless tobacco) under different policy scenarios. The option of purchasing smokeless tobacco at a lower cost than cigarettes combined with a substantial price increase on cigarettes resulted in more smokers stating they would stop smoking than if the price increase was not combined with availability of smokeless tobacco. The option of switching to smokeless tobacco appeared most attractive to those who were resistant to quitting rather than those who indicated they would quit with just a price increase alone. These results suggest that a lower tax on smokeless tobacco compared with smoked tobacco could produce a greater reduction in the number of smokers than simply increasing cigarette taxes. Similarly, a Californian survey found that smokers with greater intentions of quitting were less likely to be interested in switching to smokeless tobacco, but smokers who were trying to cut down their cigarette intake and smokers who had made unsuccessful quit attempts were more likely to be interested in switching to smokeless tobacco. However, larger trials are needed to confirm these survey and pilot study results and to determine whether the option of using smokeless tobacco translates to fewer smokers without detrimental effects on quitting.

A12.3.7

Can Australian smokers legally access smokeless tobacco for harm reduction?

Current federal legislation prohibits the commercial sale of smokeless tobacco within Australia. Importation for personal use is permitted. This regulatory situation allows for current users and smokers to access smokeless tobacco products while deterring non-tobacco users (particularly youth) from commencing. Importers face delays between ordering and receiving their smokeless tobacco products due to shipping and variable processing times by the Australian Customs and Border Protection Service. They must also pay tobacco duty on their products before they can be collected. Restrictions on posting of tobacco products through the US Postal Service since 2010 have further reduced access. Compared with the convenience of purchasing cigarettes, these barriers mean that only highly motivated users are likely to import these products. Some researchers have suggested that for low nitrosamine smokeless tobacco to be a realistic harm reduction option for most Australian smokers, restricted domestic sales would need to be allowed to recommence.
What should the public health response be?

The epidemiological evidence and the Swedish experience suggest that low nitrosamine smokeless tobacco may be an important tobacco harm reduction opportunity. With uncertainty around its potential effect on other tobacco control policies, most Australian commentators have been cautious about such proposals.
References


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Chapter 12: The construction and labelling of Australian cigarettes

Section: A12.3.8


